

**THE RELATIONSHIP BETWEEN INTEREST RATES SPREAD AND THE
FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA**

BY

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DECLARATION

I declare that this is my original work and has not been presented for a degree in any other university.

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SUPERVISOR’S DECLARATION

This research project has been submitted for examination with my approval as university supervisor:

Supervisor: Dr. Josephat Lishenga

Sign..... **Date**.....

DEDICATION

This research work is dedicated to the following: My loving family for support and patience during the entire period of my study. For their encouragement and continued prayers towards the successful completion of this course.

Finally I pay tribute and gratitude to my employer and colleagues for their understanding during the entire period of the study.

Thank you and God bless you.

ACKNOWLEDGEMENT

I am grateful to my supervisor who guided me through the proposal and gave professional advice whole-heartedly. I thank God for giving me the strength to sail through the study.

ABSTRACT

It is widely believed that fluctuations of market interest rates exert significant influence on the activities of commercial banks. The effect of interest rate spread changes on banks' profitability is shown to be asymmetric with the effect originating from lending rates being greater than those of deposit rates. The objective of this study was to determine the relationship between interest rates spread and the performance of commercial banks in Kenya. This was a census study of all registered 43 commercial banks in Kenya and relied heavily on documentary secondary data for 6 year study period (2007-2012). The study found that interest rates spreads are higher for larger banks than for medium and small banks. On average, small banks have lower spreads. This could possibly be due to the fact that small and low-capitalized banks find it relatively difficult to raise funds and have to increase their deposit rates to attract funds and compensate for the perception that they are more risky relative to large, more liquid, well capitalized banks that are perceived to be 'too-big-to-fail'. If the higher spreads are merely interpreted as an indicator of inefficiency, one can easily be tempted to conclude from the positive relationship between bank size and interest rate spreads that big banks are less efficient, which may not necessarily be the case. The results are not surprising given that big banks are associated with market power—they control a bigger share of the market both in terms of deposits and loans and advances. The study concludes that there is a positive linear relationship between interest rate spread and financial performance (ROA). The study recommended that a study should be carried out in other commercial banks across East Africa and beyond and see whether the same results would be replicated.

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LIST OF ABBREVIATION

CBK	Central Bank of Kenya
CRBs	Credit Reference Bureaus
DTMs	Deposit-Taking Microfinance Institutions
FXBs	Forex Bureaus
KBA	Kenya Bankers Association
MFC	Mortgage Finance Company
ROA	Return on Assets

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

It is widely believed that fluctuations of market interest rates exert significant influence on the activities of commercial banks. Later investigation by Hancock (1985) confirms the conjecture that a higher level of market interest rates improves banking profitability. In addition, the effect of interest rate spread changes on banks' profitability is shown to be asymmetric with the effect originating from lending rates being greater than those of deposit rates. The stochastic behavior of market rates is also argued to be a significant factor that determines the mode banks adopt in delivering their services. Demirguc-Kunt & Huizinga (1997) show that banks can be either brokers or asset transformers subject to interest rate uncertainty. In a volatile interest rate environment, banks minimize their risk exposure by performing the role of brokers, merely matching the arrival of assets and liabilities.

The impact of variations in market interest rates on banks' profitability is ambiguous; it largely depends on the degree of responses of asset and liability rates. In general, since both sides of banks' balance sheets are affected by market interest rates in a parallel fashion, the net impact on banks' profitability can be deduced by tracing the responses of both assets and liabilities as market interest rates change (Emmanuelle, 2003).

Commercial banks' activities greatly rely on their intermediation services, filling the gap between suppliers and demanders of funds. Their profitability is partly due to the difference in interest rates charged on loans and what is paid to suppliers of funds. Njuguna & Ngugi (2000) argues that the larger the spread between loan and deposit rates,

the more likely the necessary condition for intermediation to occur can be met. Earlier explanations that allow positive spread to be maintained rest on the ability of commercial banks to minimize transaction costs in loans originating through their intermediation services.

The behavior of interest rate spread is critical, theoretically, Ho and Saunders (1981) indicate that maintaining a positive spread is crucial for banking firms as this compensates them for taking the risk of providing immediacy of loans and deposits, that are viewed as stochastic, which arrive at different times. Their empirical estimate shows that the magnitude of 'pure spread' is significantly affected by interest rate volatility. In a related study, Slovin and Sushka (1983) modelled commercial loan rates as independent from deposit rates. This dichotomy of asset and liability rates is achieved as lending rates are shown to be sensitive to open market rates while deposit rates are not. Restrictions on interest rates are shown to be important factors that dichotomize lending and deposit rates. The authors fail to find any significant influence of deposits on loan rates. The coefficient for loan/deposit ratio indicates that the 'loaned up' position is not significant when regressed on loan rates. On a similar theme Hancock (1985), shows that the change in banks' profitability generated by changes in loan rates is greater than the change generated by deposit rates. It is shown that the effect of spread changes is asymmetric and the increase in profit due to changes in loan rates is greater than changes due to deposit rates, indicating larger profit elasticity with respect to loans rather than deposits. These findings led to the suggestion for separate inclusion of loan and deposit rates instead of a single spread measurement in estimating the bank's profit equation.

1.1.1 Interest Rate Spread

Interest rate spread is defined by market microstructure characteristics of the banking sector and the policy environment (Ngugi, 2001). Risk-averse banks operate with a smaller spread than risk-neutral banks since risk aversion raises the bank's optimal interest rate and reduces the amount of credit supplied. Actual spread, which incorporates the pure spread, is in addition influenced by macroeconomic variables including monetary and fiscal policy activities (Emmanuelle, 2003).

Depending on the market structure and risk management, the banking firm is assumed to maximize either the expected utility of profits or the expected profits. And, depending on the assumed market structure, the interest spread components vary. For example, assuming a competitive deposit rate and market power in the loan market, the interest rate spread is traced using the variations in loan rate. But with market power in both markets, the interest spread is defined as the difference between the lending rate and the deposit rate.

The magnitude of interest rate spread, however, varies across the world. It is inverse to the degree of efficiency of the financial sector, which is an offshoot of a competitive environment. The nature and efficiency of the financial sectors have been found to be the major reasons behind differences in spread in countries across the world. In economies with weak financial sectors, the intermediation costs which are involved in deposit mobilization and channeling them into productive uses, are much larger (Jayaraman and Sharma, 2003).

1.1.2 Organizational Performance

Firm's performance is the appraisal of prescribed indicators or standards of effectiveness, efficiency, and environmental accountability such as productivity, cycle time, regulatory compliance and waste reduction. Performance also refers to the metrics regarding how a certain request is handled, or the act of doing something effectively; of performing; using knowledge as notable from just possessing it. It is the result of all of the organization's operations and strategies (Venkatraman and Ramanujam, 2001).

