DETERMINANTS OF INTEREST RATE SPREAD AMONG COMMERCIAL BANKS OF KENYA

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Determinants of interest rate spread among commercial banks of Kenya

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

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DEDICATION

My dedication for this research project goes to my husband John Gitonga and daughter Grace Wendo for their support and patience, while writing this thesis, without whom, the journey would have been too long.

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ABBREVIATIONS AND ACCRONYMS

CBK	Central Bank of Kenya
CBR	Central Bank Rate
ECM	Error Correction Model
FSR	Financial Stability Review
GDP	Gross Domestic Product.
IBM	International Business Machine
ICT	Information and communication technology
IRS	Interest Rate Spread
LDCs	Least Developed Countries
NBK	National Bank of Kenya
NPA	Non- Performing Assets
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squares
PMI	Policies, Methodologies and Infrastructure
ROA	Return on assets
SSA	Sub- Saharan African
US	United States
VIF	Variance Inflation Factor

DEFINITIONS OF KEY TERMS

Central Bank Rate (CBR): This is the rate of interest that the CBK charges on loans to commercial banks. It is reviewed and announced by the Monetary Policy Committee at least every two months as part of its decisions (Central Bank of Kenya, 2010).

Corporate Lending Products: These are loans to institutions rather than individuals (Central Bank of Kenya, 2010).

Country Risk: The risk of investing in a country, dependent on changes in the business environment that may adversely affect operating profits or the value of assets in a specific country (Central Bank of Kenya, 2011).

Credit Risk: Credit risk is the risk of loss due to a debtor's non-payment of a loan or other line of credit (either the principal or interest (coupon) or both). This is proxied by the ratio of gross non-performing loans to the total loans (Central Bank of Kenya, 2011).

Economic Growth: Is the rate of change in some measure of aggregate income on per capita basis (Central Bank of Kenya, 2011).

Gross Domestic Product: Total market value of goods and services produced within the borders of a country within a given year (Central Bank of Kenya, 2013).

Interest Rate Risk: The risk (variability in value) borne by an interest-bearing asset, such as a loan or a bond, due to variability of interest rate (Central Bank of Kenya, 2012).

Inflation: This is a rise in the general level of prices of goods and services in an economy over a period of time. This means that each unit of currency buys fewer goods and services. Consequently, inflation leads to the erosion in the purchasing power of money which is a loss of real value in the money in the economy(Central Bank of Kenya, 2014).

Interest Rate Spread: Interest rate spread is the difference between what a bank earns on its assets and what it pays on its liabilities (Ngugi, 2001).

Information and Communication Technologies (ICT): Are tools that facilitate the production, transmission, and processing of information (Central Bank of Kenya, 2011).

Inflation rate: This is an annualized percentage change in a general price index. The price index used is normally the Consumer Price Index (Central Bank of Kenya, 2013).

Liquidity Risk: The risk that a given security or asset cannot be traded quickly enough in the market to prevent a loss (or make the required profit)(Central Bank of Kenya, 2013).

Markets structure: The characteristics of a market that affect the nature of competition and pricing. The most important features of market structure are; the number of firms, the market share of the largest firms, the nature of costs, the degree to which the industry is vertically integrated, the extent of product differentiation, the structure of buyers in the industry and the turnover of customers (Ngugi, 2001).

Operating costs are the day-to-day expenses incurred in running a business, such as sales and administration. They are also called operating expenses. Operating costs include both fixed costs and variable costs. Fixed costs, such as overhead, remain the same regardless of the number of products produced; variable costs, such as materials

can vary according to how much product is produced or how much work is done (Central Bank of Kenya, 2010).

Ownership structure is the distribution of equity with regard to capital but also by the identity of the equity owners (Hamid, 2011).

Reserve Requirements: The amounts that banks are required to keep on deposit at the Central Bank based on the Cash Ratio Requirements (Central Bank of Kenya, 2010).

Retail Lending Products: These are loans to individuals rather than institutions (Central Bank of Kenya, 2010).

ABSTRACT

The increase in interest spread discourages savings and investments on one hand, and raises concerns on the effectiveness of bank lending channel of monetary policy on the other. An increase in the interest spread implies that either the depositor or the borrower or both stand to lose. This study aimed at establishing the determinants of interest rate spread among commercial banks in Kenya. Among the many determinants of interest rate spread, this study hypothesised that inflation, operating costs, market structure, ownership structure and business risks affect the behavior of commercial banks in Kenya while setting interest rate. Other studies done in this area have mainly concentrated on the impact of interest rate spread on investment opportunities while this study focused on the determinants or the raisen de'etre of high interest rate spread in Kenya. The study used both secondary and primary data. The target population of this study was all employees at management and supervisory levels of the 44 commercial banks licensed by the Central Bank of Kenya and were in operation as on 31st December 2012. The total population as at 31st December 2012 was 13924 units. The sample size of 384 respondents was drawn from the population using a formula recommended by Mugenda and Mugenda when the population is over 10000 units. This study used stratified random sampling and simple random sampling. The strata were those of management and supervisory cadre. Questionnaires were used to collect primary data while secondary and quantitative data was collected from the statistical abstracts and bulletins of both the Central Bank of Kenya and the Kenya National Bureau of statistics. Cronhbach's Alpha reliabity test and factor analysis were carried out inorder to test the goodness of the research instrument. Multiple linear regression was used to analyze data to produce descriptive and inferential statistics. Content analysis was used to operationalize qualitative data and eventually was analyzed using statistical methods for inferential conclusions. F-test was used to test the significance of the overall model

while significance of each specific variable was tested using T- test. Based on the research findings, it can be concluded thatownership structure,market structure and business risks play significant role in explaining interest rate spread. The study recommends that the government and policy makers should implement sustainable political and macroeconomic environment to boost investors' confidence in the banking sector which would go a long way in reducing interest rate spread. This study did not include all determinants of IRS and a further study is recommended to include other factors such as effects of information and communication technology on interest rate spread.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Interest rate is the priceborrowers' pays for the use of money they borrow from a lender/financial institutions or fee paid on borrowed assets (Crowley, 2007). According to Kithinji and Waweru (2007) interest can be thought of as "rent of money." Interest rate as a price of money reflects market information regarding expected change in the purchasing power of money or future inflation (Ngugi, 2001).

Sologoub (2006) highlights that high interest rate is indicative of inefficiency in the banking sectors of developing countries, as it is now widely acknowledged that interest rate spreads are an adequate measure of bank intermediation efficiency. The difference between lending and deposit interest rates, known as the interest rate spread (IRS), is an important determinant of the efficacy of the financial system in a country (Hassan and Khan, 2010). Alternatively, a high interest rate spread could mean unusually low deposit rates discouraging savings and limiting resources available to finance bank credit (Mustafa & Sayera, 2009).

Sologoub (2006) further indicates that efficient financial intermediation is an important factor in economic development process as it has implication for effective mobilization of investible resources. A wide deposit-lending rate margin is not only indicative of banking sector inefficiency; it also reflects the level of development of the financial sector (State Bank of Pakistan, 2006).Proponents of financial market liberalization have argued that increased presence of foreign banks in developing countries would reduce

the cost of financial intermediation, increase the availability of credit and foster financial development(Crowley, 2007).

A large body of empirical literature, however, finds evidence that increased foreign bank participation is associated with weak financial development, higher interest rate spreads and lowers levels of credit to the private sector (Ngugi, 2001;Ross, 1976a; Tannant and Folawewo,2008). The studies largely rely on different variations of cherry-picking models to explain why foreign bank presence does not necessarily increase availability of credit or promote financial development (Hassan & Khan, 2010).

1.1.1 Interest rate spread

Interest rate can be decomposed into different components. Banks charge higher interest rates to riskier borrowers in anticipation of defaults, and so interest rate therefore account for loan loss provisions in the decomposition. Interest rate also account for overhead costs, taxes, and required reserves, all the above are factors that contribute to higher spreads (Hamid, 2011). The overhead costs are those attributable to loans, which we identify by calculating the share of loan interest revenue in total revenue. Profit margin is a residual after adjusting for loan loss provisions, the tax rate, reserve requirements, and overheads (Brock & Franken, 2003)

Folawewo and Tennant (2008) studied the determinants of interest rate spread in 33 Sub-Saharan African (SSA) countries focusing on macroeconomic variables. Their results show that interest rate spread is influenced by the extent of the crowding out effect of government borrowing, public sector deficits, discount rate, inflation, level of money supply, reserve requirement, level of economic development and population size.

In 2007, the spreads of the government-owned banks declined steeply, yet this was certainly due to the large injection of capital into National Bank of Kenya (NBK), which was used to clean up its large overhead of non-performing loans. NBK was by far the largest majority government-owned bank, and thus the injection had a sizable effect on the spreads for that ownership category. Even with the injection, the spreads for government-owned banks remain substantially above those for private banks, while those for the government-influenced banks were roughly similar. The spreads for the government-influenced banks were actually increasing from 2005 to 2007 as shown in appendixIV.

Studies by (Demigurc-Kunt & Huizinga, 1999; Demigruc-Kunt, Laeven & Levine, 2003; Tennant, 2006) asserts that increase in reserve requirements are associated with a growth in interest rate spreads since banks pass on the cost of holding unloanable funds to consumers via an increase inlending rates or a reduction in deposit rates. However,reserve requirements relative to the size of the spread were small for the Organization for Economic Co-operation and Development (Randall, 1998) accounting for less than 10% of the average spread between the period 1991 to1996.

In the case of Belize, Martin (2010) estimated that 50% of the spread is attributable to reserve requirements, based on the zero-profit methodology. The level of country risk was a key factor that boosted spreads as severe sociopolitical instability in the Solomon Islands was a key factor behind commercial banks 'high spreads (Zikmud, Babin & Griffin 2010). Further, a weak legal systemcontributed to the accumulation of non-performing loans in Kenya, which in turn pushedup lending rates and increased net interest margins (Ngugi, 2001).

1.1.2 Commercial Banks and Interest Rate Spread in Kenya

Commercial banks and mortgage finance institutions are licensed and regulated pursuant to the provisions of the Banking Act and the Regulations and Prudential Guidelines issued there under. They are the dominant players in the Kenyan banking system and closer attention is paid to them. During the year ended 31stDecember 2012, the Central Bank of Kenya (CBK) pursued financial reforms geared towards enhancing financial access, efficiency and stability of the banking sector while conducting off-site and on-site surveillance to ensure that they are in compliance with the laws and regulations.

By 31st December 2012, there were 43 licensed commercial banks and 1 mortgage finance company. Out of the 44 institutions, 31 were locally owned and 13 were foreign owned. The locally owned financial institutions comprised 3 banks with significant shareholding by the Government and State Corporations, 27 commercial banks and 1 mortgage finance institution. In Kenya there appear to be a trend of high interest rate spread after every ten years. Appendix IV shows a very high interest rate in year 2000 and a repeat of the same in year 2010 (CBK, 2011). Among the most cited studies on factors explaining interest rate spread in Kenya are Ndung'u and Ngugi (1999) who 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. The factors considered by them were deposits, loans, Treasury bill rate and interbank rate. They found that the spread were positively related with deposits but negatively related to loans.

Apart from these standard indicators other bank-specific characteristics could influence banks' price-setting behavior (Weth, 2002).Ngugi (2001) extended the monthly time series data to December 1999. In addition, to the factors above, Ngugi (2001)

incorporated excess liquidity and non-performing loans ratio as explanatory variables and finds that a rise 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. Nonetheless, they both ignore macroeconomic indicators such as Gross Domestic Product(GDP) and inflation.

A major indicator of banking sector efficiency is interest rate spreads, which have been found to be higher in African countries like Kenya (Randall, 1998; Brock & Rojas-Suárez, 2000; Chirwa & Mlachila, 2004; Gelos, 2006; Crowley, 2007). Using accounting decompositions, as well as panel regressions, Ahokpossi (2013) studied the determinants of bank net interest rate margins in 10 SSA countries. He found that credit risk and operating inefficiencies (which signal market power) explain most of the variation in net interest margins across the region.

1.2 Statement of the Problem

Despite liberalizing the money markets in Kenya, interest rates spread continues being high. In year 2010, the interest rate spread was so high that the members of Parliament tabled a motion on financial bill to cap the interest rate. One of the expected benefits of financial liberalization and deepening of the financial sector is the narrowing of the interest rate spreads – the difference between the interest rate charged to borrowers and the interest 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 (Folawewo & Tennant 2008). Embedded in the spread is the information

on the efficiency of financial intermediation, profitability, monetary policy impact, among others.

IRSfor the sampled ten years January 2002 –December 2012, had averaged at 9.68 percent which adversely compares with a spread of 6.90 for African countries and 7.13 for East African countries (CBK, 2012). Interest rate in Kenya affect the cost of doing business leading to multiplier effects on cost of living. The determinants that have led to such high interest rate spread in Kenya have not been studied and this is the gap that this study seeks to address.

Hassan and Khan (2010) argued that as lending rates go up, banks on average attract a riskier pool of projects that require higher returns on investment. Higher interest rates, they argued also force many creditworthy borrowers to opt out of borrowing, explaining the fall in domestic credit to the private sector in Pakistan. The above analysis, Hassan and Khan's (2010) was supported by Hamid (2011) on a study on effect of interest rate spread in developing countries which showed that the share of non-deposit-based funding is positively and significantly correlated to interest rate spreads. The study also found evidence that the share of deposits held in foreign banks is negatively correlated to the volume of credit to the private sector.

According to Hawtrey and Liang (2008) who studied bank interest margins in 14 Organization for Economic Co-operation and Development countries for the period 1987 to 2001, there are two dangers associated with high interest spreads, one of them is that it may create general scarcity of money and as a result, restrict borrowing for consumer spending, construction, and business investment to cause, or worsen, a recession. Second problem is that certain groups or sectors within the economy may bear a disproportionate share of the impact of high interest rates and credit shortages due to high cost of funds. For small businesses, many of which fail for lack of funds, operate

with small profit margins, increases in the cost of borrowing money can cut so heavily into profits that they can no longer afford to borrow money. This makes small investors reluctant to borrow and as a result making it difficult for small and medium investors to survive.

Crowley (2007),Sologoub (2006), Grenade (2007) have also shown that there is a pervasive view amongst some stakeholders that high interest rate spreads are caused by the internal characteristics of the banks themselves, such as their tendency to maximize profits in an oligopolistic market, while many others such as Hassan and Khan (2010) argued that the spreads are imposed by the macroeconomic, regulatory and institutional environment in which banks operate.

Kithinji and Waweru (2007) argued that inKenya, banking problems began as early as 1986 culminating in major bank failures (37 failed banks as at 1998) following the crises of 1986 to 1989, 1993/1994 and 1998; they attributed these crises to non-performing assets which is due to the interest rate spread. The above sentiments notwithstanding, there is still paucity of empirical studies on determination of interest rate spreads with respect to African countries, particularly at the bank-level, given the fact that a number of African countries like Kenya are still grappling with the challenge of higher interest rate spreads. These debates and concerns could only be resolved through objective, quantitative analysis of the determinants of banking sector interest rate spreads in developing countries like Kenya. This study aimed at filling this gap by establishing the determinants of interest rate spread among commercial banks in Kenya.

1.3 Objectives

1.3.1 General Objective

The main research objective of this study was to establish the determinants of interest rate spread among commercial banks of Kenya.

1.3.2 Specific Objectives

The specific objectives of this study were;

1) To determine the influence of inflation on interest rate spread among commercial banks in Kenya.
2) To establish the influence of operating costs of commercial banks in Kenya on interest rate spread.
3) To investigate the effect of market structure oninterest rate spread among commercial banks in Kenya.
4) To determine the effects of ownership structure among commercial banks in Kenya on the interest rate spread.
5) To establish the effects ofbusiness risks on interest rate spread among commercial banks in Kenya.

1.4 Research Hypotheses

This study sought to address the following pertinent research hypotheses;

1) There is no relationship between inflationand interest rate spread among commercial banks in Kenya.
2) There is no relationship between operating costs and interest rate spread among commercial bank in Kenya.
3) There is no relationship between market structure and interest rate spread among commercial banks in Kenya.
4) There is no relationship between ownership structureand interest rate spread among commercial banks in Kenya.
5) There is no relationship between business risks and interest rate spread among commercial banks of Kenya.

1.5 Significance of the Study

This study is significant to the following stakeholders;

Policy makers can identify with the need for competition hencedevise measures to promote the growth of medium sized banks in a bid to enhance their ability to penetrate the market so as to break market dominance by a few banksand alsoenhance competition.

The government can see the need forensuring existence of stable political environment, fuel prices, commodities and services pricesas they were mentioned as major components of inflation, which would contribute immensely in reducing interest rate spread among commercial banks in Kenya.

Commercial banks can identify with the effects of risks andexplore internal and industry driven strategies to mitigate against or counter some of the bank-specific factors associated with higher spreads.

To the scholars, the study is value added to the existing body of knowledge as it recommends ways for improvement of financial sector. Nevertheless, this study is a stepping stone for newer research on interest rate spread.

1.6 Scope of the Study

The interest rate spread indicators used in the study are inflation, operating costs, market structure, ownership structure and business risks. Data collection was conducted in the year 2012. Study utilized both primary and secondary data.

1.7 Limitations of the Study

The inaccessibility of information from private owned banks was the key challenge in primary data collection. However, these banks account for less than 5 % of market share in the population and hence less significant. To mitigate this risk, most data was collected from the government owned and listed banks.Due to time and resources constraints this study only reviewed interest rate spread banking industry and could not expand to other financial sector players like micro finance institutions, savings and credit cooperatives, stock exchange, insurance and pension funds. However this provides an opportunity for further research.

CHAPTER TWO

LITERATURE REVIEW

This chapter reviews related literature in the area of interest rate spread. It starts by reviewing theories advanced in the area of interest rates. Key theories suchKeynesian theory of money demand, market segmentation and expectations theory will be reviewed. The chapter further reviews the empirical literature advanced in the field of interest rate spread and then identified research gap.

2.2 Theoretical Literature Review

This section reviews relevant theories in the area of interest rate spread. Theories such asKeynesian theory of money demand, market segmentation and expectations theory will be reviewed.

2.2.1 Keynesian Theory of Money Demand

Liquidity preference theory asserts that economic units have a preference for liquidity over investing (Ross, 1976b). 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.

The demand for money is a demand for liquidity (Mendoza, 1997). 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 makes commercial banks to charge higher cost for their services(Ross, 1976a).

People need to hold a certain amount of money to meet their normal everyday transactions such as entertainment, buying food and travel. This is a first choice since it is not affected by the interest and depends on the consumers' income. Whether interest increases or decreases the demand for transactions motive for money will be perfectly inelastic. The demand for money for this purpose is related to income. People with higher income will tend to have larger transaction demand for money than those who have lower incomes(Moore& Craigwell, 2006).

Second is precautionary motive which refers to the desire of individual and business firms to hold cash balances to meet unforeseen contingencies like accidents and sickness. The money held for precautionary motive will differ with individuals and business according to their degree of financial confidence and access to credit facilities. It also depends on the income and level of business activity and also speculative motive. Keynes considered that there are three reasons why people demand for money rather than invest that money in bond (Crowley, 2007). Wong and Zhou(2008) argued that this is holding idle money balance due to uncertainties or emergency purposes. Money is kept to fulfill the function of store of value. He argues that if the consequences of all our actions were known with certainties the quantity theory would have been right to argue that money could only be held for transaction purposes.

These uncertainties (business risks) explain why banks charge a premium in order to compensate for risks of default from their customers. In reality the world is dominated by uncertainties. In consequence despite the opportunity cost of holding money, precautionary balance will be held in case there is a need for unplanned expenditure. The amount kept under this motive depends on the conditions under which one is living. It

also depends on the income and personality. It is also fairly affected by interest rates which also depend on market structure. Many people will be tempted to invest in capital markets by buying securities or bonds in order to receive higher rewards in the future (Montiel, 1995).

Third is speculative demand for money. This is the demand for money to invest in business which will generate higher returns. Keynes argues that individuals could hold money depending on the return tied to that money. 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.According to Fry (1995) applying this theory explains the premium offered in forward rates in comparison to expected future spot rates.

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 stableandalso 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.

2.2.2 Expectations Theory

Theexpectationofconsumers,banksandotherbusinesseshavepronouncedeffectsonsupply anddemandinfinancialmarkets (Weth, 20002).Ifinflationary expectationsincrease,thesupply ofanddemand forloanablefundsshift,andhigherinterestratesresult.Alsobank'sportfolioofassetsand liabilitiesdependsinpartontheexpectedreturntovariousassetsandtheexpectedcostof variousliabilities (Cukierman & Hercowitz, 1990).Forexample,abank'samountofexcessreservesisdeterminedpartlybythe expectedreturnonalternativeassetssuchasloansandbondsandpartly expectationoftherateof depositwithdrawals.Priceofacorporatebondwilldependoninvestor'sexpectationsaboutthe bond'sdefaultrisk.Expectations theory assumes that interest rates are determined by supply of loanable funds and demand for credit (Fry, 1995).

The theory is relevant in that if people expect inflation to increase in future, they would tend to fail to deposit money in commercial banks and hence expensive loans as a result of low supply of funds.

2.2.3 Market Segmentation Theory

Market segmentation theory (MST) does away with approximation (since we all know that future rates as predicted by bonds and realized in the spot market do not exactly match each other), and discusses each separate maturity term as being independent of the others. In other words, we should not speak of a bond market, but rather of two-year, five-year, ten-year bond markets, since the roles played by these instruments are not equivalent in any way (Zarruk, 1989). Each maturity term is fulfilling a different function, with a different investor profile, and thus is a unique product, far from being a tool of convenience for those who would prefer to hold a single contract instead of renewing each short term one in succession, as suggested by the expectations theory (Fry, 1995).

MST posits that each borrower and lender (market structure) have a particular timeframe in mind when purchasing or selling a debt instrument (Barajas, 1999). An investment bank may be buying or selling a government bond in the short term in order to profit from interest rate changes that could be announced by a central bank. A construction firm may desire to sell ten-year bonds in order to repay them when the construction project is finished and there is abundant liquidity to meet the demands of the creditor. Similarly, a student would prefer to borrow on a long-term basis in order to meet his obligations after graduation, when he'll have ample financial capability to pay his debts (Tobago, 2004).