The financial performance of commercial banks is usually measured using a blend of financial ratios analysis, measuring performance alongside budget, benchmarking or a combination of these methodologies. The common postulation, which explains most of the financial performance discussion and research, is that increasing financial performance will result in improved functions and actions of the firms. According to Fitzgerald, Johnston, Brignall, Silvestro and Voss (2007) there are three principal factors to advance financial performance for financial firms; the institution size, the institution asset management, and the institution operational efficiency. It is accepted that "Return on Assets" and "Return on Equity" are important measurement ratios to determine the financial performance of banks (Acharya et al. 2007).

1.1.3 Relationship between Interest Rate Spread and Financial Performance

Interest rate risk is an important financial and economic factor affecting the value of common stocks. There are important reasons why the stock returns of banks can be responsive to interest rate changes. Firstly, the volatility transfer hypothesis suggests that random shocks can induce higher volatility in financial markets and because of contagion

effects which are highest in more volatile markets (Saunders and Yourougou, 1990), investors as well as banks may look abroad to invest in alternative financial assets. If international portfolio diversification also results in an increase in the volatility of those returns (Eun and Resnick, 1988), then greater exposure to interest rate is like to affect the stock returns of banks if indeed such information is impounded into their stock prices. So the implications of the arbitrage pricing theory (APT) will apply if indeed interest rate is a priced factor that constitutes important element in the equilibrium price of stocks. In equilibrium, the stock price of financial institutions including banks would differ according to their sensitivity to interest rate (Yourougou, 1990). Indeed, Choi et al. (1992) provide empirical evidence that interest rates are priced in the stock market for US banks.

Secondly, interest rate changes have been shown to directly affect the revenues and costs of financial institutions (Edmister and Merriken, 1989). As the largest US banks have a significant proportion of their operations in foreign countries (Madura and Zarruk, 1995), interest rate changes are likely to substantially impact on their revenue and cost streams beyond the protection that is afforded by hedging.

1.1.4 Banking Industry in Kenya

The Companies Act, the Banking Act, the Central Bank of Kenya Act and the various prudential guidelines issued by the Central Bank of Kenya (CBK), govern the Banking industry in Kenya. The banking sector was liberalised in 1995 and exchange controls lifted. The CBK, which falls under the Minister for Finance's docket, is responsible for formulating and implementing monetary policy and fostering the liquidity, solvency and

proper functioning of the financial system. The CBK publishes information on Kenya's commercial banks and non-banking financial institutions, interest rates and other publications and guidelines. Banks in Kenya have come together under the Kenya Bankers Association (KBA), which serves as a lobby for the banks' interests and addresses issues affecting its members.

As at 31st December 2012, the banking sector consisted of the Central Bank of Kenya, as the regulatory authority, 44 banking institutions (43 commercial banks and 1 mortgage finance company -MFC), 5 representative offices of foreign banks, 8 Deposit-Taking Microfinance Institutions (DTMs), 2 Credit Reference Bureaus (CRBs) and 112 Forex Bureaus (FXBs) (CBK Bank Supervision Annual Report, 2012). Out of the 44 banking institutions, 31 locally owned banks comprise 3 with public shareholding and 28 privately owned while 13 are foreign owned as shown in Chart 1. The 8 DTMs, 2 CRBs and 112 forex bureaus are privately owned. The foreign owned financial institutions comprise of 9 locally incorporated foreign banks and 4 branches of foreign incorporated banks

The ever changing consumer needs, innovative financial products, deregulation, information technology upgrades, and the onset of multiple delivery channels are reshaping the financial services industry. To remain competitive in the new landscape, banks have continued to expand their product lines and add new delivery channels to develop more effective marketing systems and techniques, and enhance the service quality levels. Use of alternative channels such as e-banking and m-banking continue to be the frontiers upon which banks seek to enhance access to customers as well as differentiating their products (CBK 2012).

1.2 Statement of the Problem

Studies have shown that there is a relationship between lending interest rates and the performance of banks. However, the evidence has been contrasting as the effect has not been conflicting. Earlier treatment of the issue provided by Samuelson (1945) indicates that under general conditions, bank profits increase with rising interest rates. The banking system as a whole is immeasurably helped rather than hindered by an increase in interest rates (Zarruk, 1989). A more accurate measurement of how fluctuations in market interest rates affect banking firms largely depends on the sensitivity of banks' assets and liabilities (interest rates and volume) toward variations in open market rates.

The imbalance of adjustment of asset and liability rates toward changes in market rates significantly affects the value of bank equity. Numerous studies focus on the level of interest rate risk, i.e., uncertainty in banks' profitability, which is due to the imbalance of sensitivity of assets and liabilities of commercial banks toward changes in market interest rates (Angbanzo, 1997; Yourougou, 1990). The impulse response functions show that low and lagged response of lending rates contribute to the decline in banking spread following an increase in money market rates, thus, adversely affecting banking activities. Contrary to the above-mentioned findings, in Malaysia the high level of interest rates hindered banks' profitability.

Locally, studies that have been carried out on interest rate include Kilongosi (2005), did a study on net bank interest margin and interest risk among commercial banks in Kenya, Kilonzo (2003), did a study on the effects of changes in interest rates on credit granted by commercial banks in Kenya, Kimutai (2003) did an empirical analysis of factors

contributing to high interest rates spread in Kenya and lastly Njuguna & Ngugi (2000) did a study on banking Sector Interest Rate Spread in Kenya: Macroeconomic and Econometric Modeling. The study therefore seeks to fill the existing knowledge gap by seeking to establish the relationship between interest rate spread and banks' performance in Kenya.

1.3 Research Objective

The objective of this study was to determine the relationship between interest rates spread and the performance of commercial banks in Kenya.

1.4 Importance of the Study

The importance of the study are:

Management

The study is invaluable to the management of commercial banks as they will be able to uncover the relationship that the interest rates spread have with the performance of their organizations. They would therefore be able to take appropriate measures to offer rates that appeal to their clients and at the same time maintain their profitability.

Academics and Researchers

The results of this study would also be invaluable to researchers and scholars, as it would form a basis for further research. The students and academics would use this study as a basis for discussions on interest rates spread and firm performance. The study would be a source of reference material for future researchers on other related topics; it would also help other academicians who undertake the same topic in their studies.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In this chapter, the researcher discusses what other authors have found out in regard to interest rates spread and financial performance. Only the issues in the objective will be addressed, critically reviewed and discussed.

2.2 Theoretical Review

The main theoretical frameworks used in interest rate literature that have provided arguments in favor of interest rates include classical, loanable funds and rational expectations theories.

2.2.1 The classical theory

The classical theory of interest rates applies the classical theory of economics to determining interest rates. Classical theory of interest rates compares the supply of savings with the demand for borrowing (Oost, 2002). Using supply and demand curves the equilibrium rate is calculated by determining the curves intersection point. Thus if savings are greater than investments the interest rate drops until they reach equilibrium and vice versa, if savings are less than investment the interest rate increases until the reward for savings encourages increased savings rates causing the market to again reach equilibrium (Rogers, 1985). However the classical theory of interest rates fails to account for factors besides supply and demand that may affect interest rates such as the creation of funds, the importance of income and wealth and changes in the primary borrowers in an economy.

2.2.2 The Loanable funds theory

The loanable funds theory is a long - run theory of interest rate determination and is most appropriate for explaining long - term interest rates. This theory attempts to identify the approximate causes of interest rate variations by analyzing the supply of and demand for credit. The theory derives from the notion that savers make a decision between consumption now and consumption in the future. According to this theory, the rate of interest is determined at that level which equates the supply of securities with the demand for them, or, stated differently, the factors determining the interest rate are real investment demand and real saving – what the neoclassical economists called the forces of ‘productivity and thrift’ (Froyen 1996: 66).

2.2.3 The Rational Expectations Theory

The rational expectations theory of interest rates is based on the idea that people formulate expectations based on all the information that is available in the market. Rational expectation theory holds that the best estimation for future interest rates is the current spot rate and that changes in interest rates are primarily due to unexpected information or changes in economic factors. The rational expectations theory can be incorporated with the loanable funds theory in order to better consider the available information with the economy. The limiting factors of rational expectation theory are mostly related to the difficulty in gathering information and understanding how the public uses its information to form its expectations (Moore, 1988).

2.3 Determinants of Financial Performance

2.3.1 The market value of a company

Analysis of the determinants of corporate financial performance is essential for all the stakeholders, but especially for investors: commercial banks focus on maximizing shareholder value. This principle provides a conceptual and operational framework for evaluating business performance. The value of shareholders, defined as market value of a company is dependent on several factors: the current profitability of the company, its risks, and its economic growth essential for future company earnings (Chiorazzo, Milani and Salvini, 2008).

According to D'Souza and Lai (2009) financial indicators based on accounting information are sufficient in order to determine the value for shareholders. A company's financial performance is directly influenced by its market position. Profitability can be decomposed into its main components: net turnover and net profit margin. Jones & Hill (2008) argues that both can influence the profitability of a company one time. If a high turnover means better use of assets owned by the company and therefore better efficiency, a higher profit margin means that the entity has substantial market power.

2.3.2 Risk and Growth

Montgomery (2008) suggests that risk and growth are two other important factors influencing a firm's financial performance. Since market value is conditioned by the company's results, the level of risk exposure can cause changes in its market value. Economic growth is another component that helps to achieve a better position on the

financial markets, because market value also takes into consideration expected future profits.

In the scientific literature, the mentioned factors, a number of other variables that have a greater or less influence on corporate financial performance include: The size of the company can have a positive effect on financial performance because larger firms can use this advantage to get some financial benefits in business relations. Large companies have easier access to the most important factors of production, including human resources. Also, large organizations often get cheaper funding (Morgan and Samolyk, 2009).

2.3.3 Capital Structure

In the classical theory, capital structure is irrelevant for measuring company performance, considering that in a perfectly competitive world performance is influenced only by real factors. Recent studies contradict this theory, arguing that capital structure play an important role in determining corporate performance. Stiroh (2008a) suggest that entities with higher profit rates will remain low leveraged because of their ability to finance their own sources. On the other hand, a high degree of leverage increases the risk of bankruptcy of companies. Total assets are considered to positively influence the company's financial performance, assets greater meaning less risk.

2.3.4 Sales (turnover)

A large volume of sales (turnover) is not necessarily correlated with improved performance. Studies that have examined the relationship between turnover and corporate performance were inconclusive. The main objective of the company has evolved over

time; the need for short term profit is replaced by the need for long-term growth of the company (sustainable growth). Therefore, a sustainable growth rate higher would have a positive impact on performance. For the companies listed at the stock exchange, its ability to distribute dividends is a proof of stability. However, until now there is no proof of a link between this factor and profitability, since profits can be used for purposes other than to distribute dividends (Tabak, Fazio and Cajuerio, 2010).

2.4 Interest Rate Spread and Financial Performance

According to financial theory changes interest rates should affect the value of the firm. Hence there has been much interest in evaluating the level of interest rate exposure a firm or industry faces. Interest rate exposure refers to the extent to which the value of the firm is affected by changes in interest rates. The issue of exposure to interest rate risk is of importance to individual investors and firms. For example, changes in interest rates can affect an investor holding a portfolio consisting of securities from different countries. Changes in interest rates will alter the firms' financing costs, affecting the amount of loan interest and principal payments and impacting cash flows of the firm.

A large number of studies have investigated the relationship between interest rate movements and changes in the values of firms. However, there is far from being a consensus over the impact of interest rate changes on firm performance. Studies based on US data often uncover mixed findings, suggesting that the level of exposure is limited.

Jorion (1990) examines the extent of interest rate exposure in the US multinationals using a two factor model incorporating both market returns and changes in interest rates finding that there are significant differences across industries. Jorion (1991) shows that industries

such as Chemicals, Mining and Retail have significant interest rate exposure. Chemicals and Mining industries react positively to a change in the interest rate while Retail adjusts negatively, i.e. heavy industry (exporters) benefit from a depreciation in the interest rate while importers (Retail) suffer.

Interest rate changes have been shown to directly affect the revenues and costs of financial institutions (Edmister and Merriken, 1989; Saunders and Yourougou, 1990). As the largest US banks have a significant proportion of their operations in foreign countries (Madura and Zarruk, 1995), interest rate changes are likely to substantially impact on their revenue and cost streams beyond the protection that is afforded by hedging.

2.5 Empirical Evidence

A number of empirical studies have sought to estimate the sensitivity of financial institutions' performance to interest rate changes. The research methodologies tend to vary and this variation in turn, gives rise to different empirical results. For example, Flannery (1981) employed a cash flow approach to show that interest rate changes have no significant effects on the costs and profits of the banks, thereby implying the banks are not exposed to interest rate risk (Flannery, 1983). Based on the augmented market model, Flannery and James (1984) find evidence of interest rate sensitivity for financial institutions stock returns which they explain by means of the duration gap between their assets and liabilities.