Sologoub (2006) asserted that market segmentation theory allows us to incorporate the depth of the market into our understanding of the term structure of debt instruments, and in a way, takes the two-dimensional liquidity preference theory or the expectations theories, and gives them the third dimension of investor preferences. Thus, the risk premium discussed in the context of the liquidity preference theory is not just something

demanded by the lender (supply side), but also eagerly provided by the borrower (the demand side) due to his preference for longer term maturities which allow better returns on investments as a result of the greater freedom enjoyed in business decisions and planning (you can plan for the longer term since repayment is a long way away from now).

A greater number of lenders cluster around the short-side of the yield curve due to lower risk and higher liquidity, leading to lower yields, while a greater number of borrowers tend to group at longer maturities, due to the greater flexibility that they enjoy while making use of the funds, which leads to greater demand for borrowing, and higher rates, as a consequence (Cukierman & Hercowitz, 1990). Williams (2007) asserts that this supply demand segmentation of the market leads to the observed slope of the yield curve where the shorter term maturities are coupled to lower rates most of the time.

The advantage of this theory is that it can easily explain while the yield curve slopes upwards most of the time, but does not say anything about why rates move up or down simultaneously across the maturity scale(Randall, 1998). Since each maturity term constitutes a separate market, we would expect their interest rates to move independently up or down, with no obvious relationship, but that, of course, contradicts the well-known and easily observed relationships in the market.

2.2.4 Loanable Funds Theory

Loanable funds theory assumes that interest rates are determined by supply of loanable funds and demand for credit (Fry, 1995). In loanable funds theory the demand of loanable funds originates from domestic business, consumers, governments and foreign borrowers. If the banks are in a hurry to lend money without establishing the credit worthiness of individuals, then the default rate increases and hence business risks which make banks to charge a higher premium to compensate for the default risk. Supply is

generated by domestic savings, dispersion of money balances, money creation in the banking system and foreign lending. The market structure in which the banks concentrate on determines the supply of funds which in turn determines the availability of loanable funds (IBM, 2010).

With these factors determining long-term interest rates, short term interest rates are decided by financial and monetary conditions in the economy. Ownership structure like the government owned banks, there is likelihood that they tend to lend at low interest rate because they are likely to be sort out of financial crisis by the government (Salloum & Hayek, 2012).

According to Demirguc and Huizinga (1998) the many factors considered in loanable funds theory mean that equilibrium will be reached only when each of the factors is in equilibrium. Claeys and Vander (2008) argues that this theory explains the determinants of interest rate spread in that if people do not deposit money in commercial banks, the banks will fail to lend and the high demand will lead to higher charges by banks. This in the end causes interest rate spread to widen as a result of inflation.Ross (1976a) strongly believed that the theory is however limited in that it fails to address the reasons why people would prefer to save and invest without necessarily having to deposit money in the banks like the fear of unknown, wealth taxation, delay in accessing the banked money among other factors.

2.3 Conceptual Framework

The general objective of this study was to establish the determinants of interest rate spread among commercial banks in Kenya. This overall objective of the study is conceptually and diagrammatically represented in figure 2.1 below. The determinants were clustered in five broad categories as: Inflation is explained by Kynesian theory of

money demand and expectations theory. These theories explain the effects of formation of future expectations of changes in inflation. Operating costs have been explained by market segmentation theory, loanable funds theory as well as Kynesian theory of money demand. These theories explain how increase in operating costs leads to increase in interest rate spread as a result of high cost that is experienced by lending financial institutions on day to day operations.

Markets structure was explained by market segmentation theory and expectations theory as they explain how demand and availability of money depend on the number and type of buyers and sellers. Ownership structure was explained by market segmentation theory, loanable funds theory and Kynesian theory of money demand as the theories relate the ownership of the financial institutions and the supply and demand for funds which is caused by market segments. Business risks were best explained by market segmentation theory as each market experiences unique business risks, Kynesian theory of money demand as well as expectations theory as the future is always uncertain. These theories explain why commercial banks charge high interest rate to cushion for loans' default risks. The theories are relevant in explaining interest rate spread in that inflation, concentration of banking institutions, ownership structure are all affected by the availability of funds, the market segment they are in as well as the tendency of people to hold on to money for transactions, speculative or precautionally motives.

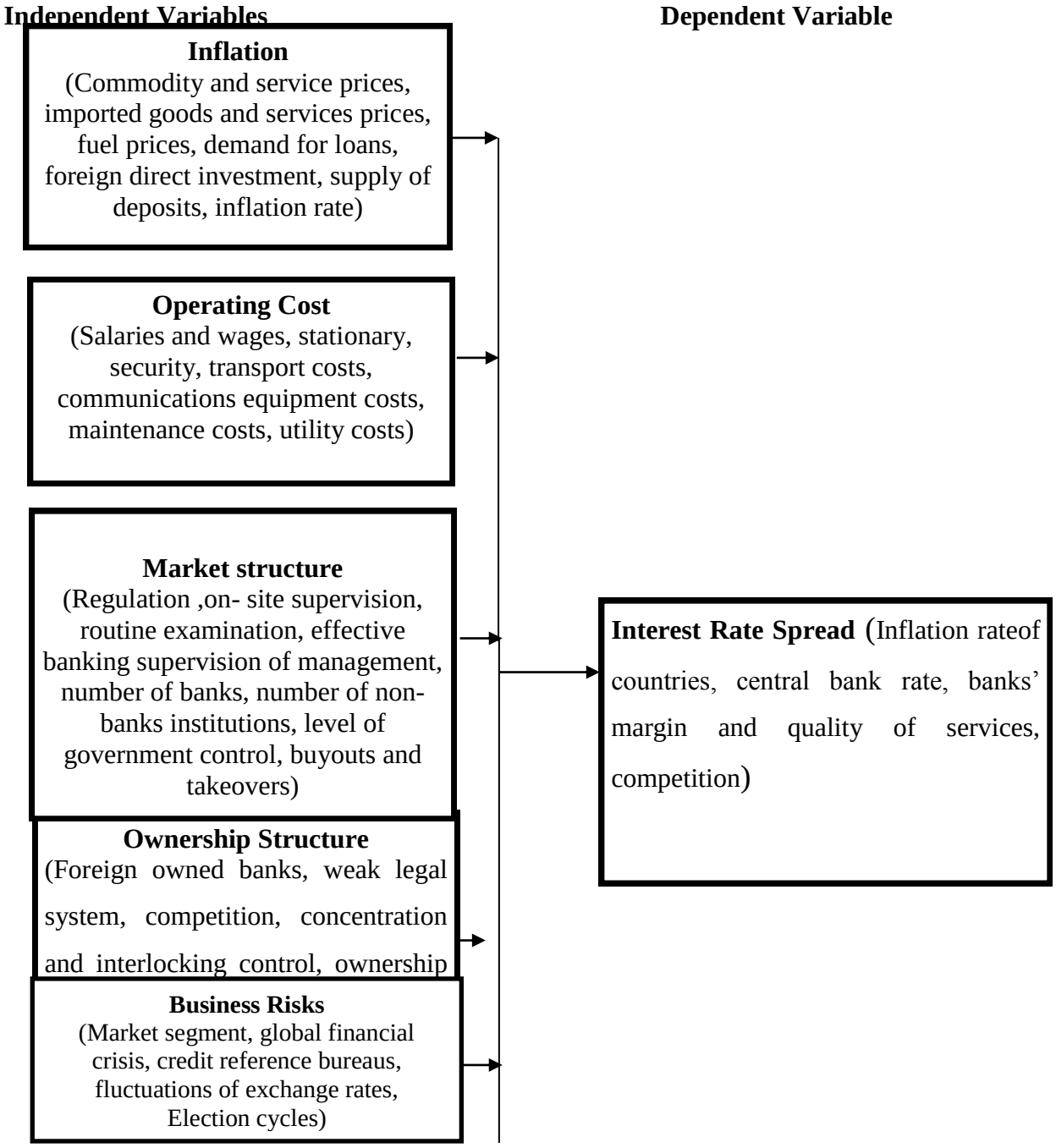

Figure 2.1 Conceptual Framework

2.4 Empirical Literature Review

This section reviews scholars' related literature in the area of interest rate spread. Variables reviewed are inflation, operating costs, market structure, ownership structure and business risks.

2.4.1 Inflation and Interest Rate Spread

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 in Kenya.Afanasieff, Lhacer and Nakane (2002), in Brazil, concluded that the factors most relevant to explaining interest rate spread behaviour are macroeconomic variables such as inflation. Saunders& Schumacher(2000) offered evidence that uncertainty caused by inflation in banks' economic environment is one important cause of bank spreads.

Folawewo and Tennant (2008) in a paper prepared for the 13th Annual African Econometrics Society Conference in Pretoria, Republic of South Africa analyzed the determinants of spreads between banks' deposit and lending rates in Sub Saharan Africa countries (SSA). They found that macroeconomic policy variables such as inflation play significant role in explaining variations in interest rate spread in the region

Khawaja and Din (2007) concluded that a rise in inflation increases the credit risk premium, and hence the spread that banks demand, as higher rates hamper the repayment capacity of borrowers. High and volatile inflation reduce rapidly and unpredictably the ability of the private sector to fulfill their planned financial obligations, including debt obligations. Banks' would hedge against the risks of high and

volatile inflation by including in lending rates a risk premium that may increase the interest rate spread (Samuel & Valderrama, 2006) on banking spreads in Barbados.

Aboagye.. et al (2008) in Ghana andRobinson (2002) in a study on Jamaica, Brock and Rojas-Suarez (2000) in a study on Latin America and Mlachila and Chirwa (2002) in the case of Malawi established a positive and significant effect of inflation on the interest spread. In contrast, however, Crowley's (2007) study on English-Speaking African countries found inflation was negatively related to interest rate spread. This could suggest that banks do not take the erosion of their profits into account when determining how to adjust interest rates to compensate for inflation.

2.4.2 Operating Costs and Interest Rate Spread

In line with studies (Maudos & Guevara, 2004; Williams 2007; Khawaja & Din 2007)on banking spreads in different countries,it was found that administrative expense was particularly important in explaining commercial bank spreads in Pakistan. Wong and Zhou (2008) and Khawaja and Din (2007), asserted that the level of competition in the banking industry in Pakistan was considered as a key factor in explaining high spreads.

Ngugi (2001) studied factors determining interest rate spread in the Kenya's banking sector for pre-liberalization period and post-liberalization period. She found out that interest rate spread increases due to yet to be gained efficiency and high intermediation costs. Both implicit and explicit taxes widen the interest spread as they increase the intermediation costs (Ngugi, 2001).

Wong and Zhou (2008), in a study on commercial bank net interest margins in China, found evidence to support the extension of interest rate spread due to operating costs. A cross-country study by Tennant and Folawewo (2008) found statutory reserve requirement, discount rate and level of money supply determined by the central bank

exerted a significant positive effect on interest rate spread in SSA during the period 1988-2005 and not operating costs.

Studies by Chirwa and Mlachila (2004) found that macroeconomic volatility and regulations have a significant impact on bank interest rate margins. Their results also suggested an important trade-off between ensuring bank solvency, as defined by high capital to asset ratios, and lowering the cost of financial services to consumers, as measured by low interest rate margins.

Hawtrey and Liang (2008) argued that most common justifications given for the commercial banks' relatively large interest rate spreads include the uniquely high costs associated with conducting business in Jamaica. These factors, however, are downplayed by a few managers, and regulators and policy advisors as being exaggerated or simply irrelevant.

Birungi (2005) adapted the Ho and Saunders (1981) model to include the effects of administrative costs. The variables introduced are administrative costs. He found that the interest margin depends on competitive operating costs, risk aversion of banks, as well as other variables not explicitly incorporated in the theoretical model e.g. opportunity cost of reserves, payment of implicit interest and the quality of management.

Maudos and Guevara (2004) build on the work of Angbazo (1997) to explicitly incorporate operating costs in their theoretical model. They found that the interest margin depends on average operating costs, risk aversion of banks, as well as other variables not explicitly incorporated in the theoretical model e.g. opportunity cost of reserves, payment of implicit interest and the quality of management.

Williams (2007) found evidence in support of Maudos and Guevara (2004) inclusion of operating costs in the model for the case of Australia, as well as the impact of bank market power, as suggested in an earlier study on Australian bank net interest margins by (McShane & Sharpe, 1985). Wong and Zhou (2008) in a study on commercial bank net interest margins in China, also found evidence to support the extension of the Ho and Saunders model with operating costs.

In case of Pakistan, the State Bank of Pakistan (2006)observed that bank-specific factors such as administrative expenses positively influence the level of banking spreads in Pakistan. Siddiqui (2012） in the study in Pakistan concluded overhead costs are highest for foreign banks, resulting in the lowest return on assets (ROA) compared to private and public sector banks. The studies show that high overhead costs are largely reflected in high employee payments and highly automated and ell designed and furnished bank branches and contributes to interest rate spread.

2.4.3 Market Structure and Interest Rate Spread

StudiesSanya and Gaertner (2012) and Grenade (2007) have shown that market concentration reduces competition. Entrop, Memmel, Ruprecht and Wilkens (2012) studied determinants of bank interest margins in Deutsche Bundesbank. They observed that the industry's competitive structure is determined by the extent to which the demand for loans and deposit supply are inelastic with respect to the intermediation fees charged.

Gambacorta (2004) who studied factors explaining cross-sectional differences in bank interest rates of Italian banks noted that the impact of the structure of the banking sector on the spread can be ambiguous. A concentration that makes banks to behave in an oligopolistic manner will lead to higher lending rates and low deposit rates while a

concentration that arises because more efficient banks are replacing less efficient banks may lead to lower lending rates and higher deposit rates and hence, lower spreads.

Khawaja and Din (2007) asserted that various determinants of interest spread included: market structure of the industry; bank specific factors; macroeconomic variables; and financial regulations. The industrial organization literature predicted that an oligopolisticmarket structure may result in higher spreads Samuel and Valderrama(2006) though the empirical evidence on this count is mixed.

Ahokpossi (2013) found that operating inefficiencies appeared to be the main determinants of high bank spreads in SSA economies. Brock and Rojas Suarez (2000) also showed that administrative and other operating costs contributed to the prevalence of high spreads in Latin American countries. On the other hand, Bourke (1989), and Moulyneux and Thornton (1992) in a study on concentration of markets found no relationship of concentration in banking sector on interest rate spread.

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. Radha (2011) studied sources and impact of segmentation in the banking sector in Kenya and found that diversification gains are frequently offset by the costs of increased exposure to volatile activities. Similarly, Caprio., Klingebiel, Laeven and Noguera, (2005) have suggested that agency problems in financial conglomerates engaged in multiple activities and indicated that economies of scope are not sufficiently large to produce a diversification premium. It may also be the case that specialized banks exhibit higher unit costs on average, so that margins and efficiency will be lower, in the case of specialization for the European banking system(Maudos & Fernandez de Guevara, 2004).

Afanasieff, Lhacer and Nakane (2002) focused their research on the possibility that the Brazilian banking sector may not be fully competitive. In their research they indicated that Brazilian banks behave oligopolistically. Such a competitive structure would weaken the incentives to improve efficiency, which would explain why financial intermediation by banks is so scarce and costly. Not everyone, however, agrees on this issue. Afanasieff, Lhacer, and Nakane (2002) summarized and analyzed several studies on the pricing power of banks in Brazil and argued that "there exists little evidence to suggest that the high bank spreads practiced in Brazil are the result of weak competition in the banking sector".

Beck, Thorsten and Hesse (2006) analyzed factors explaining interest rate spreads in Uganda compared with peer African countries for the period 1999 to 2005. They used a panel data set of 1,390 banks from 86 countries, and reported that the variation of spreads is high both across countries and within countries across banks. The average margins are around 10.9% while a mean spread of 18.1% was observed. To explain the high variation in interest rate margins across countries, they used bank size, exchange rate depreciation, real t-bill rate, liquidity ratio, concentration, inflation, GDP growth, institutional development, and overhead costs. They reported that most bank-specific as well as macroeconomic factors are relevant in explaining the high banking margins in Uganda. However, foreign banks and changes in market structure had no significant relationship with interest rate spreads. They concluded that size, high t-bill rates, and institutional deficiencies explain the large proportions of Ugandan interest margins.

Further, in line with studies (Maudos & Guevara, 2004; Williams, 2007; Wong & Zhou, 2008; Khawaja & Din 2007) on banking spreads in different countries, the level of competition in the banking industry in Pakistan was considered as a key factor in explaining high spreads contrary to Khawaja and Din (2007) earlier findings. They found that competition is positively associated with banking spreads and in particular

absence of an increase in competition in Pakistan's banking sector over recent years, banking spreads would have been higher.

Beck, Thorsten 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. Further, the study finds evidence that banks targeting the low end of the market incurred higher costs and therefore had higher margins. The above arguments show that market structure is a determinant of interest rate spread.

2.4.4 Ownership Structure and Interest Rate Spread

In case of Pakistan, State Bank of Pakistan (2006) observed that bank-specific factors such as, provisioning, administrative expenses, and ownership (e.g. foreign or domestic), as well as industry factors e.g. market concentration, all positively influence the level of banking spreads in Pakistan. In terms of macro variables, GDP has a positive relationship with spreads; explained by a higher demand for advances. In line with the literature, interest rate volatility is observed to be positively associated with banking spreads.

Khawaja and Din (2007) also found evidence to support the view that administrative costs and market power have a positive influence on banking spreads in Pakistan. In addition, they included the share of current and savings account deposits in total banks deposits, and found that in the case of Pakistan, an interest-insensitive supply of deposits had a significant positive impact on banking spreads, rather than the market concentration per se. In addition, they found that, GDP has a negative relationship with banking spreads.

Beck, Thorsten 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. According to them 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 crossbank, cross-time variation in spreads and margins.

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; Demirgüc-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 (Demirgüc-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.

Norris and Floerkemeir (2007) used a bank-level panel dataset for Armenia to examine the factors explaining interest rate spreads and margins from 2002 to 2006. They concluded that bank-specific factors such as size, liquidity, ROA, market concentration, and market power explain a large proportion of banking spreads.

Aikaeli, Mugizi and Ndanshau (2011) on a study of determinant of interest rate spread in Tanzania argued that factors that determine interest rate spread can be clustered as bank specific factors, including size, capital structure, management efficiency, ownership pattern, quality of loan portfolio, overhead costs, profit maximization motive, and shares of liquid and fixed assets. Moore and Graigwell (2006) in a study on market power and interest rate spreads in the Caribbean and Folawewo and Tennant (2008) in SSA countries made the same conclusions.

2.4.5 Business Risks and Interest Rate Spread

Siddiqui (2012) estimated the interest rate spread in Pakistan based on individual bank specific factors and found out that credit risk, liquidity risk and bank equity are

important, determinants of interest margins, but such spreads are not sensitive to economic growth.

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. Credit risk was found to play a minimal role while higher bank liquidity was associated with lower interest margin

Gambacorta (2004) studied factors explaining cross-sectional differences in bank interest rates of Italian. Results showed that interest rates on short term lending of liquid and well capitalized banks react less to monetary policy shocks because of their exposure to risks.

Ahokpossi (2013) using a sample of 456 banks in 41 SSA countries concluded that bank-specific factors such as credit risk, liquidity risk and bank equity are important, determinants of interest margins, but such spreads are not sensitive to economic growth. The results are consistent with those found by other studies(Ngugi, 2001; Beck, Cull, Fuchs, Getenga, Gatere, Randa & Trandafir, 2010) based on Kenya. Chirwa and Mlachila (2004) and Sidiqqui (2012) also found a positive impact of nonperforming loans ratio on interest spreads of commercial banks for Malawi and Pakistan, respectively due to their exposure to illiquidity risks.

Mwega (2012) in his study on regulatory reforms and their impact on the competiveness and efficiency of the banking sector of Kenya provided an evidence of profit persistence in Kenya's banking sector. However, the positive relationship can be countered along

similar arguments given for bank size if one argues that as an efficiency measure of banks, a higher return on average assets should be associated with lower spreads.

Siddiqui (2012) find a positive effect of return on assets on interest spreads. On the other hand, liquidity availability at the bank level is negatively related with interest rate spreads. Banks that are highly liquid are associated with lower spreads as they do not have to incur extra costs of sourcing funds when faced with increased demand for credit.

Aboagye… et al (2008) studied the response of net interest margin of banks to changes in factors that are bank-specific, banking industry specific and Ghanaian economy macroeconomic factors. They found 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.

Maudos and Guevara (2004) built on the work of Angbazo (1997) to explicitly incorporate operating costs in their theoretical model. Further, in their study on European banks, they used the Lerner Index, a more direct measure of market power than the concentration ratios used in previous studies. They found that the interest margin depends on competitive conditions, interest rate risk, credit risk, average operating costs, risk aversion of banks, as well as other variables not explicitly incorporated in the theoretical model e.g. opportunity cost of reserves, payment of implicit interest and the quality of management.

2.4.6 Interest Rate Spread

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) where the pure spread is explained by the degree of bank risk aversion and the market structure of

the banking sector.. Credit risk was found to play a minimal role while higher bank liquidity was associated with lower interest margin

Beck, Thorsten and Hesse (2006), in a study on "Why are interest rate spreads so high in Uganda?" found that while foreign banks charge lower interest rate spreads, they did not find a robust and economically significant relationship between privatization, foreign bank entry, market structure and banking efficiency. Similarly, macroeconomic variables can 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.

Beck, Thorsten 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.

Gambacorta (2004) studied factors explaining cross-sectional differences in bank interest rates of Italian banks. He concluded that the literature that studies banks' interest rate setting behavior generally assumes that banks operate under oligopolistic market conditions. This means that a bank does not act as a price-taker but sets its loan rates taking into account the demand for loans and deposits.

Demirguc and Huisinga (1999) show that differences in interest margins and bank profitability reflect a variety of determinants: bank characteristics, macroeconomic conditions, explicit and implicit bank taxation, deposit insurance regulation, overall financial structure, and several underlying legal and institutional indicators. Controlling

for differences in bank activity, leverage, and the macroeconomic environment, we find that a larger bank asset to GDP ratio and a lower market concentration ratio lead to lower margins and profits. Foreign banks have higher margins and profits compared to domestic banks in developing countries, while the opposite holds in developed countries. Also, there is evidence that the corporate tax burden is fully passed on to bank customers.

Bennaaceur and Goaied (2008) investigated the impact of bank's characteristics, financial structure and macroeconomic indicators on bank's net interest margins and profitability in the Tunisian banking industry for the 1980-2000 period. They found that the disintermediation of the Tunisian financial system was favourable to the banking sector profitability.