There is also some evidence that bank and non-bank stock returns are related to unanticipated changes in the level of interest rate and that interest rate sensitivity of bank stock returns varies significantly over time (Kane and Unal, 1988; Saunders and

Yourougou, 1990). This leads Neuberger (1994) to employ a GARCH model to estimate factor volatilities that include interest rates as determinants of risk premia. Flannery et al. (1997) find that the equilibrium price for bearing interest rate risk varies over time in tandem with interest rate volatility.

Many similar studies on interest rate sensitivity and pricing have also appeared in the securitized real estate literature (Liow et al. 2003). Again, there is lack of consensus regarding the significance and direction of the interest rate effects on real estate stock/REITs returns. For examples, Li and Wang (1995) and Mueller and Pauley (1995) find little correlation between interest rate movements and US REIT returns. On the other hand, McCue and Kling (1984) and Ling and Naranjo (1997) find a negative interest rate influence on US REIT returns. Lizieri and Satchell (1997) find that real interest rate has an influence on UK property company share prices but the behaviour differs in high interest rate and low interest rate regimes.

During periods of relatively high interest rates, property stock prices fall sharply and exhibit little volatility, while price movements are more erratic during periods of relatively low interest rates. Devaney (2001) finds that changes in the interest rate level and interest rate volatility are both inversely related to US EREIT and MREIT excess returns. Liow et al. (2003) examines the relationship between the unexpected changes in the long-term interest rate and Singapore property stock returns from an asset pricing perspective. Their results reveal that property stock returns are sensitive to the unanticipated movement in the long-term interest rate. Additionally, interest rate risk is a factor in capital asset pricing and that the pricing of the interest rate risk is sensitive to the prevailing market conditions.

Finally, Eichholtz and Huisman's (2001) results on six national property stock returns show that interest rate variables especially the changes in interest rates and the term structure have an impact on excess property stock returns. Nevertheless, interest rate was only one of the risk factors in his cross-sectional models.

2.6 Chapter Summary

The studies reviewed above are mainly done in the developed countries whose institutions interest rates changes effect on financial performance are different from that of banks in Kenya. Therefore, there exist a research gap on the relationship between interest rates spread and financial performance of commercial banks in Kenya. This study therefore seeks to fill this literature gap by investigating the relationship between interest rates spread and financial performance of commercial banks in Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presented the methodology that was used to carry out this study. The chapter presented the research design, the population, and data collection method and instruments and data analysis.

3.2 Research Design

For the purposes of this study, the researcher used causal research design. A causal research explores the effect of one thing on another and more specifically, the effect of one variable on another (Dooley, 2007). According to Kumar (2009), causal-comparative research attempts to identify a causative relationship between an independent variable and a dependent variable. A cause-effect research design (causal) is chosen because it enables the researcher to generalize the findings to a larger population. This study therefore was able to generalize the findings to all the commercial banks in Kenya. This design was appropriate in investigating the relationship between interest rate spread and financial performance of commercial banks in Kenya.

3.3 Population of Study

Target population in statistics is the specific population about which information is desired. According to Ngechu (2008), a population is a well defined or set of people, services, elements, events, group of things or households that are being investigated. Mugenda and Mugenda, (2003), explain that the target population should have some observable characteristics, to which the researcher intends to generalize the results of the

study. This definition ensures that population of interest is homogeneous. The target population comprised of 43 commercial banks in Kenya (see Appendix I).

The study adopted Census method and involved all registered 43 operational commercial banks in Kenya as per Central Bank of Kenya (CBK) record for the study period 2007-2012. However commercial banks which are not operational for the entire 6 year period or under receivership were dropped due to incomplete records or missing data. The financial statements (secondary data) were obtained from individual banks websites, CBK supervisory data bank and National daily news papers (Nation and Standard). These sources are authentic thus reliable, suitable and valid.

3.4 Data Collection

This study made use of secondary data. This was found from the published financial statements of the sampled banks in the survey. The specific information was derived from the banks' balance sheets as well as the income statements. The statistics on the lending interest rates and borrowing rates were also sought from the banks, from the Central Bank of Kenya, and from other published information in newspapers. The study covered a five year period from 2007 through to 2012.

3.5 Data Analysis and Presentation

The relationship between interest rate spread and firm performance is construed as that of a linear relationship. Thus, a linear model shown below was used for purposes of determining whether interest rate spread has a significant influence on the performance of

commercial banks in Kenya. The performance of commercial banks was measured by return on assets (ROA).

Measuring the Interest Rate Spread

In this study we captured interest rate spread by combining the accounting and optimal firm behaviour models. The accounting value of net interest margin uses the income statement of commercial banks, defining the bank interest rate margin as the difference between the banks' interest income and interest expenses, which is expressed as a percentage of average earning assets (Barajas, Steiner and Salazar, 1996).

The firm maximization behaviour, on the other hand, allows derivation of profit maximization rule for interest rate and captures features of market structure. Depending on the market structure and risk management, the banking firm is assumed to maximize either the expected utility of profits or the expected profits. And, depending on the assumed market structure, the interest spread components vary. For example, assuming a competitive deposit rate and market power in the loan market, the interest rate spread is traced using the variations in loan rate (Wong, 1997). But with market power in both markets, the interest spread is defined as the difference between the lending rate and the deposit rate that is:

$$S = r_l - r_d$$

The study will adopt the following models to calculate the interest rate spread (Ngugi, 2001): The study will adopt the following models to calculate the interest rate spread (Ngugi, 2001):

$$r_l = \frac{rm\psi}{(1-w)\phi} + \frac{cl}{(1-w)\phi} + \frac{rb}{(1-w)\phi}$$

$$rd = \frac{Cd}{(1-w)\sigma} + \frac{rm\psi}{\sigma} + \frac{rb(1-\psi)}{\sigma}$$

$$\text{Therefore } S = \frac{rm\psi}{(1-w)\sigma} + \frac{Cl}{(1-w)\sigma} + \frac{rb}{(1-w)\sigma} - \frac{Cd}{(1-w)\sigma} + \frac{rm\psi}{\sigma} + \frac{rb(1-\psi)}{\sigma} \dots \dots \dots (1)$$

Where r_l is the lending rate;

σ is the Reserve requirement as a proportion of the total deposits;

rb the government securities interest rate ;

ψ is the proportion of liquidity gap from the inter-bank market and

w is the proportion of non-performing loans assumed to be random, taking values between (0,1) that is influenced by interest rate on loans, uncertainty in the economy and the bank policy on collateral. Thus, credit risk includes both the endogenous and exogenous risk.