Ndung'u and Ngugi (2000) observed that large spreads occur in developing countries due to high operating costs, financial taxation or repression, lack of a competitive financial/banking sector and macroeconomic instability, that is, risks in the financial sector are high.

2.5 Research Gaps

The relevant literature reviewed indicates the existence of several studies in developed and emerging economies while there was paucity of studies in Africa except handful of them like (Chirwa & Mlachila 2004; Mlachila & Chirwa 2002) in Malawi, (Apaa & Ojwiya 2009; Folawewo & Tennant 2008) in Ugandaand in a panel data study covering 33countries in SSA for the period 1988-2005 respectively; Aboagye…et al (2008) in Ghana) while there was none specific in Kenya. This study replicated such studies in a Kenyan perspective. Most studies reviewed have also concentrated on a few factors determining interest rate spread while this study explored several determinants. This

study therefore sought to fill the gap of determinants of interest rate spread in Kenya looking at the most recent literature.

2.6 Summary

Different researchers had different findings even when their approach to interest rate spread appeared similar in Kenya and even in other countries. This means that this is an area which requires frequent study in order to establish the determinants of interest rate spread at a particular period in time. Many researchers looked at effects of interest rate spread on non-performing assets; others looked at causes of interest rate spread in other countries while others had concentrated on a few determinants of interest rate spread such as inflation. Others looked at effects of interest rate spread on a particular sector. Hence there was need to fill in the gap of determinants of interest rate spreadwhich had existed over the years.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter reviews the methodological approach used to provide answers to the research hypotheses. The chapter begins with the research design, target population and sampling methods. Data collection instruments and data analysis procedure are explained in relation to the variables of the study.

3.2 Research Design

According to Lavrakas (2008), a research design is a general plan or strategy for conducting a research study to examine specific testable research questions of interest. Kothari (2004) described a research design as a master plan that specifies the methods and procedures for collecting and analyzing the needed information. 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 adopteddescriptive and correlational designs that sought to determine relationship between the independent variables and the interest rate spreads the dependent variable. Lavrakas (2008) described a correlational research as a type of descriptive non-experimental research because it describes and assesses the magnitude and degree of an existing relationship between two or more continuous quantitative variables with interval or ratio types of measurements or discrete variables with ordinal

or nominal type of measurements. The overall aim is to discover new meaning, describe what exists, determine the frequency with which something occurs and categorize information (Sekaran&Bougie, 2011).

3.3 Target Population

Zikmund, Babin, 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 (2012) identified the total number of commercial banks licensed to operate in Kenya as forty three in number and one mortgage finance institution. According to CBK annual supervision report of year 2012, as at December 31st 2012 there were 13924management and supervisory employees in the banking sector in Kenya

In this study, there are two types of population, target population and accessible population. Accessible population refers to the population in the research to which the researcher can apply their conclusions (Dawson, 2009).Target population comprises of all management and supervisory employees from all commercial banks in Kenya. The accessible population was all management and supervisory employees who could be easily included in the sample on the day of determining the final study sample of all the sampled banks which were twenty sevenin number (Appendix IX).

3.4 Sample and Sampling Technique

A list containing all sampling units is known as sampling frame (Kothari, 2004). The first level of sampling frame for this studywas from the list of licensed banks as provided by the central bank of Kenya as at 31st December 2012 which were forty three

in number. The second sampling frame consisted of all management and supervisory employees in all the licensed commercial banks as per the sampled banks' database (appendix IX). The CBK supervision report of 2012 outlines the grouped number of employees in the banking sector as at 31st December 2012. The employment data is disaggregated between various cadres of employees in the sector. CBK supervision report also provides the list, physical address and contact details of all commercial banks in Kenya. The concentration of this study is the management and supervisory cadre. Beck and Polit (2003) refers to a sampling frame as the technical name for the list of the elements from which the sample will be chosen.

This study useda purposive sampling procedure to identify sample units. Lavrakas (2008) states that a purposive sample, also referred to as a judgmental or expert sample is a type of non- probability sample. Yang and Miller (2008) and Kothari (2004) define purposive sampling as involving deliberate selection of particular units of the universe for constituting a sample which represents the universe.

The sample units for this study were twenty seven (27) commercial banks of which ten (10) are listed commercial banks, two(2) government owned commercial banks and fifteen (15) private owned banks (Appendix IX).The sampled banks were selected because they have readily available information and have higher levels of information disclosure especially from listed and government owned banks on the variables as it is published. This banks also account for a significant size of over 80% of the Kenyan banking industry in terms of composite market share ie index of net assets, total deposits, shareholders' funds, number of loan accounts and number of deposit accounts (Appendix IX).

Table 3.1 Sampled Banks by Ownership Structure

Ownership Structure	Number of Banks	Sampled Banks	Percent Sampled
Listed banks in Kenya	10	10	100%
Government banks	3	2	67%
Private owned banks	30	15	50%
Total	**43**	**27**	**63%**

The sampled banks had 13924 management and supervisory employees from whom a sample for the study was derived. According to Mugenda and Mugenda (2003) a large population is defined as one with at least 10000 elements or items. The population of this study was 13924 employees and hence can be defined as a large population. In such a case, a final sample estimate is calculated using a formula recommended by Mugenda and Mugenda (2003). Using the formula below, a sample size of 384 respondents was determined.

The sample for a large population is determined using the formula given as;

$$n=Z^2*p*(1-p)/d^2$$

Where:

n = Sample size for large population

Z = Normal distribution Z value score, (1.96)

p = Proportion of units in the sample size possessing the variables under study, where for this study it is set at 50% (0.5)

d = Precision level desired or the significance level which is 0.05 for this study.

The substituted values in determining the sample size for a large population were as follows

$$n = \frac{(1.96)^2 * (0.5)(0.5)}{(0.05)^2} = 384 \text{ respondents}$$

Simple random sampling was used among the management and supervisory employees of the 27 banks to distribute the 384 questionnaires as shown in Appendix IX. The entry point to each bank was through the human resource departments who assisted in distributing the questionnaires to the target respondents. The number of questionnaires distributed to each bank was based on the market share of each bank (Appendix IX).

3.6 Data Collection Instruments

The study used questionnaires to obtain qualitative data for analysis to support or refute the hypotheses and to confirm the evidence obtained from the quantitative data analysis. Secondary data on the identified variables such as inflation, market structure, ownership structure and business risks of banks per year for the years 2002-2013were obtained from the Central Bank of Kenya. Other data concerning the inflation rates were obtained from the Kenya National Bureau of Statistics. Secondary data was used to validate the findings from analysis of primary data which was collected using questionnaires. The strategy of using both primary and secondary data to address the same study objectives was meant to improve the interpretive coherence and improve both communicative and pragmatic validity of the study results.

3.7 Data Collection Procedure

Primary data was collected through the administration of questionnaires to senior management bank employees. Two research assistants were engaged to mainly make follow up of the administered questionnaires. The entry point to the banks was mainly

through either the human resource or finance departments. The dully filled in collected questionnaires were coded and responses fed immediately into excel for ease of analysis. Kothari (2004) describes primary data as those which are collected afresh and for the first time, and thus happen to be original in character. Morrison and Louis (2007) describe primary data as those items that are original to the problem under study. Secondary data was obtained from the Central Bank of Kenya and Kenya National Bureau of Statistics. 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.

3.8 Pilot Test

The study carried out a pilot test to check the validity and reliability of the questionnaires in gathering the data required for purposes of the study. Ferber and Verdoorn (1962) and Kothari (2004) described a pilot survey as a replica and rehearsal of the main survey. Beck and Polit (2003), Punch (2003) and Paroush (1994) states that the purpose of a pilot study is not so much to test research hypotheses, but rather to test protocols, data collection instruments, sample recruitment strategies, and other aspects of a study in preparation for a larger study.

Validity refers to the extent to which a scale encoded into a set of questions actually measures the variable it is supposed to measure (Kothari 2004). The only way to assess the validity of such measurement devices is to evaluate the results against some other measures, or criteria, which have already demonstrated its validity. Although this is not without difficulty, a thorough knowledge of previous research literature will aid this calibration process by providing possible criteria Montiel (1995) checked the validity of

measures of managerial perceptions of company performance with secondary performance data such as sales growth rate.

Validity refers to the accuracy of the measurement process while the reliability of measurement refers to its consistency; that is, the extent to which a measuring device will produce the same results when applied more than once to the same person under similar conditions (Gakure, 2010). The most straightforward way of testing reliability is to replicate; either by administering the same questions to the same respondents at different times and assessing the degree of correlation, or by asking the same question in different ways at different points in the questionnaire (Johnson and John, 2002). Factor analysis was used to assess the validity and Cronbach's alpha to assess reliability of the questionnaire.

Reliability test was carried out on the tool to test the goodness of data. After applying the Cronbach's Coefficient Alpha test, an overall alpha coefficient of 0.56 was reached. After improving the tool, a reliability test was redone achieving Alpha coefficient of 0.7 with each variable's reliability coefficient indicated in the table below.Scales in the questionnaire of 0.7 and above indicatesatisfactory reliability (Vogt, 2007;Saunders,Lewis and Thornhill, 2009; Christensen, Johnson and Turner, 2011; Newing, 2011). Based on this recommendations inflation, operating costs, market structure, ownership structure and business risks variables in the study questionnaire were concluded to have adequate internal consistency and were reliable for the study and their results could be used to generalize on population characteristics.

Out of the forty questionnaires distributed, thirty three were returned. Though this was a good response rate of 83%, some respondents complained of poor timing since this was done in end of October 2012 and some said that the researcher took long before

collecting the questionnaires. This was improved during the main study data collection by ensuring that the data was collected from 8^{th} – 20^{th} days of the months.

For many banks the researcher or research assistant could wait for the respondents to fill in the questionnaires or at least give respondents only two days to respond. The open ended questions were not adequately answered and the researcher dropped them from the instrument during the main data collection. There was also lowinitialCronbach's alpha coefficient and this was overcome through improvement of the instrument as indicated on Table 3.2.

Table 3.2 Summary of the Observations of Pilot Test

In total 15 questions were dropped after carrying out factor analysis as shown below

Variable	Initial reliability	Statements dropped	New reliability
Inflation	0.448	6,7,8	0.630
Operating costs	0.719	6,9	0.816
Market structure	0.433	4,8	0.484
Ownership structure	0.207	2,7,10	0.562
Risk	0.066	2,3,5	0.32
Interest rate spread	0.276	1,5,6,8	0.62
Overall	0.560	17	0.700

3.9 Data Processing and Analysis

Collected data was coded and analysed using Statistical Package for Social Sciences (SSPS) to generate tables, graphs and statistical parameter estimates. Factor analysis was done for all the items of each variable. Items that did not meet the threshold of 0.3 were dropped. Descriptions of the dependent and independent variables were established and test for normality of the dependent variable was done. Reliability analysis was conducted through the use of Cronbach's alpha.All the variables hadcronbach alpha values above 0.7 implying that the instruments were sufficiently reliable for

measurement. Correlation analysis was used to test the relationship between the variables (Jackson, 2009).

Multiple linear regression model shown below was adopted under the assumption the dependent variable is normal in distribution:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X5 + e$$

Where Y represented interest rate spread among commercial banks in Kenya

β_0 Represent intercept/constant;

X_1 represent inflation

X_2 represent operating costs

X_3 represented market structure

X_4 represents ownership structure

X5 represents business risks

ℓ Error term

β_1, β_2, β_3, β_4 and β_5 represent coefficients of respective variables: inflation, operating costs, market structure, ownership structure and business risks respectively. The model assumed that the dependent variable is normal in distribution. Coefficient correlation between each set of pairs of variables was computed guided by research questions as follows;

a) Does inflation influence interest rate spread among commercial banks in Kenya? This was determined by; $Y= \alpha_1+\beta_1 x_{1+}$ e,whereY was IRS, X_1 was the variable Inflation, and

β_1 was coefficient of correlation of inflation. The independent operating costs, market structure, ownership structure and business risks were held constant.

b) Does operating costs influence interest rate spread among commercial banks in Kenya? This was determined by; $Y= \alpha_2+\beta_2 x_{2+}$ e,whereY was IRS, X_1 was the variable operating cost, and β_1 was coefficient of correlation of operating cost. The independent inflation, market structure, ownership structure and business risks were held constant.

c) Does market structure influence interest rate spread among commercial banks in Kenya? This was determined by; $Y= \alpha_3+\beta_3 x3_{+}$ e,whereY was IRS, X_3 was the variable market structure, and β_1 was coefficient of correlation of market structure. The independent inflation, operating costs, ownership structure and business risks were held constant.

d) Does ownership structure influence interest rate spread among commercial banks in Kenya? This was determined by; $Y= \alpha_4+\beta_4 x_{4+}$ e, whereY was IRS, X_4 was the variable ownership structure, and β_1 was coefficient of correlation of ownership structure. The independent inflation, operating costs, market structure and business risks were held constant.

e) Does business risks influence interest rate spread among commercial banks in Kenya? This was determined by; $Y= \alpha_5+\beta_5 x_{5+}$ e,whereY was IRS, X_5 was the variable business risks, and β_1 was coefficient of correlation of business risks. The other independent variables inflation, operating costs, market structure and ownership structure were held constant. The correlation analysis yields a statistic referred to as correlation coefficient denoted as (r).It is used to describe the degree of relationship. Kutner (2004) noted that computation of coefficient is complex when involving more variables and for this reason the researcher used computer packages to perform the necessary computations. If r is nearer +1 or -1, it indicates high degree of positive and negative correlation between the variables respectively.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the responses of the study and the analysis of data that was collected on determinants of interest rate spread among commercial banks in Kenya.Specifically, it focused on the influence of inflation, operating costs, market structure, ownership structure and business risks on interest rate spreadamong commercial banks in Kenya.

4.2 Response Rate

The researcher distributed three hundred and eighty four questionnaires (384) and was able to collect two hundred and thirty seven fully filled in questionnaires which represented 62% of the total questionnaires distributed. According to Kothari (2004) 50% response rate is considered average, 60-70%is considered adequate while anything above 70% is considered to be an excellent response rate.Morrison and Louis(2007) indicated that for a social study, anything above 60% response rate is adequate for making significant conclusion in social sciences. The62% response rate was therefore a good representative of the respondents to provide enough information for analysis and to derive conclusions. However some respondents were reluctant to respond to questionnaires citing demanding work schedules, stringent bank disclosure policies and general lack of time as their excuses.

Table 4.1: Response Rate

Details	Frequency	Percent
Distributed Questionnaires	384	100%
Returned Questionnaires	237	62%

4.3 Major Lending Sectors

The respondents were asked to indicate the three major sectors to which their banks lend. Majority of the respondents indicated their first sector as building and construction with (54%). The second wasmanufacturing with 26% while 20% lend to private households. Finance and insurance and wholesale and retail trade ranked fourth with only 0.4% each.This reflects a fair distribution of loans. This would be helpful in obtaining views about interest rate spread from the lenders of different sectors.

Table 4.2: Major Lending Sectors

Sector	Frequency	Percent
Manufacturing	58	24.500
Building and Construction	129	54.400
Finance and Insurance	1	0.400
Whole sale and Retail Trade	1	0.400
Private Households	48	20.300
Total	**237**	**100**

4.4 Major Lending Segments

The respondents were asked to indicate thethreemajor market segments that they lend. Majority of the respondents indicated that they lend to corporate market segment with fifty nine percent (59%) , followed by consumer segment with about twenty nine (29%) and then small micro-enterprise with about thirteen percent (13%) of the total

loans.This reflects a fair distribution of lending segments. This would be helpful in obtaining views about interest rate spread from lenders of different segments.

Table 4.3: Major Lending Segments

Segment	Frequency	Percent
Consumer	68	28.700
SME	30	12.700
Corporate	139	58.600
Total	**237**	**100**

4.5 New Product Introduction

This question was aimed at testing whether the respondents had introduced any new loan products in the previous two months. Most respondents, eighty one percent (81%) reported not to have introduced any with only nineteen percent (19%) reporting to have introduced some product without mentioning the products that they had introduced.This reflects that any change in interest rate spread is not as a result of introduction of new products.

Table 4.4: New Product Introduction

Response	Frequency	Percent
Yes	45	19
No	192	81
Total	**237**	**100**

4.6 Reliability and validity analysis

Reliability test was carried on the data collected to test its goodness. After applying the Cronbach's Coefficient Alpha test on interest rate spread, inflation, operating costs, market structure, ownership structure and business risks an alpha coefficient of

0.700,0.700, 0.900,0.830,0.960 and 0.900 was reached. Scales in the questionnaire of 0.7 and above, the value commonly required for descriptive research, indicated satisfactory reliability (Vogt, 2007; Saunders, Lewis and Thornhill, 2009; Christensen, Johnson and Turner, 2011). Based on these recommendations all the variables in the study questionnaire were concluded to have adequate internal consistency and were reliable for the study and their results could be used to generalize on population characteristics.

Table 4.5 Cronbach Alpha Values

Construct	Number of items	Cronbach alpha
Interest Rate Spread	10	0.7
Inflation	10	0.7
Operating costs	10	0.9
Market Structure	10	0.830
Ownership Structure	10	0.960
Business Risks	10	0.900

4.7 Analysis of variables

This section entails the use of factor analysis, descriptive statistics of the variables, correlation analysis, and regression analysis to deduce more meaning of the data for the purpose of concrete results, findings and conclusion.

4.7.1 Interest Rate Spread

The researcher distributed questionnaires which sought to establish the factors that contribute to interest rate spread among commercial banks in Kenya. The statements were subjected to various tests: reliability test, factor analysis, descriptive,correlation and regression and the results were as follows.

4.7.1.1 Factor Analysis on Interest Rate Spread

Factor analysis was carried out before analysis of the results to describe variability among the observed and check for any correlated variables with the aim of reducing data that was found redundant. Factor analysis carried out on the dependent variable - IRS is as indicated on Table 4.6. Statements scoring more than 0.300 which is the minimum requirement for inclusion of variables into the final model (Hair, Black & Babin, 2010; Kothari, 2004) were included. Hence the researcher dropped the statement that bank monetary policies influences direction of interest rate spread and that interest rate spread is the highest contributor to profits in a bankwhich had a factor component of 0.177 and0.278 respectively which were less than 0.300.

Table 4.6 Factor Analysis on Interest Rate Spread

Statements	Factor Component
Banks can reduce their margins without affecting quality of service	0.757
Competition has helped reduce interest rate spread among commercial banks in Kenya.	0.737
Interest rate spread follows the inflation rates of the countries	0.723
Central bank rate (CBR) determines and influences the direction of bank interest rate	0.658
Central bank monetary policies influences direction of interest rate spread	0.177*
Interest rate spread is the highest contributor to profits in a bank	0.278
Average	**0.700**

Key * statement dropped

4.7.1.2 Descriptive Analysis of Interest Rate Spread

In this section, the study responded to general objective which sought to investigate whether interest rate spread follows the inflation rates of the countries. As indicated on Table below, majority of the respondents, ninety percent (90%) agreed, six percent (6%)

strongly agreed, three percent (3%) were neutral,zero percent (0%) disagreed and zero percent (0%) strongly disagreed with the statement.The mean score of 4.000 indicate that majority of the respondents agreed that interest rate spread follows the inflation rates of the countries.On whether Central bank rate (CBR) determines and influences the direction of bank interest rate. The results indicate that majority, seventy four percent (74%) of the respondents agreed, fifteen percent (15%) strongly agreed, seven percent (7%) were neutral; four percent (4%) disagreed while zero percent (0%) strongly disagreed.

The statement on banks' profit margins and quality of services sought to establish whether the banks can be able to reduce their profit margin without affecting the quality of their services. The findings indicated that majority, 71% of the respondents agreed, 22% strongly agreed, 4% disagreed while 3% were neutral.On whether competition in the banking sector had helped reduce interest rate spread among commercial banks in Kenya, majority (84%) of the respondents agreed, 12% strongly agreed, 4% were neutral while 0% disagreed and 0% strongly disagreed.

Ben-Khediri, Casu and Sheik-Rahim (2005) and Beck, Thorsten and Hesse (2006) carried out a research on profitability and interest rates differentials in Tunisian economy. They found out that banks fail to find a significant influence of inflation and real output growth on bank interest margins and profitability.

Ndung'u and Ngugi (2000)in their efforts to explain the determinants of interest rate spread observed that large spreads occur in developing countries due to high operating costs, financial taxation or repression, lack of a competitive financial/banking sector and macroeconomic instability. 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 found an insignificant impact of economic growth on the level of different measures of spreads.

Table 4.7 Descriptive of Interest Rate Spread

Key: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

Statements	1	2	3	4	5	Mean
Interest rate spread follows the inflation rates of the countries	0%	0%	3%	90%	6%	4.000
Central bank rate (CBR) determines and influences the direction of bank interest rate	0%	4%	7%	74%	15%	4.000
Banks can reduce their margins without affecting quality of service	0%	4%	3%	71%	22%	4.110
Competition has helped reduce interest rate spread among commercial banks in Kenya.	0%	0%	4%	84%	12%	4.060
Average	**0%**	**2%**	**4%**	**80%**	**14%**	**4.04**

4.7.1.3 Normality Test for Interest Rate Spread

Condition for normality is required for one to fit a linear regression model (Sekaran and Bougie, 2011). Figure 4.1 show that the concentration is towards the line and the skewedness towards the corners which indicates that the dependent variable is normally distributed. Consequently such data is good for undertaking all manner of inferential and parametric statistical analysis since the probability of outliers is minimal (Sekaran and Bougie, 2011). Furthermore, it implies that the data is ideal for all types of analysis, including parametric analysis for causal relationship between dependent variable and independent variables.It was therefore statistically correct to fit the multiple linear regression since IRS (dependent variable) data was normal in distribution. Fig. 4.1 shows a Q-Q plot assuming a normal distribution which is confirmed by histogramshown in Fig. 4.2

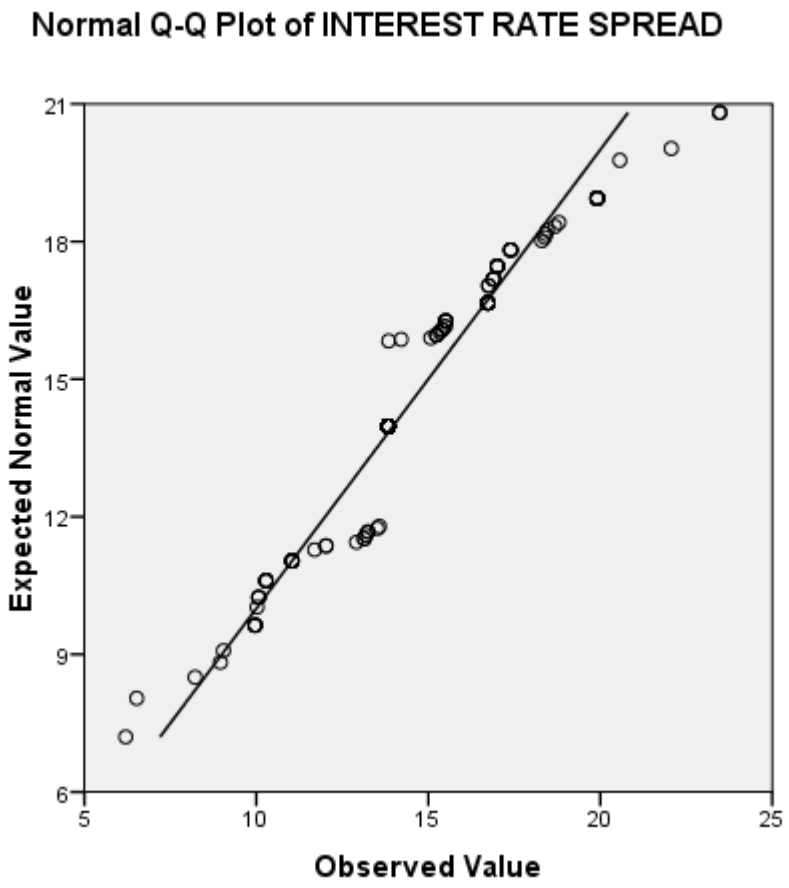

Figure 4.1 Normal Q-Q plot of Interest Rate Spread

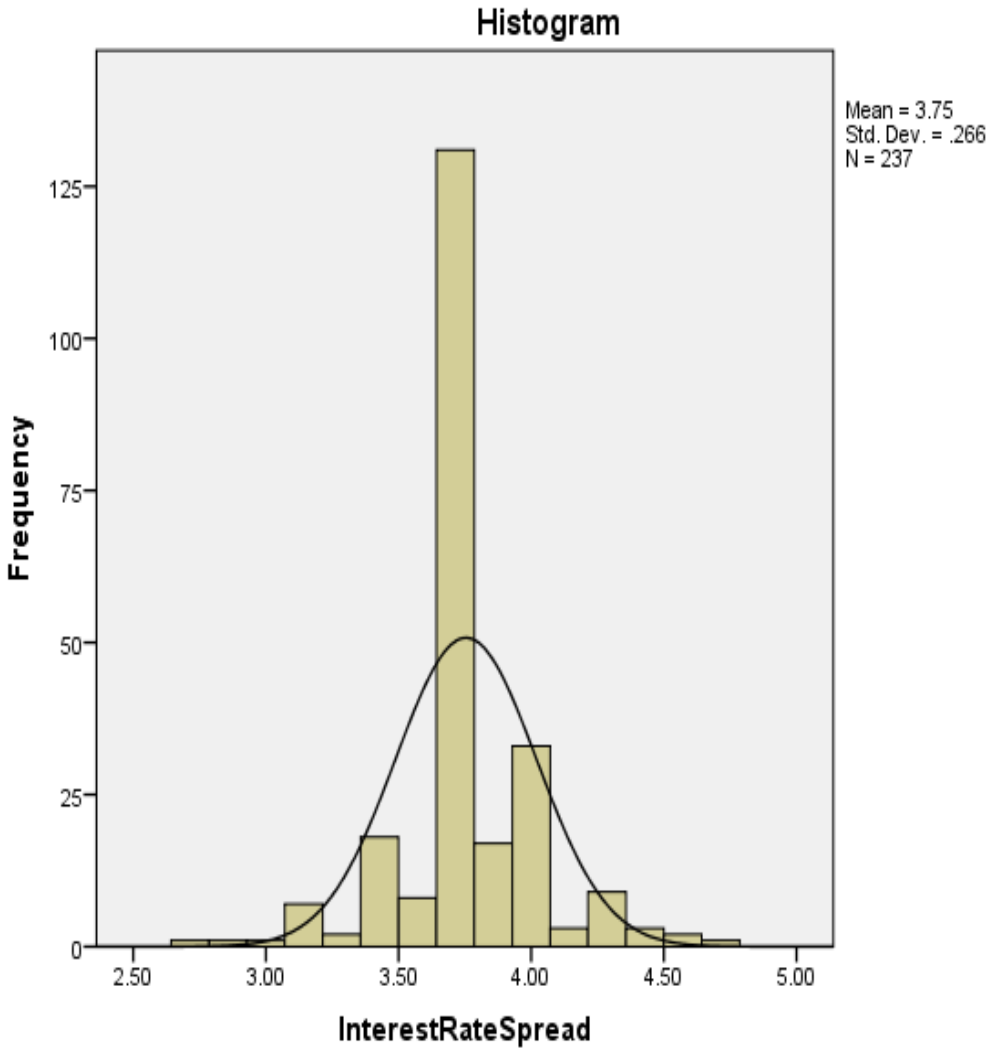

Figure 4.2 Histogram for Interest Rate Spread

4.7.1.4 Testing of the Independence of the Variables

Inferential statistics are meant to infer whether there is underlying relationship within the respective variables. For the purpose of subsequent analysis, the dependent variable was subjected to normality test to check whether the data provided was normally distributed or not. If the dependent variable is not normally distributed then there would

be problems in subsequent statistical analysis until the variable assumes normality (Hair, Black, Babin & Anderson, 2010).

According to Sekaran and Bougie(2011) the recommended range for Durbin- Watson is and the p value should be more than 0.05. Independence of the variables test was carried out. Durbin – Watson statistic of 1.834 as shown in table 4.8 indicate that there was no autocorrelation and therefore there was independence of the independent variables. The P value of 1.014 also shows that there was no autocorrelation because it is higher than the normal threshold of 0. 05. The results of the test are shown in table 4.8 below:-

Table 4.8 Testing the Independence of the variables

Variable	P value	Durbin-Watson
IRS	1.014	1.834

4.7.2 Inflation and Interest Rate Spread

The various statements on this variable aimed at establishing whether there existed any statistical significance between inflation and interest rate spread. Indicators were commodity and services prices, imported goods' prices, fuel prices, demand for loans, supply of deposits and the effects of foreign direct investments. The following tests wererun on this variable: reliability test, factor analysis, descriptive test, correlation, goodness of fit and regression coefficient as shown below.

4.7.2.1 Factor Analysis on Inflation

Factor analysis was carried out to describe variability among the observed variables Statements scoring more than 0.3 which is the minimum requirement for inclusion of variables into the final model according to (Hair, Black and Babin, 2010 and Kothari,

2004) were included. None of the statements required to be dropped since their factor components were above 0.30 which is recommended.

Table 4.9 Factor Analysis on Inflation Rate

Statements	Factor Component
The higher the inflation rate the higher the inflation	0.732
Supply of deposits in commercial banks influences inflation.	0.609
Commodity and service prices in the market influence interest rate spread	0.601
Prices of imported goods and services impact on interest rate spread	0.597
Foreign direct investments lead to high inflation and affect interest rate spread	0.587
Demand for loans influence interest rate spread	0.535
Fuel is a key component of inflation in Kenya and also the inflation rate	0.382
Average	**0.578**

4.7.2.2 DescriptiveAnalysis of Inflation and Interest Rate Spread

This study sought to investigate relationship between inflation and interest rate spread among commercial banks in Kenya. The indicators considered were such as commodity and service prices, supply of deposits, imported goods prices, concentration and sizes of foreign direct investment and their effects on IRS.

Data on table 4.10 show responses on statements regarding the effects of inflation on interest rate spread among commercial banks in Kenya. The data show that 82% of the respondents agreed that commodity and service prices in the market influence interest rate spread of the banks positively while 12% strongly agreed, 0% were indifferent and 6% of the respondents disagreed. Regarding whether foreign direct investments lead to high inflation and affect interest rate spread of banks, 82% agreed, 6% strongly agreed

while 13% were neutral. On whether supplies of deposits in commercial banks influences inflation among commercial banks, 6% were indifferent, 0% agreed while 80% agreed and 14% strongly agreed. Regarding the statement that the higher the inflation rate the higher the interest rate spread, 87% agreed, 6% strongly agreed and 6% were neutral, The mean score of responses regarding inflation and interest rate spread was 82% strongly agreed,12% agreed while 4% were neutral. Most banks (it turned out) structure their interest rate policy under impression that it follows the inflation rate and therefore observes the behavior of inflation.

This study finding corroborate with Ngugi (2001) which 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. Afanasieff…et al (2002), using the Ho & Saunders (1981) two step approach while investigating whether inflation are relevant in explaining spread behavior in Brazil, concluded that the factors most relevant to explaining such behavior are macroeconomic variables, such as the basic interest rate, inflation and output growth.

Folawewo and Tennant (2008) found that the extent of government crowding out inflationary levelwas an important determinant of interest rate spreads in SSA countries. Hassan and Khan (2010) studied determinants among commercial bank spread in Pakistan and they considered macroeconomic indicators (e.g. inflation, real GDP growth and interest rate). Further, in line with studies (Maudos & Guevara, 2004; Williams, 2007; Wong & Zhou, 2008; Khawaja & Din, 2007) for Pakistan on banking spreads in different countries considering the impact of the macroeconomic environment, they found that both real GDP growth and interest rates positively affect the level of banking spreads in Pakistan.Aikaeli, Mugizi and Ndanshau (2011) studied interest rate spreads in Tanzania and they found out that an unstable macroeconomic environment such as inflation impacts positively on the interest rate spreads in several ways: poor economic

performance is likely to reduce the ability of bank debtors to honour their debt obligations.

In Kenya, despite the rise in inflation in November and December 2010, which was largely attributed to rising international crude oil prices; overall inflation in 2010 remained relatively low and stable. The low and declining inflation was sustained by various factors, the most significant being sufficient rainfall, stable energy prices and the fall in mobile phone call rates during the year. It was however, expected to rise following the rising food prices due to the imminent drought experienced in parts of the country. In addition, there is always some risks of imported inflation following the rising trend of international crude oil prices in an economy.

Table 4.10 Descriptive of Inflation and Interest Rate Spread

Key: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

Statement	**1**	**2**	**3**	**4**	**5**	**Mean**
Commodity and service prices in the market influence interest rate spread	0%	6%	0%	82%	12%	3.99
Prices of imported goods and services impact on interest rate spread	3%	6%	0%	79%	12%	3.89
Fuel is a key component of inflation in Kenya and also the inflation rate	0%	3%	0%	85%	12%	4.06
Demand for loans influence interest rate spread	0%	3%	0%	79%	19%	4.13
Foreign direct investments lead to high inflation and affect interest rate spread	0%	0%	13%	82%	6%	3.93
Supply of deposits in commercial banks influences inflation.	0%	0%	6%	80%	14%	4.08
The higher the inflation rate the higher the interest rate spread.	0%	0%	6%	87%	6%	4.00
Average	**0%**	**3%**	**4%**	**82%**	**12%**	**4.01**

4.7.2.3 Secondary Data on Inflation

In order to further corroborate the findings from the primary data, secondary data on inflation and interest rate spread was collected for period 2003 to 2012. The data collected was for the entire commercial banking sector/ economy.According to Beck and Polit (2003), secondary research involves the use of data gathered in a previous study to test new hypotheses or explore new relationships. Beck and Polit (2003) states that secondary analysis of existing data is efficient and economical because data collection is typically the most time-consuming and expensive part of a research project. The secondary data on table 4.11 and figure 4.3 below indicates interest rate spread follows the trend of inflation. Thesefindings are in agreement with the research hypothesis.

Table 4.11 Trend on Interest Rate Spread and Inflation

Year	Interest Rate Spread	Inflation
2002	12.97	1.96
2003	12.44	9.82
2004	10.10	11.62
2005	7.80	10.31
2006	8.50	14.45
2007	8.18	9.76
2008	8.71	26.24
2009	8.84	9.23
2010	9.81	3.96
2011	9.42	14.02
2012	8.15	9.38
Average	**9.195**	**11.879**

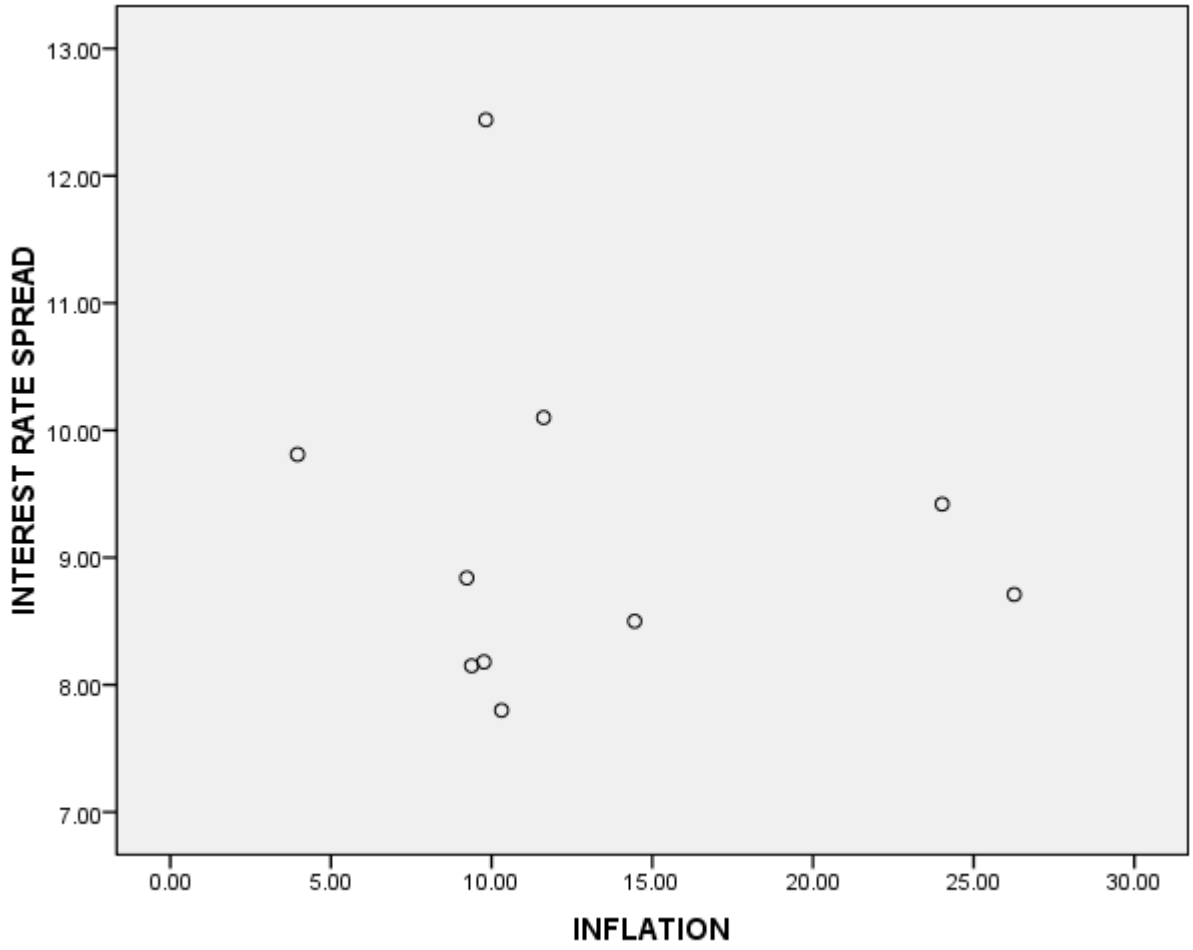

Figure 4.3 Trend of IRS and Inflation

4.7.2.4 Correlation Coefficient of Inflation and Interest Rate Spread

Correlation coefficient indicates the measure of linear relationship between two variables. Figure 4.4 shows there is a positive linear relationship between inflation and interest rate spread. Table 4.12on the other hand shows the Pearson correlation coefficients between the independent variable inflation and the dependent variable interest rate spread. It shows a significant positive correlation between inflation and interest rate spread of 0.129.

These results are consistent with Birchwood (2004) who explicitly examined the impact of macroeconomic influences such as inflation on nominal and real interest spreads in the Caribbean region. Their study also found that countries with fixed exchange rates exhibited lower inflation rates and the highest real spreads.Hawtrey and Liang (2008) argued that most common justifications given for the commercial banks' relatively large interest rate spreads include the uniquely high costs and risks associated with conducting business in Jamaica, macroeconomic instability due to inflation, and high reserve requirements. These factors, however, are downplayed by a few managers, and regulators and policy advisors as being exaggerated or simply irrelevant. In Kenya similar results were reported in the year 2003-2007(CBK, 2011).

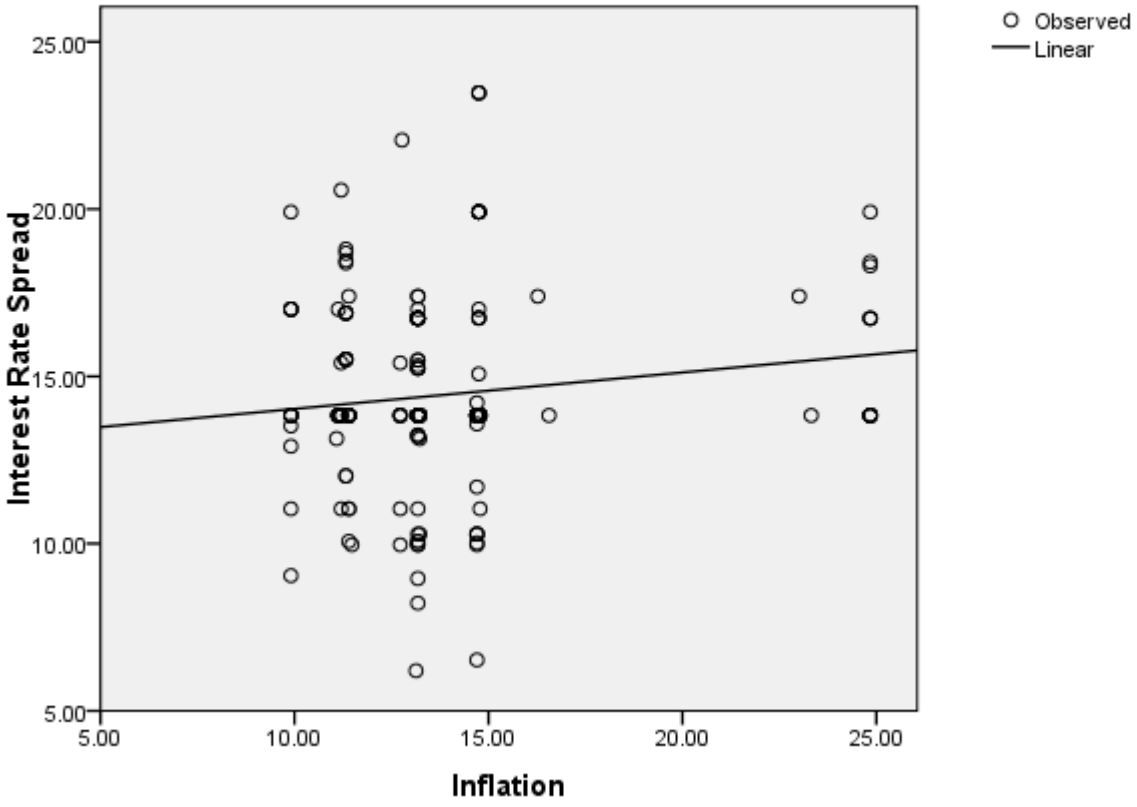

Figure 4.4 Inflation and Interest Rate Spread Scatter Plot

Table 4.12 Pearson Correlation onInflation and Interest Rate Spread

Variable	Coefficient type	Interest Rate Spread	Inflation
Interest Rate Spread	Pearson Correlation	1.000	0.129
	Sig. (2-tailed)	0.000	0.047
Inflation	Pearson Correlation	0.129	1.000
	Sig. (2-tailed)	0.047	0.000

4.7.2.5 Regression Analysison Inflation and Interest Rate Spread

Regression analysis is carried out in order to determine whether inflation as independent variable can be relied on in explaining the dependent variable-IRS. Table 4.13shows coefficient of determination (R Square) of 0.017. In other words inflation rate, canexplain 1.7% of changes in IRS among commercial banks in Kenya. Table 4.14 on the other hand shows a positive beta coefficient of 0.109. This means that a unit change in inflation brings about a 0.109 change in interest rate spread in the same direction. Table4.14 also presents the level of significance also called the p value. The p-value for inflation is 0.047 which is less than the set 0.05 level of significance. This means that inflation is statistically significant in explaining interest rate spread among commercial banks in Kenya.

Aikaeli, Mugizi and Ndanshau (2011) Corroborates in their study of interest rate spreads in Tanzania and found out that an unstable macroeconomic environment such as inflation impacts positively on the interest rate spreads in several ways such as poor economic performance.Sanya and Gaertner (2012) also corroborates while assessing bank competition within the East Africancommunityand argued that, a weak economy exposes banks to credit risk as low economic growth promotes deterioration of credit quality and increases the probability of loan defaults. In contrastin the case of Tunisia, Ben-Khediri, Casu and Sheik-Rahim (2005)failed to find a significant influence of inflation and real output growth on bank interest margins and profitability. Inflation effect was also found to be statistically insignificant.

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. Kenya reported similar results in year 2008-2010 where increase in inflation decreased IRS.

Table 4.13 Model Fitness: Inflation and Interest Rate Spread

Variable	R	R Square	Std. Error of the Estimate
Coefficient	0.129	0.017	2.573

Table 4.14 Regression Coefficient- Inflation and Interest Rate Spread

Indicator	Beta	Std. Error	T	Sig.
Constant	12.939	0.764	16.945	0.000
Inflation	0.109	0.055	1.997	0.047

4.7.3 Operating Costs and Interest Rate Spread

The statements on this variable sought to establish the relationship between operating costs and interest rate spread. The operating costs included water and electricity, transport, salaries and wages, stationary, security, repair, communications equipment and obsolesce of machines. Various tests were carried out on this variable: reliability test, factor analysis, descriptive, correlation and regression analysis and the findings are as follows.