A regression analysis was performed to test the relationship between interest rate spread and bank performance (ROA). The size of the bank was taken as the control variable. According to Zarruk (1989) size affects the financial performance of banks. In this study size of the banks was defined by the number of employees.

Return on assets (ROA) ratio: Net profit after taxes/Total assets.

This ratio is calculated as net profit after tax divided by the total assets. This ratio measure for the operating efficiency for the company based on the firm's generated profits from its total assets.

The results were then presented using tables. The model took the following form:

$$ROA = \alpha + \beta_1 S + \beta_2 \text{Size} + \varepsilon \dots \dots \dots (2)$$

Where α = constant (coefficient of y- intercept), S = interest rate spread and ε is the error term

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND INTERPRETATION

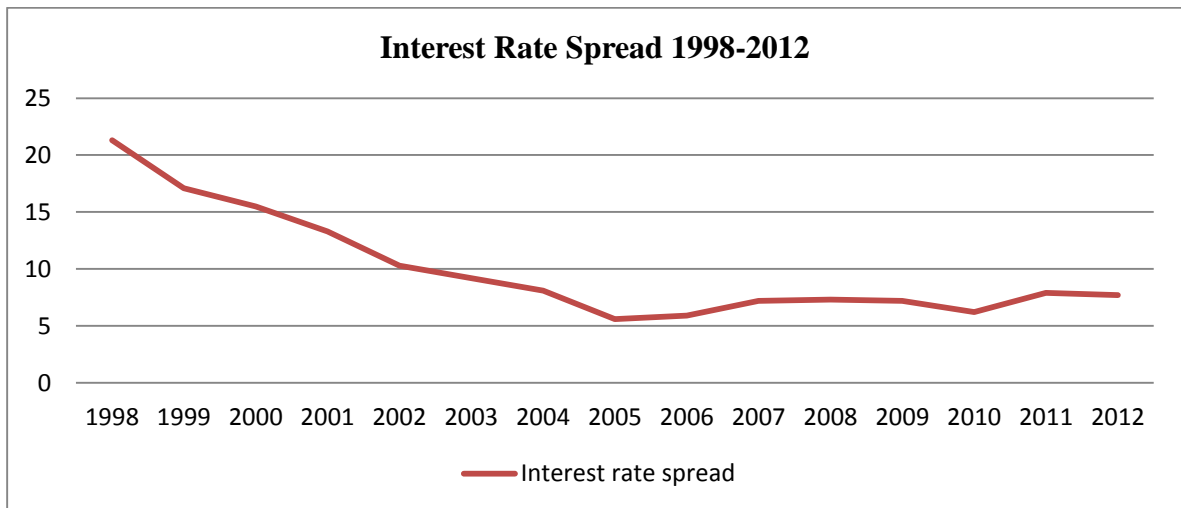
4.1 Introduction

This chapter presents the research findings on the study on the relationship between interest rate spread and financial performance of commercial banks in Kenya. The data was collected on a sample of 42 commercial banks for the period ranging from 2007 to 2012.

4.2 Interest Rate Spreads

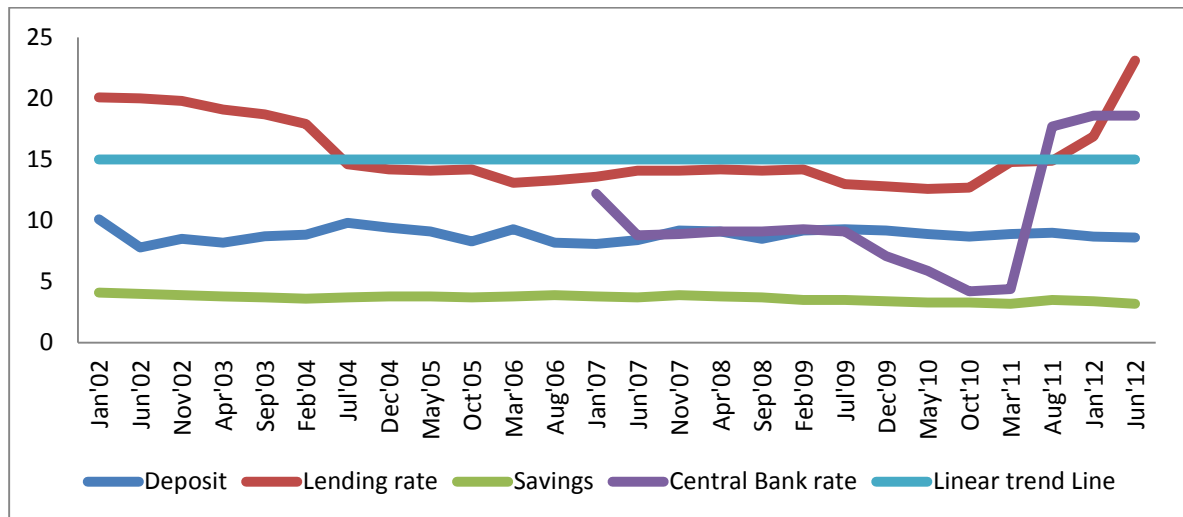
Figure 4.1 show that there was a general gradual decline in interest rates in 2005. This is the case even for period that witnessed monetary easing, with the policy rates having been reduced from 8.5% in January 2009 to 5.75 % in January 2011, complimented by lowering of the cash reserve ratio from 5% to 4.5% in June 2009.

Figure 4. 1: Interest Rate Spreads



4.2.1 Trends in interest rates, January 2002 to June 2012

Figure 4. 2: Trends in interest rates, January 2004 to June 2012



Source: CBK

During this period, interest rate on the risk free treasury bills declined from an average of about 8.46% in January 2009 to a low of about 1.63% in July 2010 whereas the average lending rate declined marginally from 14.78% to 14.29% over the same period. On the contrary, the shift to monetary policy tightening that saw CBR increased to 18% in December 2011 was almost instantaneously followed by a corresponding shift in lending rates to an average of about 20%.

Arguably, the lending rates are relatively more flexible upwards but sticky downwards in response to changes in policy conditions. In general, the rigidity in the lending and deposit rates, particularly the downward inflexibility of the lending rates remains a subject of debate. On the other hand, the saving rate has remained almost flat with an average of 1.62% from 2009 to 2011. The overall deposit rate has more or less remained

stable except for temporary declines and upward movements following monetary policy changes.