4.7.3.1 Factor Analysis onOperating Costs

Factor analysis was carried out to describe variability among the observed variables and check for any correlated variables with the aim of reducing data that was found redundant. Statements scoring more than 0.3 which is the minimum requirement for inclusion of variables into the final model (Hair, Black & Babin, 2010 and Kothari, 2004) were included. On this variable all the statements were included.

Table 4.15 Factor Analysis onOperating Costs

Statement	Factor Component
Transport influence interest rate spread	0.950
Stationery influence interest rate spread	0.950
Salaries and wages influence interest rate spread	0.950
Security influence interest rate spread	0.950
Communications equipment influence interest rate spread	0.950
Maintenance influence interest rate spread	0.920
Utility costs (Electricity and water) influence interest rate spread	0.870
Obsolescence of machines costs	0.690
Average	**0.900**

4.7.3.2 Descriptive of Operating Cost and Interest Rate Spread

Data on Table 4.16 show responses on statements regarding the effects of operating costs on interest rate spread among commercial banks in Kenya.On whether salaries and wages and security influenced interest rate spread 84% of the respondents disagreed, 13% strongly disagreed with only 3% being neutral and none at all agreeing or strongly agreeing with the statement.On the statement if stationery and transport costs influence interest rate spread, 77% of the respondents disagreed, 19% and 20% strongly disagreed respectively and only 3% in each case being neutral while none reported any agreement or strong agreement with the statement.

Corroborators of this view were not many but included researchers such as Aboagyee…et al (2008) who studied the response of net interest margin of banks to changes in factors that are bank-specific, banking industry specific and Ghanaian economy macroeconomic factors. They found 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. Tenant (2006) argued that there is wide divergence between the views of some of the financial institution managers, and the regulators and policy advisors on the issue of interest rate spreads in Jamaica.

Hawtrey and Liang (2008) argued that most common justifications given for the commercial banks' relatively large interest rate spreads include the uniquely high costs and risks associated with conducting business in Jamaica, macroeconomic instability, and high reserve requirements.Ngugi (2001) who studied factors determining interest rate spread in Kenya found out that interest rate spread increases due to yet to be gained efficiency and high intermediation costs. Both implicit and explicit taxes widen the interest spread as they increase the intermediation costs, asserts (Ngugi, 2001).

Wong and Zhou (2008), in a study on commercial bank net interest margins in China, found evidence to support the extension of interest rate spread due to operating costs. Other researchers who found a relationship of operating cost and interest rate spread were Chirwa and Mlachila (2004) and Mlachila and Chirwa (2002) who established a positive effect of operating costs on interest rate spread in Malawi.

Maudos and Guevara (2004) built on the work of Angbazo (1997) to explicitly incorporate operating costs in their theoretical model. Further, in their study on

European banks, they used the Lerner Index, a more direct measure of market power than the concentration ratios used in previous studies. They found that the interest margin depends on banks' average operating costs.

In case of Pakistan, State Bank of Pakistan (2006) observed that bank-specific factors such as, provisioning, administrative expenses, and ownership (e.g. foreign or domestic), as well as industry factors e.g. market concentration, all positively influence the level of banking spreads in Pakistan. Ikhide(2009) in their study in Botswana concluded overhead costs are highest for foreign banks, resulting in the lowest return on assets hence high interest rate spread compared to private and public sector banks.

These high overhead costs are largely reflected in high employee payments and highly automated and well designed and furnished bank branches. The increase demonstrates initiatives by banks to increase provision of their services by adopting cost effective channels such as automated transfer machine (CBK, 2012).

Table 4.16 Descriptive of Operating Costs and Interest Rate Spread

Key: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

Statements	1	2	3	4	5	Mean
Salaries and wages influence interest rate spread	13%	84%	3%	0%	0%	1.9
Stationery influence interest rate spread	19%	77%	3%	0%	0%	1.84
Security influence interest rate spread	13%	84%	3%	0%	0%	1.9
Transport influence interest rate spread	20%	77%	3%	0%	0%	1.84
Communications equipment influence interest rate spread	14%	83%	3%	0%	0%	1.9
Maintenance influence interest rate spread	22%	75%	3%	0%	0%	1.81
Utility costs (Electricity and water) influence interest rate spread	25%	72%	3%	0%	0%	1.78
Obsolescence of machines costs	19%	76%	5%	0%	1%	1.89
Average	**18%**	**79%**	**3%**	**0%**	**0%**	**1.86**

4.7.3.3 Pearson Correlation- Operating Costs on Interest Rate Spread

Correlation coefficient indicates the measure of linear relationship between two variables. The relationship can be either positive or negative where a positive relationship is indicated by an upward slope and a negative one with a downward slope. Figure 4.5 shows there is a negative linear relationship between operating costs andinterest rate spread. Table 4.17 shows the Pearson correlation coefficient between the independent variable operating costs and the dependent variable interest rate spread. There is a significant negative correlation of 0.314 between operating costs and interest rate spread.

These results were inconsistent with Wong and Zhou (2008), in a study on commercial bank net interest margins in China who found evidence to support the extension of interest rate spread due to operating costs.Corroborators of these findings were Tennant and Folawewo (2008) who found statutory reserve requirement, discount rate and level of money supply determined by the central bank exerted a significant positive effect on interest rate spread in SSA during the period 1988-2005 and not necessarily operating costs.

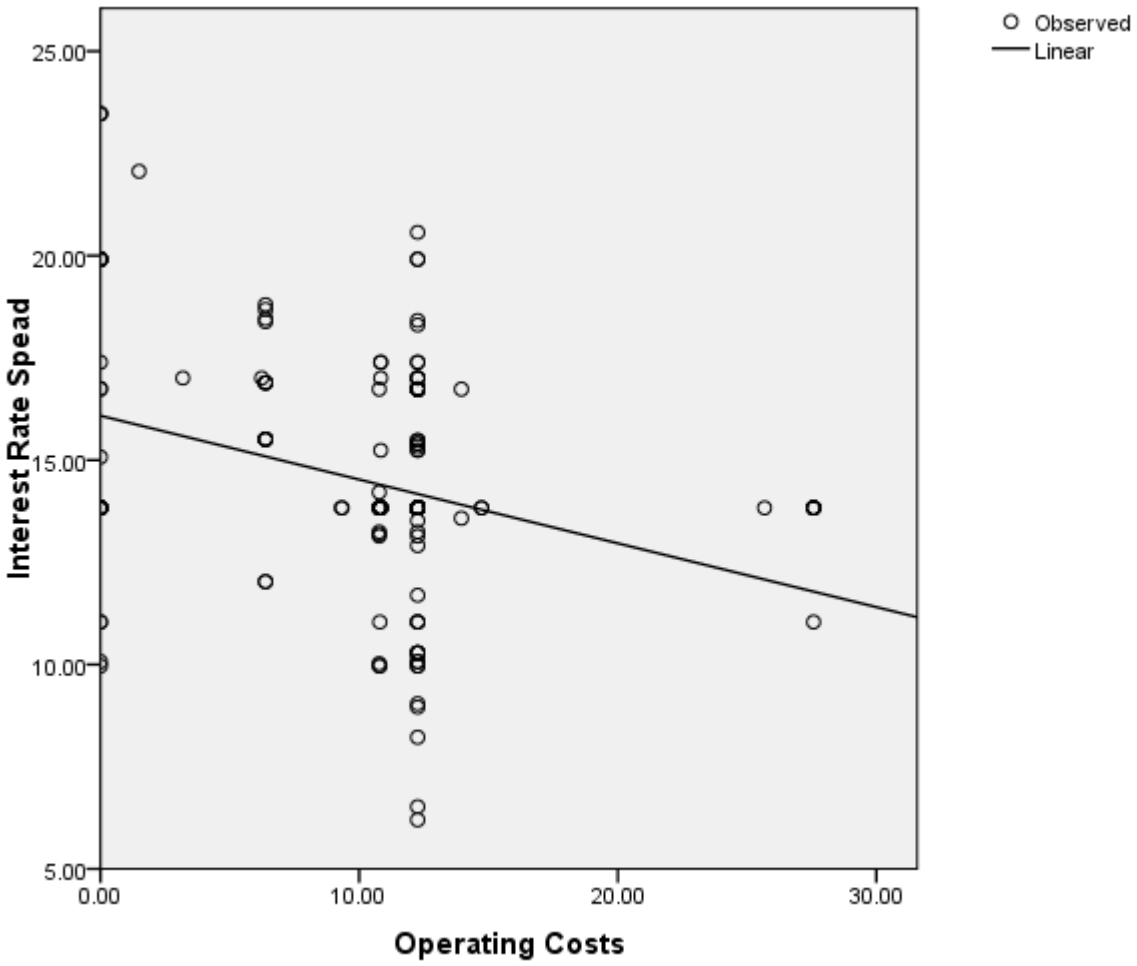

Figure 4.5 Operating Costs' Influence on Interest Rate Spread

Table 4.17 Pearson Correlation Analysis on Operating Cost

Variable	Coefficient Type	Interest Rate Spread	Operating Cost
Interest Rate Spread	Pearson Correlation	1.000	-0.314
	Sig. (2-tailed)	0.000	0.000
Operating Cost	Pearson Correlation	-0.314	1.000
	Sig. (2-tailed)	0.000	0.000

4.7.3.4 Regression Analysis on Operating Cost

This was carried out in order to determine whether operating costs as independent variable can be relied on in explaining the dependent variable-interest rate spread. Table 4.18 shows the coefficient of determination (R Square) of 0.094 which indicates that the model can explain 9.4% of the variations or changes in the dependent variable of IRS. In other words operating costs, can explain 9.4% of changes in IRS among commercial banks in Kenya. Table 4.19 shows a significant negative Beta coefficient which indicates an inverse effect between operating costs and interest rate spread of 15.6%. That is, a unit change in operating costs in any direction leads to a 0.156 change in interest rate spread in the opposite direction.

In contrastBirungi (2005) and Beck, Thorsten and Hesse (2006) who used bank-level dataset on the Ugandan banking system to examine the factors behind the consistently high interest rate spreads and margins. They all agreed thatoperating costs, and composition of loan portfolio, explain a large proportion of crossbank, cross-time variation in spreads and margins.

Ngugi (2001) who studied factors determining interest rate spread in the found out that interest rate spread increases due to yet to be gained efficiency and high intermediation

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 found that an increase in staff costs and administrative costsincreases the net interest margin of banks. Higher operational costs have been positively correlated with higher interest rate spreads as banks increase mark up on loans to cover operating expenditure.

Demirguc-Kunt and Huizinga (1999); a regional study on the Caribbean by Craigwell and Moore (2006); and individual country analyses of the Ugandan economy by Beck, Thorsten and Hesse (2006) and Zikmund, Babin and Griffin (2010) concluded that larger operating costs have been associated with greater levels of inefficiency in the financial system of developing countries. A study by Martin (2010) found that Belize's high interest rate spreads are indicative of high operating costs or inefficiencies in financial intermediation.

Table 4.18 Model Fitness- Operating Cost and Interest Rate Spread

Variable	R	R Square	Std. Error of the Estimate
Coefficient	0.314	0.098	2.465

Table 4.19 Regression on Operating Costs and Interest Rate Spread

Indicator	B	Std. Error	T	Sig.
Constant	16.084	0.364	44.136	0.000
Operating Cost	-0.156	0.031	-5.062	0.000

4.7.4 Market Structure and Interest Rate Spread

The study sought the relationship between market structure and interest rate spread. Various tests: reliability test, factor analysis, descriptive, correlation, goodness of fit and regression were carried out and the analyses were as follows.

4.7.4.1 Factor Analysis onMarket Structure

Factor analysis was carried out to describe variability among the observed variables and check for any correlated variables with the aim of reducing data that was found redundant. Statements scoring more than 0.3 which is the minimum requirement for inclusion of variables into the final model (Hair, Black & Babin, 2010; Kothari, 2004) were included. Following the above justification and the research findings none of the statement was dropped since they all scored above the required factor component of 0.30.

Table 4.20 Factor Analysis and Market Structure

Statement	Factor Component
Routine examination by central bank has helped to ensure a healthy banking system and further reduced interest rate	0.760
The number of banks in the economy, determine the level of interest rate spread	0.735
Effective banking supervision has helped to address high management issues in Kenya banking sector	0.725
The stability in the banking system was a result of efficient regulation and supervision by central bank	0.717
On site supervision has helped in reducing unprofessional and unethical conduct it business of banking in Kenya	0.693
Buyouts and takeovers among commercial banks can tremendously reduce interest rate spread.	0.612
Government control and supervision has ensured regulated interest rate spread in Kenya.	0.599
The number of non banks financial institutions in the economy determines the level of interest rate spread.	0.553
Average	**0.674**

4.7.4.2 Descriptive on Market Structure and Interest Rate Spread

Respondents were approached with different statements seeking the relationship between market structure and interest rate spread.The indicators which were hypothesized as having effect on market structure were supervision, on- site supervision, routine examination, management supervision, number among commercial banks, number of non- banking financial institutions, level of government controls and buyouts and takeovers.The stability in the banking system was a result of efficient regulation and supervision by central bank78% agreed and 22% for strongly agree any other was 0%.On site supervision had helped in reducing unprofessional and unethical conduct in banking business in Kenya scored 79% agreed and 18% strongly agreed.

Routine examination by central bank has helped to ensure a healthy banking system and further reduced interest rate 78% agreed and 20% strongly agreed. Effective banking supervision has helped to address high management issues in Kenya banking sector 76 % agreed and 22% strongly agreed. 70% of respondents agreed with the statement that the number of banks in the economy, determine the level of interest rate spread. 74% agreed with the number of non banks financial institutions in the economy determines the level of interest rate spread and still 76% agreed with the statement that buyouts and takeovers among commercial banks can tremendously reduce interest rate spread. Each of the above had only 1% of the respondents' who disagreed with the statements. The mean score were that 74% agreed, 21% strongly agreed and 5% were neutral while non disagreed or strongly disagreed. The data collected showed a unanimous support that market structure can explain interest rate spread.

The above observations were supported by Radha (2011), who said that different segments of the banking sector in Kenya face clients of significantly different size and type, and this segmentation affects lending decisions, deposit mobilization and

governance of banks. A study by Mwega (2012) suggested that it is monopolistic competition that best characterizes banks' market behaviour and provides further evidence of banking market segmentation in Kenya. The positive relationship between bank size and the spreads is thus shaped by the nature and structure of Kenya's banking sector.Khawaja and Din (2007) asserted that various determinants of interest spread included market structure of the industry. The industrial organization literature predicted that an oliogopolistic market structure may result in higher spreads (Samuel & Valderrama, 2006), thoughthey asserted that empirical evidence on this count is mixed.

Aikaeli, Mugizi and Ndanshao (2011) argued that market based financial system in Tanzania were characterized by relatively high interest rate spreads. They sought to establish relative importance of macroeconomic and regulatory factors in explaining persistence of highinterest rate spread in Tanzania during the period 1991 quarter 1 to 2009 quarter4. They used a Co integration and Error Correction Model (ECM) to fit the data for Tanzania. They found that interest rate spreads in Tanzania were strongly influenced by net government borrowing from commercial banks, development of the banking sector, statutory minimum reserve requirement and the discount rate. Among others, their results suggested the importance of low discount rate and reduced or total dispense with reserve requirement as a monetary policy strategy to reduce interest rate spreads in Tanzania. Importance of price stability in financial deepening is also underscored by their results.

Al-Haschimi (2007) found that operating inefficiencies appeared to be the main determinants of high bank spreads in SSA economies. Brock and Rojas Suareza (2000) also showed that administrative and other operating costs contributed to the prevalence of high spreads in Latin American countries. On the other hand, Bourke (1989) and Molyneux and Thornton (1992) found a positive effect of commodity prices on bank profitability, the extent to which inflation affected bank profitability depended on

whether future movements in inflation were fully anticipated, which, in turn, depended on the ability of firms to accurately forecast future movements in the relevant control variables. They argued that an inflation rate that is fully anticipated raises profits as banks can appropriately adjust interest rates in order to increase revenues, while an unexpected change could raise costs due to imperfect interest rate adjustment.

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. Folawewo and Tennant (2008) have also shown that diversification gains are frequently offset by the costs of increased exposure to volatile activities. Similarly, Laeven and Levine (2003) have suggested that agency problems in financial conglomerates engaged in multiple activities and indicated that economies of scope are not sufficiently large to produce a diversification premium. It may also be the case that specialized banks exhibit higher unit costs on average, so that margins and efficiency will be lower, in the case of specialization, (Maudos & Fernandez de Guevara, 2004) for the European banking system.

Afanasieff…et al (2002) focused his research on the possibility that the Brazilian banking sector may not be fully competitive. In his research he indicated that Brazilian banks behave oligopolistically. Such a competitive structure would weaken the incentives to improve efficiency, which would explain why financial intermediation by banks is so scarce and costly. Not everyone, however, agrees on this issue.Afanasieff… et al (2002) summarized and analyzed several studies on the pricing power of banks in Brazil and argued that “there exists little evidence to suggest that the high bank spreads practiced in Brazil are the result of weak competition in the banking sector”.

Beck, Thorsten and Hesse (2006) analyzed factors explaining interest rate spreads in Uganda compared with peer African countries for the period 1999 to 2005. They used a panel data set of 1,390 banks from 86 countries, and reported that the variation of spreads is high both across countries and within countries across banks. The average margins are around 10.9% while a mean spread of 18.1% was observed. To explain the high variation in interest rate margins across countries, they used bank size, exchange rate depreciation, real t-bill rate, liquidity ratio, concentration, inflation, GDP growth, institutional development, and overhead costs. They reported that most bank-specific as well as macroeconomic factors are relevant in explaining the high banking margins in Uganda. However, foreign banks and changes in market structure had no significant relationship with interest rate spreads. They concluded that size, high t-bill rates, and institutional deficiencies explain the large proportions of Ugandan interest margins.

Table 4.21 Descriptive of Market Structure and Interest Rate Spread

Key: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

Statement	1	2	3	4	5	Mean
The stability in the banking system was a result of efficient regulation and supervision by central bank	0%	0%	0%	78%	22%	4.22
On site supervision has helped in reducing unprofessional and unethical conduct it business of banking in Kenya	0%	0%	3%	79%	18%	4.16
Routine examination by central bank has helped to ensure a healthy banking system and further reduced interest rate	0%	0%	3%	78%	20%	4.17
Effective banking supervision has helped to address high management issues in Kenya banking sector	0%	0%	3%	76%	22%	4.19
The number of banks in the economy, determine the level of interest rate spread	1%	0%	5%	70%	25%	4.17
The number of non banks financial institutions in the economy determines the level of interest rate spread.	1%	1%	6%	74%	19%	4.08
Government control and supervision has ensured regulated interest rate spread in Kenya.	1%	0%	13%	59%	27%	4.12
Buyouts and takeovers among commercial banks can tremendously reduce interest rate spread.	1%	0%	7%	76%	16%	4.06
Average	**1%**	**0%**	**5%**	**74%**	**21%**	**4.15**

4.7.4.3 Pearson Correlation forMarket Structure on Interest Rate Spread

Correlation coefficient as an indicator of the measure of linear relationship between two variables was carried out on market structure and interest rate spread. Figure 4.6 shows there is positive linear relationship between market structure and interest rate spread. Table 4.22 shows the Pearson correlation coefficients between the independent variable

market structure and the dependent variable interest rate spread. In this case there is a significant positive correlation of 0.322.

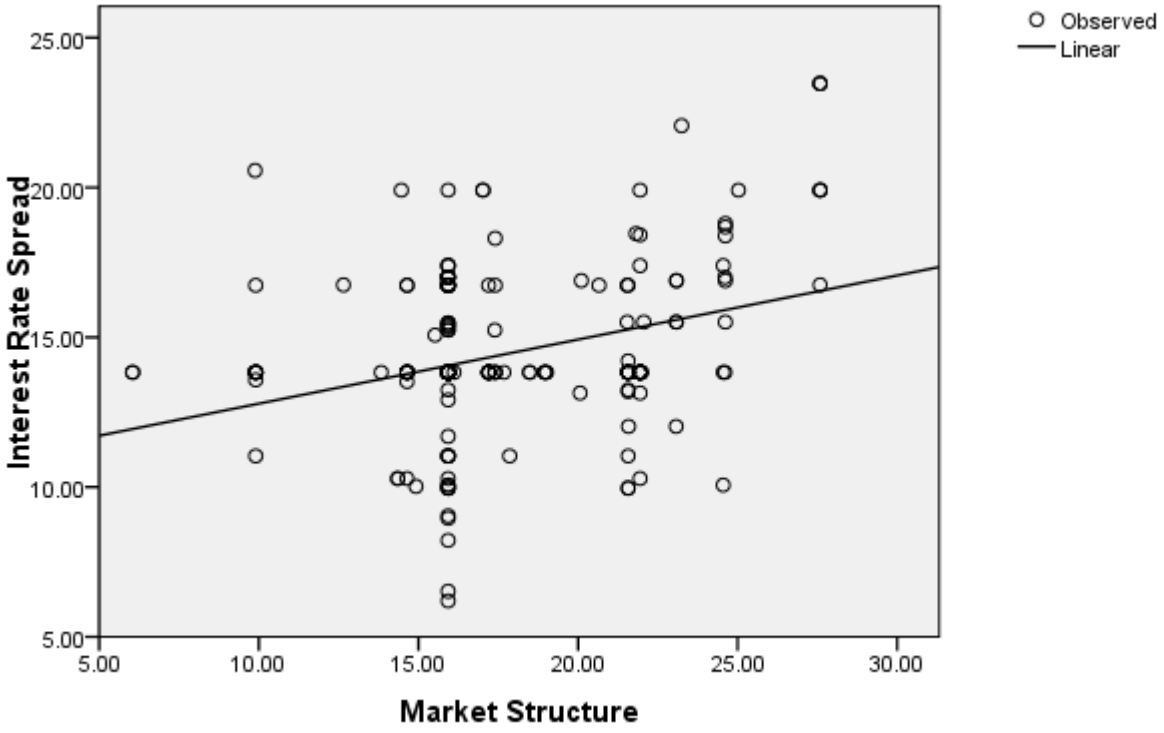

Figure 4.6 Market Structure's relationship on Interest Rate spread

Table 4.22 Pearson Correlation - Market Structure and Interest Rate Spread

Variable	Coefficient Type	Interest Rate Spread	Market Structure
Interest Rate Spread	Pearson Correlation	1.000	0.322
	Sig. (2-tailed)	0.000	0.000
Market Structure	Pearson Correlation	.322	1.000
	Sig. (2-tailed)	0.000	0.000

4.7.4.4 Regression for Market Structure and Interest Rate Spread

This was carried out in order to determine whether market structure as independent variable can be relied on in explaining the dependent variable-IRS as hypothesized by the study. Table 4.23 shows the coefficient of determination (R Square) of 0.104 which indicates that the model can explain 10.4% of the variations or changes in the dependent variable of IRS. Table 4.24 shows asignificant positive Beta of 0.214. This means that market structure is significant in explaining interest rate spread among commercial banks in Kenya. It means that a unit change in market structure brings about a 0.214 positive change in interest rate spread. This makes us drop the null hypothesis and accept the alternative hypothesis that market structure can be relied on in explaining interest rate spread among commercial banks in Kenya.

These results corroborate with a study by Mwega (2012) in his study on regulatory reforms and their impact on the competiveness and efficiency of the banking sector of Kenya which suggests that it is monopolistic competition that best characterizes banks' market behavior and provides further evidence of banking market segmentation in Kenya. The positive relationship between bank size and the spreads is thus shaped by the nature and structure of Kenya's banking sector.

Other studies (Sanya& Gaertner, 2012; Grenade,2007). Entrop, Memmel, Ruprecht and Wilkens (2012)that were consistent with the above findings were studies that have shown that market concentration reduces competition studied determinants of bank interest margins in Deutsche Bundesbank. They observed that the industry's competitive structure is determined by the extent to which the demand for loans and deposit supply are inelastic with respect to the intermediation fees charged.

However, Gambacorta (2004) studied factors explaining cross-sectional differences in bank interest rates of Italian banks notes that the impact of the structure of the banking sector on the spread can be ambiguous. He asserts that concentration that makes banks to behave in an oligopolistic manner will lead to higher lending rates and low deposit rates while a concentration that arises because more efficient banks are replacing less efficient banks may lead to lower lending rates and higher deposit rates and hence, lower spreads.

Table 4.23 Model Fitness-Market Structure and Interest Rate Spread

Variable	R	R Square	Std. Error of the Estimate
Coefficient	0.322	0.104	2.457

Table 4.24 Regression Coefficient- Market Structure and IRS

Variable	B	Std. Error	T	Sig.
Constant	10.645	0.743	14.336	0.000
Market Structure	0.214	0.041	5.214	0.000

4.7.5 Ownership Structure and Interest Rate Spread

The study sought the relationship between ownership structure among commercial banks and interest rate spread. Various tests were carried out on this variable: reliability test, factor analysis, descriptive, correlation, goodness of fit as well as regression analysis. The sector is dominated by local private institutions with 27 institutions accounting for

58.0 percent of the industry's total assets. The foreign owned financial institutions were 13 and accounted for 37.2 percent of the industry's (CBK 2012).

4.7.5.1 Factor Analysis on Ownership Structure

Factor analysis was carried out to describe variability among the observed variables and check for any correlated variables with the aim of reducing data that was found redundant. Factor analysis was carried out on the independent variable- ownership structure. Statements scoring more than 0.30 which is the minimum requirement for inclusion of variables into the final model were included (Hair, Black and Babin, 2010; Kothari, 2004).

Disincentive for resource mobilization had resulted to high interest rate spread had a low factor component of0.17. Low operating costs on product promotion of government owned banks contribute to their low interest rate spreads had 0.00 factor componentand the two statements were dropped from the analysis since their factor component were less than the recommended 0.30.

Table 4.25 Factor Analysis on Ownership Structure and IRS

Statements	Factor Component
Weak legal system make difficult to enforce the regulatory system	0.930
Foreign owned banks interest rate spread is higher than what is charged by local commercial bank	0.860
To a large extent interest rate spread is determined by who owns the banks and not the customer's demand and supply.	0.850
Competition in the banking sector have to reduce the high interest rate spread	0.760
Concentration and interlocking control between financial institution and business enterprises have impact on interest rate spread.	0.690
Disincentive for resource mobilization has resulted to high interest rate spread	0.170*
Low operating costs on product promotion of government owned	0.001*

banks contribute to their low interest rate spreads.

Average	**0.820**

Key * statement dropped

4.7.5.2 Descriptivefor Ownership Structure and Interest Rate Spread

The study responded to the objective which sought to investigate whether ownership structure affects interest rate spread among commercial banks in Kenya. The study sought to shed light on the effects of foreign owned banks, weak legal system, competition, concentration and interlocking control as well as ownership control on interest rate spread.

The results were tabulated and analysed using percentages and median measure. The study used a likert scale of 1-5 where 1 represents strongly disagree, 2 disgreed, 3 neutral, 4 agreed and 5 represents strongly agree. On this scale, score of 3 and was treated as a positive result while a lower score was treated as a negative result. A likert scale normally presents opinionated perceptions of respondents with values ranging from 1-3, 1-5, 1-7 depending on how varied the aspect in consideration is.Foreign owned banks interest rate spread is higher than what is charged by local commercial bankscored 77% whostrongly agreed and 17% agreed, 73% strongly agreed and 16% agreed with the statement that competition in the banking sector have to reduce the high interest rate spread**.** On the statement that, to a large extent interest rate spread is determined by who owns the banks and not the customer's demand and supply 72% of the respondents strongly agreed and 19% agreed. Concentration and interlocking control between financial institution and business enterprises have impact on interest rate spread 79% strongly agreed and 22% strongly agreed. The response mean of the statements were that 72% strongly agreed, 19% agreed while 7% were neutral. This shows that bankers believe that the interest rate spread can to a large extent be explained by market structure.

This view had many corroborators as in case of Pakistan, State Bank of Pakistan (2006) observed that bank-specific factors such as, provisioning, administrative expenses, and ownership (e.g. foreign or domestic), as well as industry factors e.g. market concentration, all positively influence the level of banking spreads in Pakistan. In terms of macro variables, GDP has a positive relationship with spreads; explained by a higher demand for advances. In line with the literature, interest rate volatility is observed to be positively associated with banking spreads.

Khawaja and Din (2007) also found evidence to support the view that administrative costs and market power have a positive influence on banking spreads in Pakistan. In addition, they included the share of current and savings account deposits in total banks deposits, and found that in the case of Pakistan, an interest-insensitive supply of deposits had a significant positive impact on banking spreads, rather than the market concentration per se. In addition, they found that, GDP has a negative relationship with banking spreads. They see this as the result of the business cycles effect, whereby recessions lower the creditworthiness of borrowers, and consequently, banks extend credit at higher interest rates, increasing the spread.

A majority of the studies 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 (Folawewo&Tennant, 2008). 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;Demirgüc-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 (Folawewo&Tennant, 2009); interest rate

uncertainty (Brock & Franken, 2002); andhigh real interest rates (Demirgüc-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. They argued that very high level of inelastic deposit supply leaves little incentive to the bankers to adopt competitive practices and therefore the concentration ratio, which captures the level of competition, fails to exercise an influence upon spread. Further, they felt that emergence of alternate financial intermediaries was essential for lowering the 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. Transaction size and managerial efficiency (operating efficiency to gross income) were negatively related to the margins that they attributed to management efficacy in obtaining low-cost deposits and extending loans at higher interest rates resulting in higher spreads. They concluded that market power, operating costs, risk aversion, volatility of interest rates, credit risk, opportunity cost and implicit interest payments have a positive impact on overall interest rate spreads.

Norris and Floerkemeir (2007) used a bank-level panel dataset for Armenia to examine the factors explaining interest rate spreads and margins from 2002 to 2006. They employed a variety of bank-specific and macro-variables, including overhead costs, bank size, noninterest income, capital adequacy, return on assets (ROA), liquidity, deposit market share, foreign bank participation, real GDP growth, inflation, money market rate, and change in the nominal exchange rate. They used both pooled ordinary least squares (OLS) and fixed effect regression. They concluded that bank-specific factors such as size, liquidity, ROA, market concentration, and market power explain a large proportion of banking spreads.

Aikaeli, Mugizi and Ndanshau (2011) argued that factors that determine interest rate spread can be clustered as bank specific factors, including size, capital structure, management efficiency, ownership pattern, quality of loan portfolio, overhead costs, profit maximization motive, and shares of liquid and fixed assets these were the same conclusion (Moore & Graigwell, 2006; Folawewo & Tennant, 2008).

Table 4.26 Descriptive Analysis on Ownership Structure and Interest Rate Spread

Key: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

Statements	1	2	3	4	5	Mean
Foreign owned banks interest rate spread is higher than what is charged by local commercial bank	77%	17%	6%	0%	0%	1.29
Weak legal system make difficult to enforce the regulatory system	71%	21%	7%	1%	0%	1.4
Competition in the banking sector have to reduce the high interest rate spread	73%	16%	8%	2%	2%	1.43
Concentration and interlocking control between financial institution and business enterprises have impact on interest rate spread.	69%	22%	6%	1%	2%	1.45
To a large extent interest rate spread is determined by who owns the banks and not the customer's demand and supply.	72%	19%	8%	1%	0%	1.39
Average	**72%**	**19%**	**7%**	**1%**	**1%**	**1.39**

4.7.5.3 Correlation for Ownership Structure on Interest Rate Spread

Correlation coefficient indicates the extent of interdependence between the two variables- ownership structure and IRS. Figure 4.7 shows there is a negative linear correlation between IRS and ownership structure. Table 4.27 shows the Pearson correlation coefficients between the independent variable ownership structure and the dependent variable interest rate spread. The findings indicate a weak an insignificant negative correlation of -0.12 since the level of significant is greater than the set 0.05.

In contrast,Norris and Floerkemeir (2007) used a bank-level panel dataset for Armenia to examine the factors explaining interest rate spreads and margins from 2002 to 2006.

They concluded that bank-specific factors such as size, liquidity, ROA, market concentration, and market power explain a large proportion of banking spreads.

Aikaeli, Mugizi and Ndanshau (2011) argued that factors that determine interest rate spread can be clustered as bank specific factors, including size, capital structure, management efficiency, ownership pattern, quality of loan portfolio, overhead costs, profit maximization motive and shares of liquid and fixed assets. Moore and Graigwell, (2006) and Folawewo and Tennant (2008) made the same conclusion.

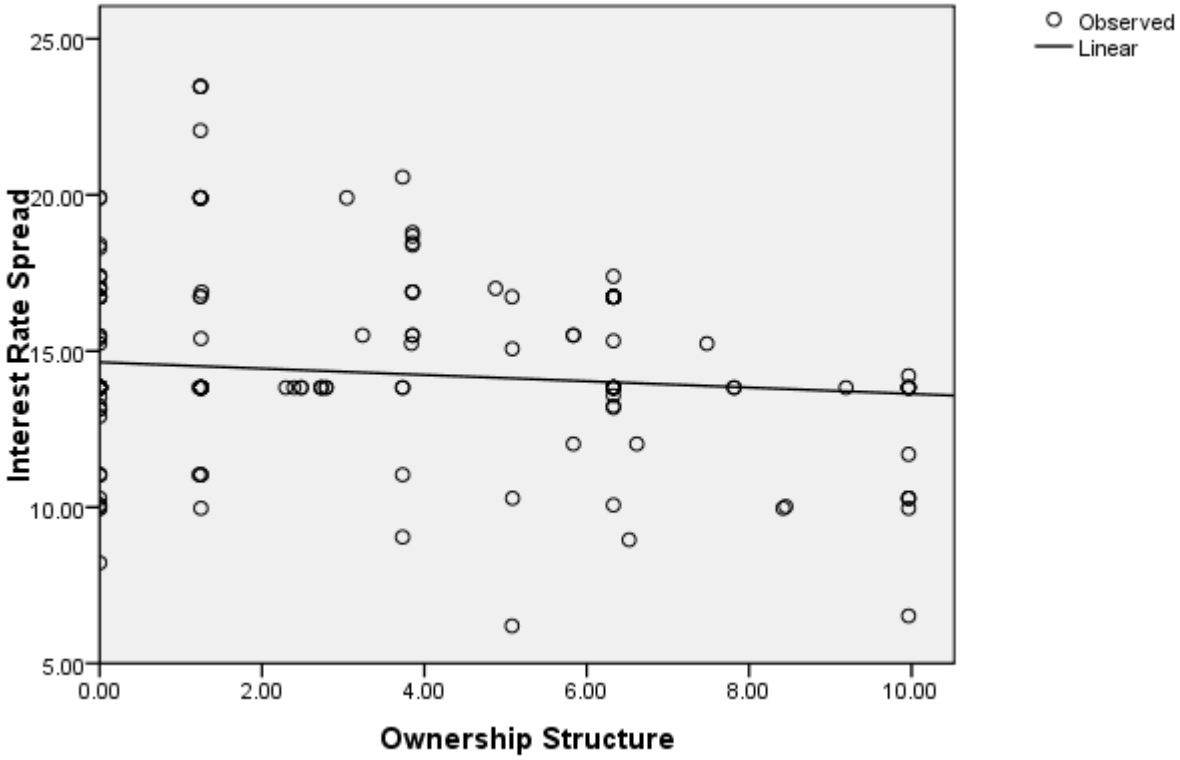

Figure 4.7 Ownership Structure and IRS scatter Diagram

Table 4.27 Pearson Correlation Coefficient on Ownership Structure and IRS

Variable	Coefficient Type	Interest Rate Spread	Ownership Structure
Interest Rate Spread	Pearson Correlation	1.000	-0.120
	Sig. (2-tailed)	0.000	0.066
Ownership Structure	Pearson Correlation	-0.120	1.000
	Sig. (2-tailed)	0.066	0.000

4.7.5.4 Regression on Ownership Structure

Regression analysis was carried out in order to determine whether ownership structure as independent variable can be relied on in explaining the dependent variable-IRS. Table 4.28 shows the coefficient of determination (R Square) of 0.014 which indicates that ownership structure can explain 1.4% of the variations or changes in the dependent variable- IRS. In other words ownership structure, canexplain 1.4% of changes in IRS among commercial banks in Kenya. Table 4.29 shows a negative Beta coefficient of -0.101. This means that a unit change in ownership structure brings about a 0.101change in interest rate spread in the opposite direction. Table 4.29 also shows that this relationship is not significant since it has a p- value of 0.066 which is greater than the set 0.05. This means that we fail to reject the null hypothesis and conclude that ownership structure is not significant in explaining interest rate spreadamong commercial banks in Kenya.

These results corroborate with those found by Radha (2011) who studied sources and impact of segmentation in the banking sector in Kenya and found that different segments of the banking sector in Kenya face clients of significantly different size and type, and

this segmentation affects lending decisions, deposit mobilization and governance of banks. Radha (2011) further observes that the segmentation of banks is based on size but largely shaped by social factors that define the trust between banks and their clients.

Table 4.28 Model Fitness- Interest Rate Spread and Ownership Structure

Variable	R	R Square	Std. Error of the Estimate
Coefficient	0.120	0.014	2.577

Table 4.29 Regression Coefficient: IRS and Ownership Structure

Variable	Beta	Std. Error	T	Sig.
Constant	14.642	0.204	71.815	0.000
Ownership Structure	-0.101	0.055	-1.848	0.066

4.7.6 Business Risks and Interest Rate Spread

The respondents were given questions that sought to establish whether there existed any relationship between business risks and interest rate spread. Various tests were run on the statements which were; reliability test, factor analysis, descriptive analysis, correlation, goodness of fit and regression analysis. The analyses were as explained below.

4.7.6.1 Factor Analysis on Business Risks

Factor analysis was carried out to describe variability among the observed variables and check for any correlated variables with the aim of reducing data that was found redundant. Factor analysis was carried out on the independent variables- business risks. Statements scoring more than 0.3 which is the minimum requirement for inclusion of variables into the final model according to (Hair, Black & Babin, 2010; Kothari, 2004) were included.Euro debt crisis had influenced interest rate spread in Kenya had a factor

component of 0.260 and liquidity challenges in banks made them charge more interest on loans hence higher interest rate spread scored 0.130 factor component and were dropped from the analysis.

Table 4.30 Factor Analysis on Business Risk

Statements	Factor component
Global financial crisis influences the direction of interest rate spread	0.960
Fluctuations of exchange rates of major currencies affect interest rate spread	0.910
The market segment to which a bank lends to determines the interest rate spread	0.910
Election cycles in Kenya affect the interest rate spread	0.630
Credit referencebureaus are used to assess the risk weight load on loan interest	0.610
The Euro debt crisis has influenced interest rate spread in Kenya	0.260
Liquidity challenges in banks make them charge more interest on loans hence higher interest rate spread	0.130*
Average	**0.630**

Key * statement dropped

4.7.6.2 Descriptive of BusinessRisks and Interest Rate Spread

The study sought the respondents' view on the effect of business risks on interest rate spread and the results were as illustrated below.The market segment to which a bank lends to determine the interest rate spread. Majority of the respondents 84% agreed with this statement with 11% strongly agreeing with it.77% agreed with the statement that the global financial crisis influences the direction of interest rate spread and that fluctuations of exchange rates of major currencies affect interest rate spread while 15% in each case strongly agreed with the statements.

Election cycles in Kenya affect the interest rate spread and credit reference is used to assess the risk weight load on loan interest scored 72% and 70% respectively of respondents who agreed and 19% and 20% of the respondents who strongly agreed respectively. On the question whether the euro debt crisis had influenced interest rate spread in Kenya, 76% of the respondents strongly disagreed and 18% disagreed. The

mean of the statements seeking the relationship between risks and interest rate spread showed that majority agreed at 63%, 14% strongly agreed, 4% were neutral, 6% disagreed while 13% strongly disagreed. This shows that interest rate spread can be explained by risks.

Siddiqui (2012) found a positive effect of return on assets on interest spreads. Ahokpossi (2013) using a sample of 456 banks in 41 SSA countries also stated how bank-specific factors such as credit risk, liquidity risk and bank equity are important determinants of interest margins.The results are consistent with those found by other studies such as Ngugi (1999) and Beck… et al (2010) based on Kenya. Chirwa and Mlachila (2004) and Sidiqqui (2012) also founda positive impact of nonperforming loans ratio on interest spreads among commercial banks for Malawi and Pakistan respectively due to their exposure to illiquidity risks.

Aboagye… et al (2008) studied the response of net interest margin of banks to changes in factors that are bank-specific, banking industry specific and Ghanaian economy macroeconomic factors. They found that an increase in business risksincrease interest rate spread.Maudos and Guevara (2004) built on the work of Angbazo (1997). They found that the interest margin depend on interest rate risk, credit risk, and risk aversion of banks.

Table 4.31 Descriptive Analysis of Business Risks and Interest Rate Spread

Key: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

Statements	1	2	3	4	5	Mean
The market segment to which a bank lends to determines the interest rate spread	0%	5%	0%	84%	11%	4.02
Global financial crisis influences the direction of interest rate spread	0%	5%	4%	77%	15%	4.02
Credit reference is used to assess the risk weight load on loan interest	0%	2%	8%	70%	20%	4.09
Fluctuations of exchange rates of major currencies affect interest rate spread	0%	4%	4%	77%	15%	4.03
Election cycles in Kenya affect the interest rate spread	3%	4%	3%	72%	19%	4.01
Average	**1%**	**4%**	**4%**	**76%**	**16%**	**4.03**

4.7.6.3 Secondary Data on Business risks

The study used secondary data sources to gatherinformation relevant in reaching at the research objectives. Thesecondary data was collected from the CBK offices on their annualreports on the macro-economic indicators and Kenya NationalBureau of Statistics (KNBS) offices. The study's datacollection source was justified by the fact that data on non performing Loans inall commercial banks are available in CBK's bank supervisionreport while the same works hand in hand with Kenya National Bureau of Standards inmaking such statistics and estimation. The non performing loans are also an indicator of business risks in banking industry. Table 4.32 and figure 4.8below indicate that increase in business risks leads to increase in interest rate spread. These results are in agreement with results of Nampewo (2013) who studied the determinants of the

interest rate spread of the banking sector in Ugandausing time series data for the period 1995 – 2010.Results show that non performing loans positively affectedinterest rate spread.

Table 4. 32 Commercial Banks loan Advances and Non- Performing Loans

Year	Loans and Advances (in billions Kshs)	Non- performing Loans(in billion Kshs)
2003	315321	73.9
2004	382290	70.8
2005	338399	68.6
2006	396149	65.4
2007	518917	56.1
2008	555062	58.3
2009	668580	68.8
2010	786591	61.5
2011	1152011	58.3
2012	1296452	61.9
Average	640977.20	64.36

Source CBK annual reports and annual supervision reports

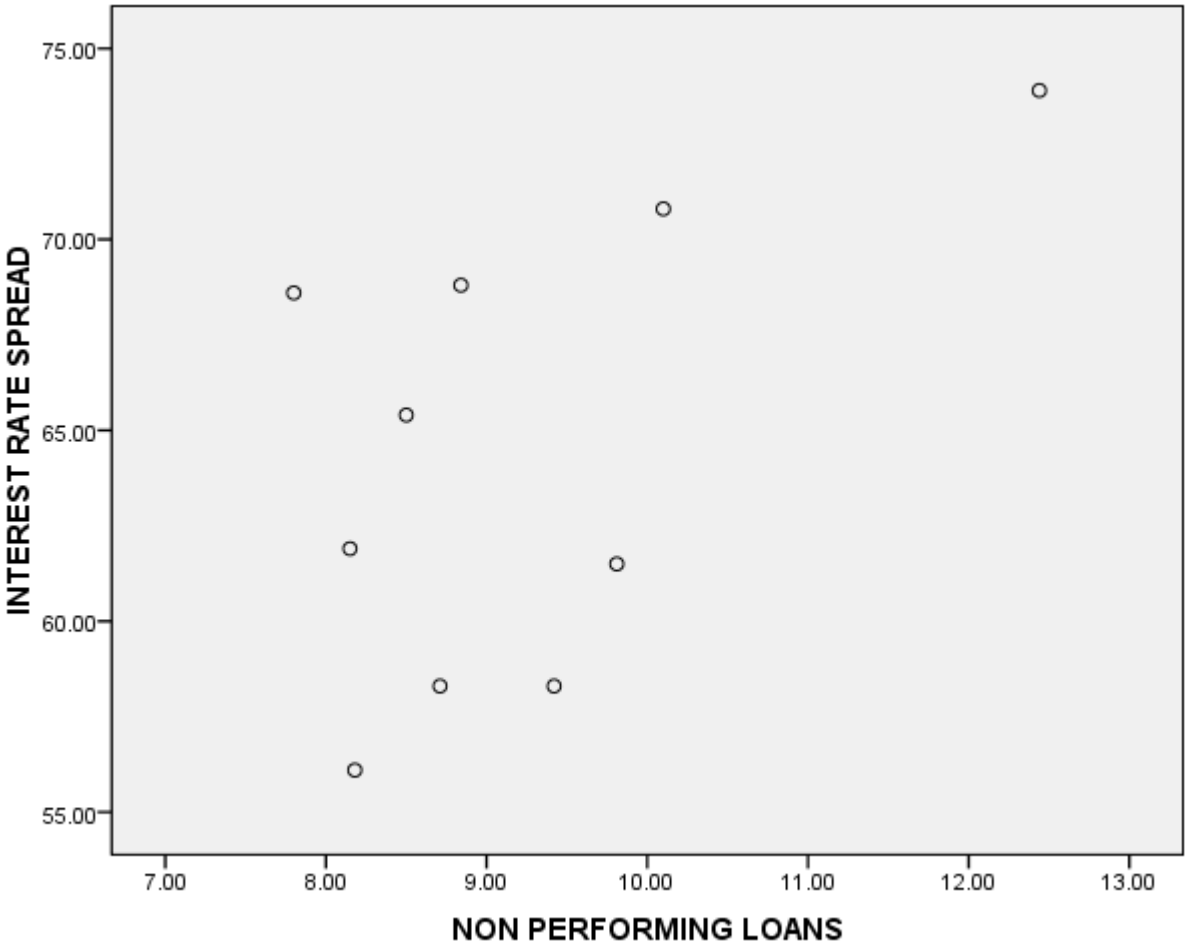

Figure 4.8 Commercial Banks Non- Performing Loans and interest rate spread.