4.2.2 Interest rate spreads by banks size

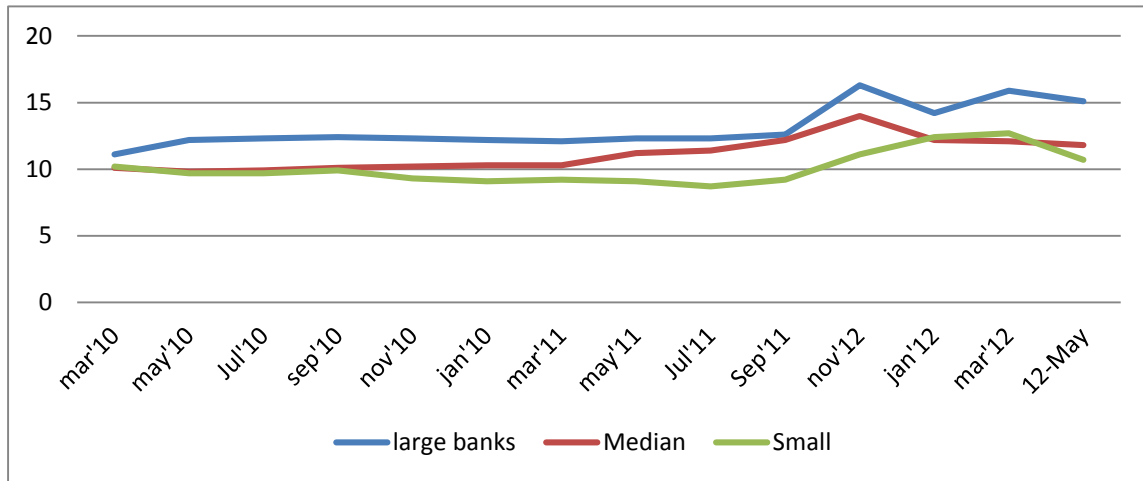
An examination of interest rate spreads by banks size (figure 4.4) shows that interest rates spreads are higher for larger banks than for medium and small banks¹. On average, small banks have lower spreads. This could possibly be due to the fact that small and low-capitalized banks find it relatively difficult to raise funds and have to increase their deposit rates to attract funds and compensate for the perception that they are more risky relative to large, more liquid, well capitalized banks that are perceived to be ‘too-big-to-fail’².

Trend analysis shows that the overall spread increased slightly from about 9.95% in 2002 to about 10.6% in 2011, rising further to about 12.2% percent in the first half of 2012.

¹ The latest classification of banks is based on weighted market size index—large (5% above), medium (1%-5%) and small (below 1%) (see Bank Supervision Annual Report 2011 by Central Bank of Kenya)

² The positive relationship between bank size and spreads is examined further under the section on empirical results and discussion

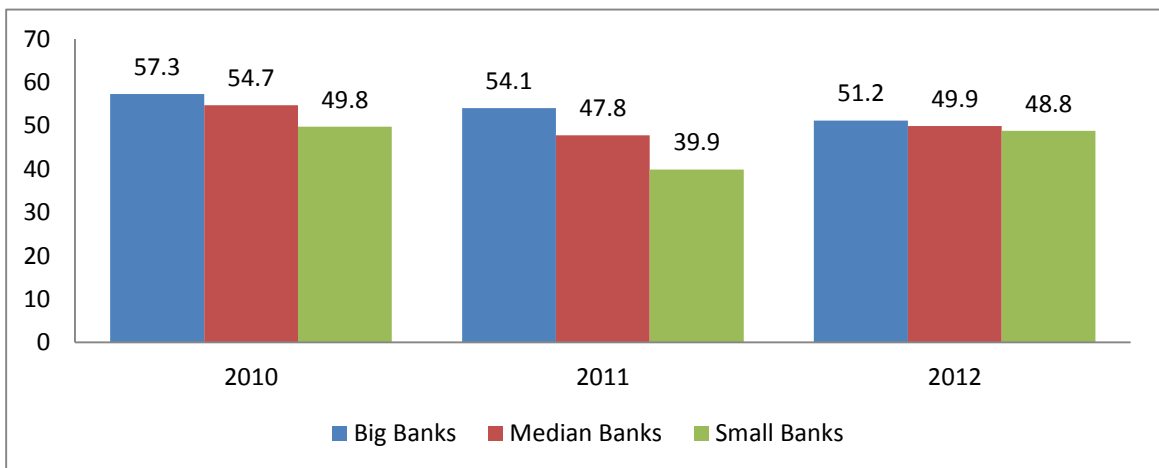
Figure 4. 3: Interest Rate Spreads across Categories of Banks: March 2010 to May 2012



Source: CBK

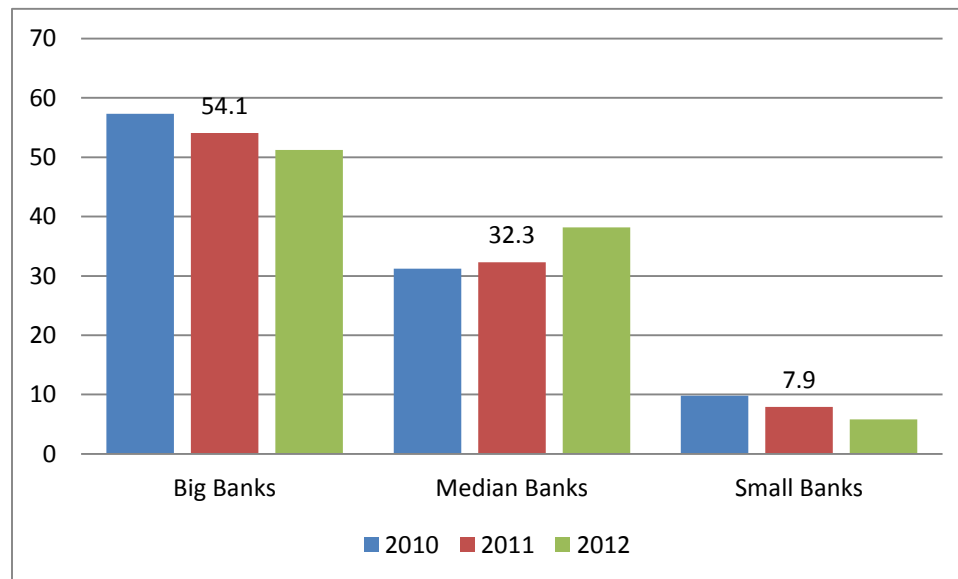
In terms of quantities, figure 4.3 shows that the big banks account for over 50% of the total loans and advances and hence are the dominant players in the market. On the other hand, the medium-sized banks account for slightly over 30% of the loans and advances, while the small banks account for less than 10% of the market share.