4.7.6.4 Pearson Correlation for Business Risks on Interest Rate Spread

Correlation coefficient indicates the extent of interdependence between the two variables- business risks and IRS. Figure 4.9 shows there is a strong positive linear correlation between interest rate spread and business risks. Table 4.33 shows the Pearson correlation coefficients between the independent variable business risks and the

dependent variable interest rate spread. There is a significant positive correlation of 0.625.Corroborators of this view were Maudos and Guevara (2004) who built on the work of Angbazo (1997) and found that the interest margin depends on interest rate risk, credit risk, average operating costs and risk aversion of banks.

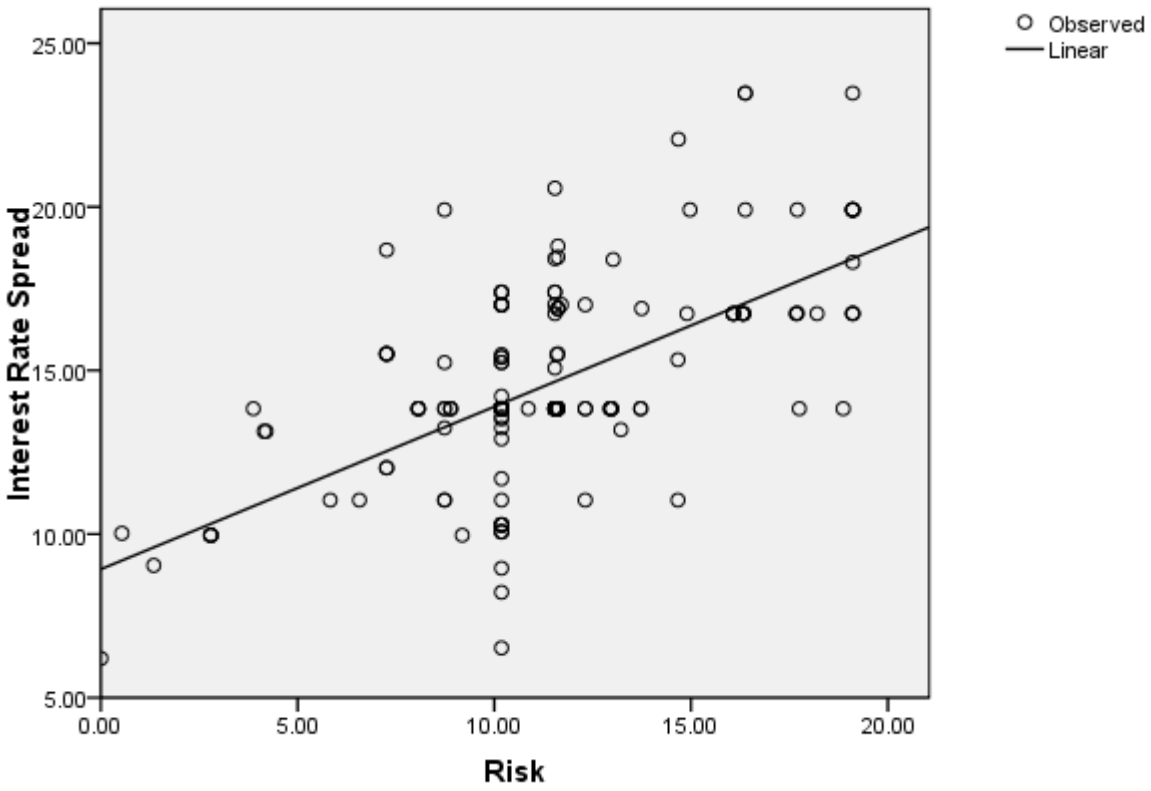

Figure 4.9 Business Risks and Interest Rate Spread-Scatter Diagram

Table 4.33 Pearson Correlation Coefficient on Business Risks

Variable	Coefficient Type	Interest Rate Spread	Risk
Interest Rate Spread	Pearson Correlation	1.000	0.625
	Sig. (2-tailed)	0.000	0.000
Business Risks	Pearson Correlation	0.625	1.000
	Sig. (2-tailed)	0.000	0.000

4.7.6.5 Regression Analysis on Business Risks

Regression analysis was carried out in order to determine whether independent variable business riskscan be relied on in explaining the dependent variable IRS. The coefficients indicate that the correlation coefficient (R) between the independent variable and IRS was 0.625 which was a positive relationship. Table 4.34 shows coefficient of determination (R Square) of 0.391. This indicates that business risks can explain 39.1% of the variations or changes in the dependent variable - IRS. Table 4.35 show a positive Beta coefficient of 0.497. This means that a unit change inbusiness risks brings about 0.497changes in interest rate spread among commercial banks in Kenya. Table 4.35 also shows a significant effect business risks on IRS since p- value is less than 0.05.

These results are consistent with (Ahokpossi 2013) who concluded that banks with high risk tend to borrow emergency funds at high costs and thus charge liquidity premium leading to higher spreads.There is a positive relationship between credit risk associated with non-performing loans ratio and interest rate spreads and uncertainties'. Banks are compelled to shift the risk premium associated with non-performing loans to the borrowers. The results are consistent with those found by other studies such as (Ngugi, 1999; Beck… et al 2010) based on Kenya. Chirwa and Mlachila (2004) and Sidiqqui (2012) who also found a positive impact of nonperforming loans ratio on interest spreads

among commercial banks for Malawi and Pakistan, respectively. These findings imply that business risks can be relied on in explaining IRS.

Table 4.34 Model Fitness- Business Risks and IRS

Variable	R	R Square	Std. Error of the Estimate
Coefficient	0.625	0.391	2.025

Table 4.35 Regression Analysis-Business Risks and IRS

Variable	B	Std. Error	T	Sig.
Constant	8.928	0.467	19.133	0.000
Business Risks	0.497	0.040	12.284	0.000

4.8 Overall Goodness of Fit Model

In testing the hypothesis, a regression equation model was used in the form of; IRS =β1X1+β2X2+β3X3+β4X4+β5X5+ ε. The indicators of the model fitness are shown in Table 4.36. The coefficients indicate that the correlation coefficient (R) between the independent variables and IRS is 0.687 which is a positive strong relationship. The coefficient of determination (R Square) of 0.461 indicates that the model can explain 46.1% of the variations or changes in the dependent variable of IRS. In other words inflation, operating costs, market structure, ownership structure and business risks taken together can explain 46.1 % of changes in IRS among commercial banks in Kenya.

Table 4. 36 Overall Model Summary – Goodness of fit

Indicator	R	R Square	Adjusted R Square	Std. Error of the Estimate
Coefficient	0.687	0.473	0.461	1.901

4.9 Overall Analysis of Variance

Table 4.37 presents the analysis of variance (ANOVA) on the influence of inflation, operating costs, market structure, ownership structure and business risks on interest rate spread. The results indicate that the model is statistically significant in explaining the impact of inflation, operating costs, market structure, ownership structure and business risks on interest rate spreadamongcommercial banks in Kenya. This means that the ANOVA results indicate that the combined effect of inflation, operating costs, market structure, ownership structure and business risks is statistically significant in explaining interest rate spread among commercial banks at a 0.05 level of significance.

Table 4.37 Overall Analysis of Variance (ANOVA)

Variable	Sum of Squares	Df	Mean Square	F	Sig.
Regression	748.063	5	149.613	41.384	.000
Residual	835.127	231	3.615		
Total	**1583.19**	**236**			

4. 10 Overall Pearson Correlation Coefficient on Interest Rate Spread

Correlation coefficient indicates the measure of linear relationship between two variables. Table 4.38 shows the Pearson correlation coefficients between the dependent variable – interest rate spread with the five independent variables: inflation, operating costs, market structure, ownership structure and business risks. Inflation, market structure and business risks items have a positive and significant correlation coefficient

with business risks having the highest correlation of 0.625. On the other hand, operating costs hadnegativeand significant correlation coefficients of -0.314 while ownership structure had a negative and insignificant correlation coefficient of -0.120. Table 4.38 also shows the significant levels of those variables. Operating costs, inflation rate,market structure and business risks are significant in explaining the variation in interest rate spread with ownership structure being insignificant at 5% level of confidence.

Table 4.38 Overall Pearson Correlation Coefficient

		Interest Rate Spread	**Inflation**	**Operating Costs**	**Market Structure**	**Ownership Structure**	**Risks**
Interest Rate Spread	Pearson Correlation	1					
	Sig. (2-tailed)						
Inflation	Pearson Correlation	0.129	1				
	Sig. (2-tailed)	0.047					
Operating Costs	Pearson Correlation	-0.314	0.083	1			
	Sig. (2-tailed)	0.000	0.204				
Market Structure	Pearson Correlation	0.322	0.093	-0.694	1		
	Sig. (2-tailed)	0.000	0.154	0.000			
Ownership Structure	Pearson Correlation	-0.120	-0.040	-0.052	0.009	1	
	Sig. (2-tailed)	0.066	0.550	0.426	0.894		
Business Risks	Pearson Correlation	0.625	0.261	-0.169	0.125	0.001	1
	Sig. (2-tailed)	0.000	0.000	0.009	0.055	0.988	

4.11 Overall Regression Coefficient Analysis

Table 4.39 shows the overall regression coefficients ofindependent variables- inflation, operating costs, market structure, business risks and ownership structure on the dependent variable-IRS. The Beta coefficients indicate the extent to which IRS changes due to a unit change in the independent variable. The positive Beta coefficients indicate that a unit change in the independent variable leads to a positive change in interest rate spread. A negative Beta coefficient indicates an inverse effect between the variables in that a unit change in the independent variable leads to a negative change in IRS. A unit change in market structure and business risks cause a 0.132 and 0.476 change in IRS respectively. On the other hand a unit change in inflation, operating costs and ownership structure causesnegative change of IRS of 0.037, 0.038 and 0.108 respectively.

Table 4.39 also presents the level of significance also called the p value. This is the coefficient that is used to test hypothesis and the significance of the independent variables. The p-value of business risks, market structure and ownership structure were less than the set threshold of 0.05. This means that these variables are significant in explaining IRSamong commercial banks in Kenya. Table 4.40gives the coefficients after elimination of the independent variables operating costs and inflation which had levels of significance (p value) greater than the set 0.05 which indicates that they are statisticallyinsignificant in explaining changes of IRS of Kenyan commercial banks.

Study’snull hypothesis stated thatinflation, market structure, ownership structure, operating costs and business risks each had no influence on IRS among commercial banks in Kenya. Based on the p value coefficients of these variables, we fail to reject the null hypothesis and conclude that inflation and operating costs do not have significant influence on IRS among commercial banks in Kenya. However, we fail to accept the null hypotheses on business risks and market structure which have a significant positive

influence on IRS among commercial banks in Kenya. Ownership structure is also significant at -0.108 at 0.005 level of confidence.

Table 4.39 also shows the Variance Inflation Factor (VIF) which is used to provide an index that measures how much the variance (the square of the estimate's standard deviation) of the estimated regression coefficient is increased because of multicollinearity. Kutner (2004) proposed ten (10) to be thecut off value to test for multicollinearity and he further proposes that incase of multicollinearity, the factors should be eliminated from the model one by one from the one with the highest VIF value. On the basis of VIF all the variables have satisfied the set level of less than 10. No multicollinearity was therefore noted even after eliminating the insignificant variables.

Following the preceding Table4.40 and Kutner (2004), it was found that three of the variables: business risks, market structure and ownership structure that had a p-value less than the set level of significance of 0.05 for a normally distributed data and VIF of less than 10 were retained in the optimal model. The other two variables- inflation and operating costs were dropped because they were not significant in explaining interest rate spread among commercial banks in Kenya.

The first equation shows the overall model when all the hypothesized variables were included. The second equation shows the optimal model after dropping inflation and operating costs from the overall model due to their statistical insignificance in explaining interest rate spread among commercial banks in Kenya. A high Beta coefficient of 7.971of the constant term means that apart from the mentioned factors, there are other factors which could explain interest rate spread among commercial banks in Kenya which is an area for further research. The constant is also significant and does

not have possibilities of multicollinearity as depicted by a p value of 0.000 and variance inflation factor(VIF) value of 0.000 respectively.

These findings are consistent with a majority of the studies(Maore & Craigwell 2000; Folawewo&Tennant, 2008) which show 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 while the opposite is the case with the developed countries. The above contradictory result on the effect of banking sector development on interest rate spread is seemingly surprising as they contradict findings obtained by some important studies(Crowley, 2007; Moore & Craigwell 2000; Demirgüc-Kunt &Huizinga 1998). Other macroeconomic factors found to impact positively on interest rate spread include: degree of government borrowing from the commercial banking sector (Folawewo&Tennant, 2009.); b) interest rate uncertainty (Brock & Franken, 2003); and high real interest rates (Demirgüc-Kunt & Huizinga, 1998).

In the case of Tunisia, Ben-Khediri, Casu and Sheik-Rahim (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?" also found that bank-specific variables explained a larger proportion of cross bank variation in spreads and margins compared to macroeconomic factors such as inflation.

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. Overall, the results show that ownership structure, market structure and business risks factors play an important role and are comparatively significant in influencing the interest rate spreads in Kenya.

Multiple linear regression analysis demonstrates that the statistical tool is useful in predicting the behavior of dependent variable i.e. IRS and its predictors.The multiple linear regression equation is presented as follows; Y (IRS) = 7.971(Constant) + $0.132X_1$(Market Structure)- $0.038X_2$(Operating Costs) -$0.108X_3$ (Ownership Structure+ $0.476X_4$(Business Risks)- $0.037X_5$(Inflation Rate). However inflation and operating costs were found to be statistically insignificant in explaining interest rate spread and hence were dropped from the model resulting into the following model: Y(IRS) = 6.496(Constant) + $0.165X_1$(Market Structure)-$0.104X_2$(Ownership structure) + $0.472X_3$(Business Risks)

Table 4.39 Overall Regression Coefficients – Interest Rate Spread

Indicator	Beta	Std. Error	T	Sig.	VIF
Constant	7.971	1.183	6.738	0.000	0.000
Operating Costs	-0.038	0.034	-1.12	0.264	2.087
Market Structure	0.132	0.045	2.923	0.004	2.027
Ownership Structure	-0.108	0.041	-2.668	0.008	1.005
Business Risks	0.476	0.04	11.849	0.000	1.120
Inflation	-0.037	0.043	-0.865	0.388	1.146

Table 4.40 Optimal Model

Indicator	B	Std. Error	T	Sig.	VIF
Constant	6.496	0.68	9.552	0.000	0.000
Market Structure	0.165	0.032	5.162	0.000	1.016
Ownership Structure	-0.104	0.041	-2.558	0.011	1.000
Business Risks	0.472	0.038	12.325	0.000	1.016

4.12 Chapter Summary

This chapter has presented descriptive data analysis using frequency tables, percentages, means, Pearson correlations, scatter diagrams and regressions. Statistical tests were also analysed in the chapter including t- tests and two way Anova tests. The profiles of both banks' segmentation and major sectors lend to were presented at the beginning of the chapter followed by responses from each variable section of the questionnaire.

The descriptive data showed that a high reliability was achieved by questionnaire instrument with a reliability coefficients ranging from 0.6 to 0.9 as shown previously. These figures fall within the acceptable levels of data reliability and consistency according to statistics scholars including (Sekaran &Bougie,2011). Both tests of significance using t- tests and f- tests have indicated a strong significance amongst the variables as well as when combined variables against the dependent variable.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the research findings, relevant discussions, conclusions and necessary recommendations. The study sought to investigate determinants of interest rate spread among commercial banks in Kenya. Specifically, the study investigated the effects of inflation, operating costs, market structure, business risks and ownership structure on interest rate spread among commercial banks in Kenya. The presentation is organized around specific objectives and research hypotheses. The conclusions are in tandemwith the specific objectives and research hypotheses. The recommendations refer to suggestions for further study or proposal for change. Each recommendation relates to each conclusion.

5.2 Summary of Findings

After conducting the research and comprehensively analyzing the findings, it was possible to judiciously derive with certainty various conclusions and recommendations.

5.2.1 Inflation and Interest Rate Spread

The first objective sought to establish whether inflation affect interest rate spread among commercial banks in Kenya. The indicators of inflation taken into consideration included commodity and services prices, prices of imported goods, fuel prices, demand for loans as well as the effect of direct foreign investment on interest rate spread.

Descriptive and inferential statistical methods were used to arrive at the findings where deductions and relationships were established. Inflation was found to be statistically insignificant in explaining interest rate spread among commercial banks in Kenya since. A unit change in inflation only causes 1.7% change in interest rate spread among commercial banks in Kenya as indicated by regression coefficient. Therefore,statements which sought influence of inflation variable were concluded to be statistically insignificant in explaining changes in interest rate spread among commercial banks in Kenya.

5.2.2 Operating Costs and Interest Rate Spread

The second objective investigatedthe effects of operating costs on interest rate spread among commercial banks in Kenya. Observation was arrived at after analysis of various factors that contributed to operating costs. Such costs included salaries and wages, stationary, security, transport, communications equipment, insurance, maintenance, utility costs as well as legal costs.

Majority of the employees did not see any influence of mentioned costs on interest rate spread among commercial banks in Kenya as indicated by a weak negative correlation coefficient.Statistical findings revealed that a unit change in operating caused a very small negative change in interest rate spread as indicated by a low negative regressioncoefficient as shown in chapter 4. The findings indicate that a unit increase in operating costs led to a decrease in interest rate spread among commercial banks in Kenya.

The findings imply that operating costs as a variable did not play any significant role in changing interest rate spread among commercial banks in Kenya.

5.2.3 Market Structure and Interest Rate Spread

The third objective was to establish whether market structure could be depended on in explaining interest rate spread among commercial banks in Kenya.Factors considered to explain market structure were stability in the banking system, on site supervision, routine examination by central bank, effective banking supervision of management, number of banks in the economy, number of non- banks in the economy, government control and supervision as well as buyouts and takeovers.

Statistical findings revealed that market structure lead to a positive correlation coefficient value of (0.322). Unit increase in market structure led to an increase in interest rate spread as indicated by regression analysis. Findings therefore conclude that market structure played a significant role in explaininginterest rate spread among commercial banks in Kenya.

5.2.4 Ownership Structure and Interest Rate Spread

The fourth objective sought to establish whether ownership structure among commercial banks in Kenya affect commercial banks' interest rate spread. The indicators that were considered included interest rate of foreign owned banks, weak legal system, competition in the banking sector, concentration and interlocking control and whether the banks' owners determines interest rate spread among commercial banks in Kenya. Findings indicated that ownership structure has a weak negativeinfluence on interest rate spread among commercial banks in Kenya. Majority of the employees did not see any relationship on the indicators of ownership structure measured on interest rate spread.

Statistical findingsshowed a weak correlation coefficient value which was alsonegative. A unit increase in ownership structure led to a small decrease in interest rate spread among commercial banks in Kenya. Therefore, ownership structure was found to have a

weak significanceon interest rate spread among commercial banks in Kenya though it was retained in the overall model due to its significant.

5.2.5 Business Risks and Interest Rate Spread

The fifth objective sought to establish whether business risks can be used to explain changes in interest rate spread among commercial banks in Kenya. The factors considered included market segment, global financial crisis, credit reference bureau, fluctuations of exchange rates and election cycles in Kenya. Majority of the respondents strongly agreed with the statements that business risks had influence on interest rate spread. Statistical findings revealed that business risks lead tochanges in interest rate spread since the correlationcoefficient was high and positive. Business riskscould be depended on in explaining changes in interest rate spread among commercial banks in Kenya.

The findings imply that business risks play significant role in changing interest rate spread among commercial banks in Kenya.

5.3 Conclusions

Research findings led to different conclusions on the area of interest rate spread among commercial banks in Kenya as discussed below:

5.3.1 Inflation and Interest Rate Spread

From the research findings presented above, inflation generally has no effects on interest rate spread among commercial banks in Kenya. Majority of the respondents found inflation as just being a phenomenon which is being misused in the economy where the majorities do not understand it while other factors which matters such as increase in

production are ignored.The findings revealed that inflation has very small influence on interest rate spread among commercial banks in Kenya as per the summary above.

5.3.2 Operating Costs and Interest Rate Spread

Research findings presented in chapter four revealed that operating costs have no influence on the interest rate spread among commercial banks in Kenya. Findings indicate that, commercial banks in Kenya have been able to take care of their operating costs such as salaries and wages, stationery, security, transport,communication, maintenance and utility costs as depicted by this study and do not need to transfer this costs to their customers. Operating costs are not indicators of interest rate spread among commercial banks in Kenya as indicated by this study.

5.3.3 Market Structure and Interest Rate Spread

Based on the research findings presented above, it is clear that market structure plays a major role in explaining interest rate spread among commercial banks in Kenya. It can therefore be concluded from the results presented in this study that there exists a positive and significant relationship between market structure and interest rate spread amongcommercial banks in Kenya.