Figure 4. 4: Market Share of Loans and Advances by Bank Categories, 2010 -2012



A similar trend applies with respect to the share of deposits, i.e. the big banks account for over 50% of the deposits while the small banks account for less than 10% (Figure 4.5). That notwithstanding, these indicators mainly reflect the nature of segmentation that exists in the banking sector, especially the skewed distribution of deposits and loans, and hence the market dominance by a few banks. However, there has been a slight decline in the share of deposits by big banks from about 56.5% in 2009 to 54% in 2011 and a slight increase in the share of deposits by medium-sized banks from about 34.7% to 36.8% over the same period.

Figure 4. 5: Percentage Share of Deposits by Bank Categories, 2009 -2011



4.3 Regression of Interest rate spread against Financial Performances Measure

Regression was conducted using degree of interest rate spread as a predictor of ROA (see table 4.6).

4.2.1 Year 2007 Analysis and Interpretations

Table 4. 1: Model Summary for 2007

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.503(a)	.253	.242	3843.70622

a Predictors: (Constant), ROA

Adjusted R^2 is called the coefficient of determination and tells us how the profitability of commercial banks in Kenya varied with variation in interest rate spread. From table above, the value of adjusted R^2 is 0.253. The model revealed that interest rate spread accounts for 25.3 (R-square 0.253) percent of the variance in ROA with a Pearson $r = .503$, $F(1, 42) = 7.423$, p value = .020 at 95% level of confidence.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	109891238.4	1	109891238.4	7.423	0.02
Residual	546640868.3	41	14774077.52		
Total	654532106.7	42			

Predictors: (Constant) Interest rate spread

Dependent Variable: ROA

Coefficients

	Unstandardized		Standardized	t	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
(Constant)	10137.458	4659.452		2.176	.036
Interest rate spread	29358.604	10864.069	.406	2.702	.012
Bank Size	9991.771	.061	.017	.097	.038

The resulting linear regression equation to estimate; $ROA = 10137.458 + 29,358.604S + 9991.771size$.

Where: 29,358.604 = an estimate of the expected change on ROA corresponding to change in interest rate spread S; 0.012, 0.013, 0.036 = p-values and measures how significant the results are or significant different from zero (error factor); 10,137.458 = y-intercept (constant) and represents the predicted value when interest rate spread is zero. This finding implies that for one unit increase in interest rate spread, we expect 29,358.604 unit increases in ROA ceteris paribus. Alternatively, a one standard deviation increase in interest rate spread results to 0.406 standard deviation on predicted ROA, ceteris paribus. Also a unit increase in bank size would result to an increase in ROA of commercial banks by a factor of 9991.77 ceteris paribus.

4.2.2 Year 2008 Analysis and Interpretations

Table 1: Model Summary for 2008

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.578	.334	.320	1459.0187

a Predictors: (Constant), ROA

Adjusted R^2 is called the coefficient of determination and tells us how the profitability of commercial banks in Kenya varied with variation in interest rate spread. From table above, the value of adjusted R^2 is 0.334. The model revealed that interest rate spread accounts for 33.4 (R-square 0.334) percent of the variance in ROA with a Pearson $r = .578$, $F(1, 42) = 7.163$, p value = .016 at 95% level of confidence.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	13118562.061	1	13118562.061	7.163	.016
Residual	78763221.706	41	2128735.722		
Total	91881783.768	42			

Predictors: (Constant) Interest rate spread

Dependent Variable: ROA

Coefficients

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	3512.357	1768.665		1.986	.054
	Interest rate Spread	10237.300	4123.853	.378	2.482	.018
	Bank size	1111.286	.038	.024	.061	.023

The resulting linear regression equation to estimate; $ROA = 3512.357 + 10237.300S + 1111.286 \text{ Size}$.

Where: 10237.300= an estimate of the expected change on ROA corresponding to change in interest rate spread; 0.018, 0.023, 0.054 = p-values and measures how significant the results are or significant different from zero (error factor); 3512.357= y-intercept (constant) and represents the predicted value when interest rate spread is zero. This finding implies that for one unit increase in interest rate spread we expect 10237.300 unit increases in ROA ceteris paribus. Alternatively, a one standard deviation increase in interest rate spread resulted to 0.378 standard deviation on predicted ROA, ceteris paribus. It reveals statistically significant positive linear relationship between interest rate spread and ROA. It meaning for one unit increase in interest rate spread we expect 10,237.3 unit increases in ROA. Also a unit increase in bank size would result to an increase in ROA of commercial banks by a factor of 1111.286 ceteris paribus.

4.2.3 Year 2009 Analysis and Interpretations

Table 2: Model Summary for 2009

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
3	.562	.315	.303	2.49079

a Predictors: (Constant), ROA

Adjusted R^2 is called the coefficient of determination and tells us how the profitability of commercial banks in Kenya varied with variation in product diversification. From table above, the value of adjusted R^2 is 0.315. The model revealed that interest rate spread accounts for 31.5 (R-square 0.315) percent of the variance in ROA with a Pearson $r = .562$, $F(1, 42) = 0.743$, p value = .004 at 95% level of confidence.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	.888	1	.888	.743	.004
Residual	229.549	41	6.204		
Total	230.437	42			

Predictors: (Constant), Interest rate Spread

Dependent Variable: ROA

Coefficients

Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	10070.686	3.019		.227	.022
	Interest rate Spread	2222.664	7.040	.062	.378	.007
	Size	1113.358	.311	.011	.290	.003

Dependent Variable: ROA

Source: Research data

The resulting linear regression equation to estimate; $ROA = 10070.686 + 2222.664 \text{ interest rate spread} + 1113.358 \text{ size}$

Where: 2222.664= an estimate of the expected change on ROA corresponding to change in interest rate spread level; 0.022, 0.007 = p-values and measures how significant the results are or significant different from zero (error factor); 10070.686 = y-intercept (constant) and represents the predicted value interest rate spread is zero. This finding implies that for one unit increase in interest rate spread, we expect 2.664 unit increases in return on assets ceteris paribus. Alternatively, a one standard deviation increase in interest rate spread (s) results to 0.062 standard deviation on predicted ROA, ceteris paribus. It reveals statistically significant positive linear relationship between interest rate spread and ROA. It meaning for one unit increase in interest rate spread we expect 2.664 unit increases in ROA. Also a unit increase in bank size would result to an increase in ROA of commercial banks by a factor of 1113.358 ceteris paribus.

This study therefore infers that interest rate spread increases ROA of commercial banks in Kenya.