5.3.4 Ownership Structure and Interest Rate Spread

Findings in chapter four revealed that ownership structure variablewas found to be statistically significant in explaining the variations of interest rate spread among commercial banks in Kenya and was retained in the overall model.

This suggests that limited investment alternatives for large depositors facilitate the distortion of interest rate spreads. It appeared that institutional investors are highly

motivated to negotiate the highest deposit rates from the commercial banking system given the perceived dearth of other viable investment options.

5.3.5 Business Risks and Interest Rate Spread

The findings revealed that business risks are very significant in explaining changes in interest rate spread among commercial banks in Kenya. The study concludes that, banks are exposed to various risks (including interest risks, credit risk, foreign exchange risk and political risk) as a result of uncertainty, information asymmetry and the policy environment. To cover these risks, banks charge a premium whose magnitude depends on the credit policy, the interest rate on alternative assets, amounts borrowed and types of client. Business risks play such a major role in explaining changes in interest rate spread among commercial banks in Kenya.

5.4 Recommendations

Interest rate is inevitable in the financial sector since it is the only way of rewarding depositors and meeting the costs in commercial banks. The difference between lending and deposit rate can however be controlled. This study makes several recommendations to players in the financial sector like the government, policy makers as well as commercial banks.From these research findings, the study recommends that;

1. The government should ensure existence of stable political environment, fuel prices, commodities and services prices as they were mentioned as major components of inflation, which would contribute immensely in reducing interest rate spread among commercial banks in Kenya. Conversely these changes will contribute to better and affordable business environment which in turn boosts the financial services sector.

2. Commercial banks should also explore internally and industry driven strategies to mitigate against or counter some of the bank-specific factors associated with higher spreads such as diversification of products to reduce reliance on interest income and the associated risks and also investment in cost-saving and efficient forms of technology to reduce operating costs.
3. In an effort to open up the financial sector, policy makers should device measures to promote the growth of medium sized banks in a bid to enhance their ability to penetrate the market so as to break market dominance by a few banksand alsoenhance competition. This kind of strategy will increase competition among banks and hence reduce interest rate spread.
4. Commercial banks shouldincrease the range of alternative investments available to institutional investors which would improve their flexibility in managing both long term and short term investments since high-concentration deposits from large depositors are able to distort spreads based on their leverage with the individual bank.
5. Commercial banks in Kenya should participate in the interbank market or use the repurchase agreement for government securities to reduce their liquidity risk as it was mentioned to be the greatest source of fear and hence uncertainty in setting high interest rate spread

5.5 Recommendation for Further Study

1. Study on policy initiatives such as the recent introduction of horizontal repurchase agreements(REPOs) to help address skewed distribution of liquidity in the industry and credit bureaus to address information asymmetries should be conducted in order to see its effect on interest rate spread.

2. A study on the effects of information and communication on interest rate spread is highly recommended to establish whether ICT reduces the cost of operation in banking sector.
3. The high beta coefficient of constant in this study also shows that there are other factors which were not included in the statistical model used which could be influencing the behavior of interest rate spread among commercial banks in Kenya. Further studies in the area of interest rate spread in developing countries like Kenya are therefore highly recommended.
4. Due to time and resources constraints, the study only concentrated on commercial banks in Kenya and more research is recommended in other financial institutions and a comparative study of the same between the commercial banks and other financial institutions.

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APPENDICES

Appendix I: Letter of Authorization

Mary Wanjiru Maina
P.O. Box 4984 -00200 - Nairobi - Kenya
Email: marymainaw@gmail.com

Date……
To
Managing Director
Kenya Commercial Bank Ltd
P.O. Box ……
NAIROBI

Dear Sir,

RE: RESEARCH DATA ON "DETERMINANTS OF INTEREST RATE SPREAD AMONG COMMERCIAL BANKS IN KENYA"

I am a student pursuing a doctorate degree in Business Administration- Finance Option at Jomo Kenyatta University of Agriculture and Technology. I' am required to undertake a research thesis as partial fulfillment for the award of this higher degree. My research topic is stated above and kindly request for your assistance in making my research a success.

The purpose of this letter is therefore to request you to grant permission to collect relevant data from your organization from selected respondents among your senior management staff. I give you the assurance that all the data collected will be treated with utmost confidentiality and will be used for the purposes of this research only.

I look forward and wish your Bank fruitful business.

Yours Sincerely

Mary W. Maina
Student Reg No. HD433/1082/2010

Appendix II: Letter of Introduction

RE: LETTER OF INTRODUCTION AND QUESTIONNAIRE GUIDE
Date…….

To…….
……..
…….
Dear Sir/Madam,

RE: COLLECTION OF RESEARCH DATA
I'm a PhD student in Business Administration – Finance option at Jomo Kenyatta University of Agriculture and Technology. I'm carrying out a research on "determinants of interest rate spread among commercial banks in Kenya". I 'am in the process of gathering relevant data for this study. You have been identified as one of the collaborators and respondents in this study and kindly request for your assistance towards making this study a success.

I therefore kindly request you to take some time to respond to the attached questionnaire. I wish to assure you that your responses will be treated with confidentiality and will be used solely for the purpose of this study.

I thank you in advance for your time and responses. It will appreciate if you can fill the questionnaire within the next 5days to enable early finalization of the study.

Yours Sincerely

Mary W. Maina
Student Reg No. HD433/1082/2010

Appendix III: Questionnaire

This questionnaire is meant to gather information regarding the determinants of interest rate spread in Kenya. Your participation in responding to the questionnaire will be highly appreciated.

Each section of the questionnaire has statements, Please tick the statement which describes your opinion on each statement.

Name of establishment (Optional)……..……

Part A: General questions

a. Please rank in order of priority (i.e. 1, 2 and 3 in that order) the three major sectors to which your bank lends.

☐ Agriculture and Forestry

☐ Manufacturing

☐ Mining/Quarrying

☐ Building and Construction

☐ Finance and Insurance

☐ Trade (Wholesale import/Wholesale domestic/Retail)

☐ Real Estate

☐ Transport and Communication

☐ Hotels/Restaurants

☐ Private households

☐ Other

Please Specify……

b. Please rank in order of priority (1, 2, 3 and 4 in that order to show priority) the major market segments that your bank lends to

Consumer ☐ Small/Medium (SME) ☐ Corporate ☐ Other ☐

c. Has your bank introduced any new loan products in the last two months?

Yes ☐ No ☐

If yes what type of products

……

……

……..

d. Has your bank discontinued any loan products in the last two months?

Yes ☐ No ☐

If yes what type of products……
……
……
……

Specific objectives:

1. Inflation

This section has statements on the extent to which inflation indicators influence the interest rate spread. Please tick the box that is appropriate to your opinion on each statement. Please **tick only one box per statement**

Statements	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
	1	**2**	**3**	**4**	**5**
Commodity and service prices in the market influence interest rate spread					
Prices of imported goods and services impact on interest rate spread					

Fuel is a key component of inflation in Kenya and also the inflation rate					
Demand for loans influence interest rate spread					
Foreign direct investments lead to high inflation and affect interest rate spread					
Non bank financial institutions sell products at relatively low prices causing even higher inflations.					
Political environment in the economy has an effect on inflation.					
Speculation of the market prices is a major determinant of inflation.					
Supply of deposits in commercial banks influences inflation.					
Please state any other factors not listed in 5 above but relevant to your institution as determinants of interest rate spreads…….. …… …… …… ……..…… ……					

2. Operating Costs

This section intends to collect information regarding the extent to which operating costs affects interest rate spread in commercial bank. Please tick the box that is appropriate to your opinion on each statement. Please **tick only one box per statement**

Factor	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
	1	2	3	4	5
i. Salaries and wages					

ii.	Stationery					
iii.	Security					
iv.	Transport					
v.	Communications equipment					
vi.	Insurance					
vii.	Maintenance					
viii.	Utility costs (Electricity and water)					
ix.	Litigation/legal costs					

Please list any other important factors contributing to your bank's total costs which are not listed above…….....
……
……

3 Market structure

This section intends to collect information regarding the extent to which market structure influence interest rate spread in commercial banks. Please tick the box that is appropriate to your opinion on each statement. Please **tick only one box per statement**

No	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
i.	The stability in the banking system was a result of efficient regulation and supervision by central bank					
ii.	On site supervision has helped in reducing unprofessional and unethical conduct it business of banking in Kenya					
iii.	Routine examination by central bank has helped to ensure a healthy banking system and further reduced interest rate					
iv.	The activities of the central bank have helped to instill public confidence in Kenya banking system					
V	Effective banking supervision has helped to address high management issues in Kenya banking sector					
Vi	The number of banks in the economy, determine the level of interest rate spread					
vii	The number of non banks financial institutions in the economy determines the level of interest rate spread.					
viii	Competition amongst banks has					

	helped to ensure soundness among commercial banks and hence control interest rate spread.					
ix	Government control and supervision has ensured regulated interest rate spread in Kenya.					
x	Buyouts and takeovers among commercial banks can tremendously reduce interest rate spread.					
Please list any other factor related market structure that can affect the interest rate spread…… …… …… …… …… ……						

4.Ownership structure

This section intends to collect information regarding the extent to which ownership structure has on interest rate spread in commercial bank. Please tick the box that is appropriate to your opinion on each statement. Please **tick only one box per statement**

	Statement	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
		1	2	3	4	5
	Foreign owned banks interest rate spread is higher than what is charged by local commercial bank					
	Lack of proper efficiency in central bank can explain the high interest rate spread					
	Disincentivefor resource mobilization has resulted to high interest rate spread					
	Weak legal system make difficult to enforce the regulatory system					
	Completion in the banking sector have to reduce the high interest rate spread					
	Concentration and interlocking control between financial institution and business enterprises have impact on interest rate spread.					
	Lack of efficient financial equity and market have resulted to high interest rate spread					
v	To a large extent interest rate spread is determined by who owns the banks and not the customer's demand and supply.					
	Low operating costs on product promotion of government owned banks contribute to their					

	low interest rate spreads.					
	Political environment determines the difference between lending and borrowing.					

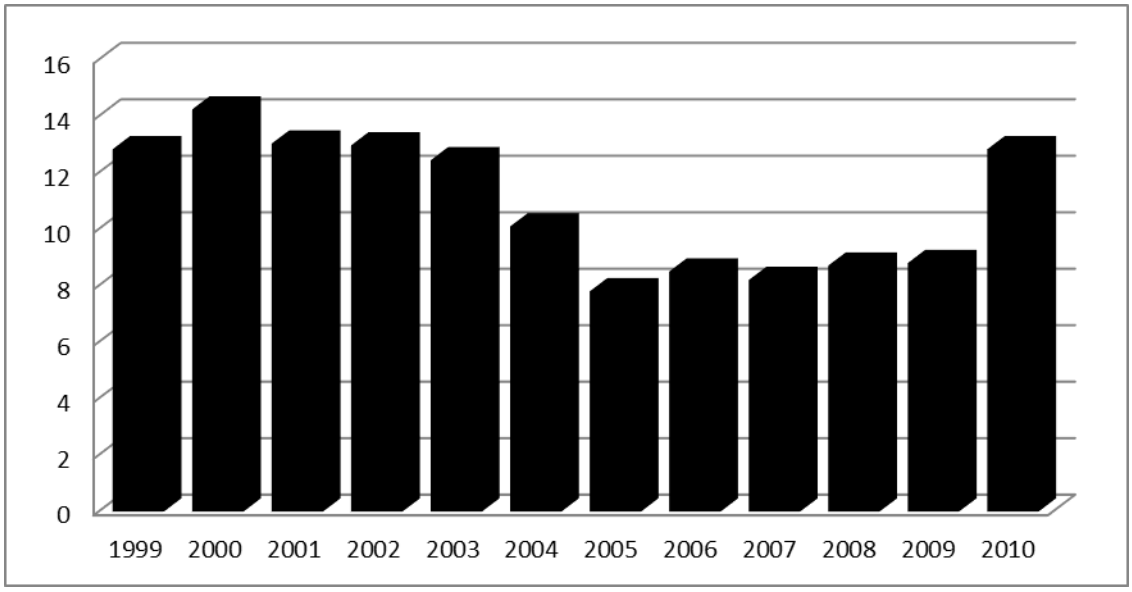
5. Interest rate spread

This section intends to correct information regarding the extent to which interest rate spread affect commercial banks of Kenya. Please rank your response on a scale of **1** (**Not significant**) to **5** (**Most significant**)

No	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
i.	Interest rate spread is the highest contributor to profits in a bank					
ii.	Interest rate spread follows the inflation rates of the countries					
iii.	Central bank rate (CBR) determines and influences the direction of bank interest rate					
iv.	Central bank monetary policies influences direction of interest rate spread					
v.	ICT cost are a major contributor to interest rate spread					
vi.	Staff cost have significant influence on interest rate spread					
vii.	Banks can reduce their margins without affecting quality of service					
viii.	Interest rate spread follows the direction of economic growth.					
ix.	Competition has helped reduce interest rate spread among commercial banks in Kenya.					

No	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
x.	Foreign banks and non bank financial institutions have contributed to downward tread of interest rate spread in Kenya.					

Appendix IV: Interest Rate Spread Trend in Kenya



Source: Central Bank of Kenya Statistical Bulletin, June 2010

Appendix V: Decomposition of Interest Rate Spread in Kenya

Panel A. All Banks	2000	2001	2002	2003	2004	2005	2006	2007
Average Lending Rate	25.03	24.47	25.89	24.64	21.45	22.75	12.22	12.19
Average Deposit Rate	5.79	4.62	3.53	2.00	1.36	2.60	2.57	2.41
Spread	**19.25**	**19.85**	**22.36**	**22.64**	**20.10**	**20.16**	**9.66**	**9.78**
Overhead Costs	6.94	6.49	7.53	6.60	5.83	5.99	3.10	3.16
Loan-loss Provisions	4.28	2.66	3.43	2.68	2.02	1.68	1.64	0.85
Reserve Requirement	0.64	0.51	0.39	0.22	0.15	0.29	0.29	0.27
Taxes	2.21	3.05	3.30	3.94	3.63	3.66	1.39	1.65
Profit Margin	**5.16**	**7.12**	**7.71**	**9.20**	**8.47**	**8.54**	**3.24**	**3.85**

Panel B. Private Banks	2000	2001	2002	2003	2004	2005	2006	2007
Average Lending Rate	20.72	19.63	17.65	15.77	12.92	13.78	13.77	12.98
Average Deposit Rate	5.29	4.60	3.36	2.14	1.47	2.78	2.88	2.79
Spread	**15.44**	**15.03**	**14.29**	**13.64**	**11.46**	**11.00**	**10.89**	**10.19**
Overhead Costs	4.86	4.66	4.85	3.75	3.05	3.24	3.15	3.00
Loan-loss Provisions	3.01	1.89	1.76	2.77	1.93	1.32	1.08	0.68
Reserve Requirement	0.59	0.51	0.37	0.24	0.16	0.31	0.32	0.31
Taxes	2.09	2.39	2.19	2.06	1.90	1.84	1.90	1.86
Profit Margin	**4.89**	**5.58**	**5.12**	**4.82**	**4.42**	**4.29**	**4.44**	**4.34**

(Source: Beck et al 2009)

Appendix VI: Spread Decomposition by Ownership Type

	Foreign			**Private Domestic**			**Government Owned**			**Government Influenced**		
	2000	2005	2007	2000	2005	2007	2000	2005	2007	2000	2005	2007
Average Lending Rate	16.61	11.21	10.46	21.30	14.90	16.75	46.34	65.59	27.91	25.86	23.57	27.01
Average Deposit Rate	3.76	1.83	2.09	7.42	4.15	3.81	6.13	2.59	2.08	7.89	2.07	1.20
Spread	**12.85**	**9.38**	**8.36**	**13.88**	**10.75**	**12.94**	**40.21**	**63.00**	**25.83**	**17.97**	**21.50**	**25.81**
Overhead Costs	4.11	2.50	2.40	4.37	3.68	3.80	20.92	18.32	9.37	8.71	8.31	9.25
Loan-loss Provisions	2.90	1.37	0.55	3.60	1.22	0.85	3.94	2.66	2.21	6.54	2.04	1.21
Reserve Requirement	0.42	0.20	0.23	0.82	0.46	0.42	0.68	0.29	0.23	0.88	0.23	0.13
Taxes	1.62	1.59	1.55	1.53	1.62	2.36	4.40	12.52	4.21	0.55	3.28	4.56
Profit Margin	**3.79**	**3.71**	**3.62**	**3.57**	**3.77**	**5.50**	**10.27**	**29.21**	**9.81**	**1.29**	**7.65**	**10.65**

(Source: Beck et al 2010)

Appendix VII: List of Commercial Banks in Kenya

Bank Name	% Market Size Index - 2012	Bank Name	% Market Size Index - `2012
1. Kenya Commercial Bank Ltd	14.52	23. Consolidated Bank of Kenya Ltd	0.68
2. Barclays Bank of Kenya Ltd	8.9	24. Equatorial Commercial Bank Ltd	0.57
3. Co-operative Bank of Kenya Ltd	8.41	25. African Banking Corporation Ltd	0.63
4. Standard Chartered Bank Ltd	7.74	26. Giro Commercial Bank Ltd	0.6
5. Equity Bank Ltd	9.98	27. Gulf African Bank Ltd	0.6
6. CFC Stanbic Bank Ltd	5.1	28. Fidelity Commercial Bank Ltd	0.5
7. Commercial Bank of Africa Ltd	3.98	29. Habib AG Zurich	0.44
8. I & M Bank Ltd	4.09	30. Guardian Bank Ltd	0.44
9. Citibank N.A.	3.96	31. K-Rep Bank Ltd	0.47
10. National Bank of Kenya Ltd	3.59	32. First Community Bank Ltd	0.41
11. Diamond Trust Bank Ltd	3.77	33. Victoria Commercial Bank Ltd	0.4
12. NIC Bank Ltd	3.7	34. Habib Bank Ltd	0.32
13. Prime Bank Ltd	1.64	35. Trans-National Bank Ltd	0.44
14. Bank of Baroda Ltd	1.83	36. Oriental Commercial Bank Ltd	0.31
15. Ecobank Ltd	1.02	37. Credit Bank Ltd	0.28
16. Bank of Africa Ltd	1.7	38. Paramount-Universal Bank Ltd	0.28
17. Chase Bank Ltd	1.49	39. Middle East Bank Ltd	0.26
18. Family Bank Ltd	1.34	40. UBA Kenya Bank Ltd	0.16
19. Bank of India	1.17	41. Dubai Bank Ltd	0.15
20. Imperial Bank Ltd	1.27	42. Jamii Bora Bank Ltd	0.24
21. Fina Bank Ltd	0.69	43. Charterhouse Bank Ltd	0.00
22. Development Bank of Kenya Ltd	0.46	44. Housing Finance Company of Kenya Ltd	1.48

(Source: Central Bank of Kenya, 2012)

Appendix VIII Sampling Technique

Bank Name	Ownership	% Market Size Index - 2011	Management	Supervisory
Bank of Africa	Private	1.7	136	101
Barclays	Listed	8.9	711	528
CFC Stanbic	Listed	5.1	408	302
Chase Bank	Private	1.49	119	88
Commercial Bank of Africa	Private	3.98	318	236
Consolidated Bank	Government	0.68	54	40
Cooperative Bank	Listed	8.4	671	498
Credit Bank	Private	0.28	22	17
Diamond Trust	Listed	3.77	301	224
Eco Bank	Private	1.02	82	60
Equitorial Bank	Private	0.57	46	34
Equity Bank	Listed	9.98	798	592
Family Bank	Private	1.34	107	79
Fina Bank	Private	0.69	55	41
Habib Bank	Private	0.32	26	19
Housing Finance	Listed	1.48	118	88
I&M Bank	Listed	4.09	327	243
Imperial Bank	Private	1.27	102	75
Jamii Bora Bank	Private	0.24	19	14
Kenya Commercial Bank	Listed	14.52	1161	861
K-Rep Bank	Private	0.47	38	28
Middle East Bank	Private	0.26	21	15
National Bank	Government	3.59	287	213
NIC Bank	Listed	3.7	296	219
Standard Chartered	Listed	7.74	619	459
Transnational Bank	Private	0.44	35	26
Victoria Bank	Private	0.4	32	24
Total % Market Share		**86.42**	**6,908**	**5,125**

Appendix IX Sample Size

Bank Name	Ownership	% Market Size Index - 2011	Management	Supervisory	Sample Distribution	Management	Supervisory
Bank of Africa	Private	1.7	136	101	8	5	3
Barclays	Listed	8.9	711	528	40	23	17
CFC Stanbic	Listed	5.1	408	302	23	13	10
Chase Bank	Private	1.49	119	88	7	4	3
Commercial Bank of Africa	Private	3.98	318	236	18	10	8
Consolidated Bank	Government	0.68	54	40	3	2	1
Cooperative Bank	Listed	8.4	671	498	37	21	16
Credit Bank	Private	0.28	22	17	1	1	0
Diamond Trust	Listed	3.77	301	224	17	10	7
Eco Bank	Private	1.02	82	60	5	3	2
Equitorial Bank	Private	0.57	46	34	3	2	1
Equity Bank	Listed	9.98	798	592	44	25	19
Family Bank	Private	1.34	107	79	6	3	3
Fina Bank	Private	0.69	55	41	3	2	1
Habib Bank	Private	0.32	26	19	1	1	0
Housing Finance	Listed	1.48	118	88	7	4	3
I&M Bank	Listed	4.09	327	243	18	10	8
Imperial Bank	Private	1.27	102	75	6	3	3
Jamii Bora Bank	Private	0.24	19	14	1	1	0
Kenya Commercial Bank	Listed	14.52	1161	861	65	37	28
K-Rep Bank	Private	0.47	38	28	2	1	1
Middle East Bank	Private	0.26	21	15	1	1	0
National Bank	Government	3.59	287	213	16	9	7
NIC Bank	Listed	3.7	296	219	16	9	7
Standard Chartered	Listed	7.74	619	459	34	20	14
Transnational Bank	Private	0.44	35	26	2	1	1

Bank Name	Ownership	% Market Size Index - 2011	Management	Supervisory	Sample Distribution	Management	Supervisory
Victoria Bank	Private	0.4	32	24	2	1	1
Total % Market Share		**86.42**	**6,908**	**5,125**	**384**	**222**	**164**