4.2.3 Year 2010 Analysis and Interpretations

Table 3: Model Summary for 2010

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
4	.575	.330	.321	15.66437

a Predictors: (Constant), ROA

Adjusted R² is called the coefficient of determination and tells us how the profitability of commercial banks in Kenya varied with variation in interest rate spread. From table above, the value of adjusted R² is 0.330. The model revealed that interest rate spread accounts for 33 (R-square 0.33) percent of the variance in ROA with a Pearson $r = .575$, $F(1, 42) = 4.211$, $p \text{ value} = .007$ at 95% level of confidence.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	51.662	1	51.662	4.211	.007
Residual	9078.777	41	245.372		
Total	9130.439	42			

Predictors: (Constant), interest rate spread.

Dependent Variable: ROA

Coefficients

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
3	(Constant)	10144.458	4659.452		2.176	.036
	Interest rate spread	2958.604	10864.069	.406	2.702	.012
	Bank Size	9891.771	.061	.017	.097	.038

Dependent Variable: ROA

Source: Research data

The resulting linear regression equation to estimate; $ROA = 10144.458 + 2958.604S + 9891.771 \text{ Size}$.

Where: 2958.604 = an estimate of the expected change on ROA corresponding to change in interest rate spread level; 0.036, 0.012 = p-values and measures how significant the results are or significant different from zero (error factor); 10144.458= y-intercept (constant) and represents the predicted value when interest rate spread is zero. This finding implies that for one unit increase in interest rate spread (S), we expect 2958.604 unit increases in return on assets ceteris paribus. Alternatively, a one standard deviation increase in interest rate spread results to 18.989 standard deviation on predicted ROA, ceteris paribus. Also a unit increase in bank size would result to an increase in ROA of commercial banks by a factor of 9891.771 ceteris paribus.

It reveals statistically significant positive linear relationship between interest rate spread and ROA. It meaning for one unit increase in interest rate spread we expect 20.315 unit increases in ROA.

4.2.4 Year 2011 Analysis and Interpretations

Table 4: Model Summary for 2005

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
5	.578	.334	.323	1459.0187

a Predictors: (Constant), ROA

Adjusted R^2 is called the coefficient of determination and tells us how the profitability of commercial banks in Kenya varied with variation in interest rate spread. From table above, the value of adjusted R^2 is 0.323. The model revealed that interest rate spread accounts for 33.4 (R-square 0.334) percent of the variance in ROA with a Pearson $r = 0.578$ $F(1, 42) = 6.163$, p value = .018 at 95% level of confidence.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	13118562.061	1	13118562.061	6.163	.018
Residual	78763221.706	41	2128735.722		
Total	91881783.768	42			

Predictors: (Constant) Interest Rate Spread

Dependent Variable: ROA

Coefficients

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	3512.357	1768.665		1.986	.054
	Interest rate Spread	10237.300	4123.853	.378	2.482	.018
	Bank size	1212.116	.018	.023	2.942	.023

The resulting linear regression equation to estimate; $ROA = 3512.357 + 10237.300S + 1212.116 \text{ Size}$.

Where: 10237.300= an estimate of the expected change on ROA corresponding to change in S; 0.018, 0.054 = p-values and measures how significant the results are or significant different from zero (error factor); 3512.357= y-intercept (constant) and represents the predicted value when interest rate spread is zero. This finding implies that for one unit increase in interest rate spread we expect 10237.300 unit increases in ROA ceteris paribus. Alternatively, a one standard deviation increase in interest rate spread resulted to 0.378 standard deviation on predicted ROA, ceteris paribus. Also a unit increase in bank size would result to an increase in ROA of commercial banks by a factor of 1212.116 ceteris paribus. It reveals statistically significant positive linear relationship between interest rate spread and ROA. It meaning for one unit increase in interest rate spread we expect 10,237.3 unit increases in ROA.

4.2.5 Year 2012 Analysis and Interpretations

Table 5: Model Summary for 2012

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
6	.585	.342	.331	15.66437

a Predictors: (Constant), ROA

Adjusted R² is called the coefficient of determination and tells us how the profitability of commercial banks in Kenya varied with variation in interest rate spread. From table above, the value of adjusted R² is 0.331. The model revealed that interest rate spread accounts for 34.2 (R-square 0.06) percent of the variance in ROA with a Pearson r = .075, F (1, 42) = 7.423, p value = .005.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	109891238.4	1	109891238.4	7.423	0.05
Residual	546640868.3	41	14774077.52		
Total	654532106.7	42			

Predictors: (Constant), Interest rate spread.

Dependent Variable: ROA

Coefficients

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
5	(Constant)	10137.458	4659.452		2.176	.036
	Interest rate spread	29358.604	10864.069	.406	2.702	.012
	Bank Size	9991.771	.061	.017	.097	.038

Dependent Variable: ROA

Source: Research data

The resulting linear regression equation to estimate; $ROA = 10137.458 + 29358.604$ interest rate Spread + 9991.771 Size.

Where: 29358.604 = an estimate of the expected change on ROA corresponding to change in interest rate spread level; 0.012, 0.036 = p-values and measures how significant the results are or significant different from zero (error factor); 10137.458 = y-intercept (constant) and represents the predicted value when interest rate spread is zero. This finding implies that for one unit increase in interest rate spread (S), we expect 29358.604 unit increases in return on assets ceteris paribus. Also a unit increase in bank size would result to an increase in ROA of commercial banks by a factor of 9991.771 ceteris paribus. It reveals statistically significant positive linear relationship between interest rate spread and ROA. It meaning for one unit increase in interest rate spread we expect 29358.604 unit increases in ROA.

4.4 Interpretation

There is a positive relationship between bank size and interest rate spreads, further confirming the positive relationship observed under the analysis —that is, the bigger the bank size, the higher the spread. This finding is robust, yielding the highest t-values. However, the magnitude of the impact is rather small given the size of the coefficient.

Nonetheless, it may sound paradoxical particularly given the argument that the reverse should possibly be expected based on the expected benefits of large economies of scale and capacity to invest in efficient technologies. If the higher spreads are merely interpreted as an indicator of inefficiency, one can thus quickly be tempted to conclude that big banks are less efficient –but this may or may not necessarily be the case and even if true, there could be other factors that may mask the observed spreads. It is also possible that the spreads could be partly explained from the demand side, that is, if there is a high demand for loans particularly for big banks relative to supply. Moreover, there is an oligopolistic structure and market segmentation between the bigger and smaller banks whereby the former control a comparatively bigger share of the market (deposits and loans) particularly due to good reputation and customer loyalty. Big banks are viewed as stable, well managed or ‘too big to fail’. Consequently, the big banks are able to mobilize more deposits even at relatively low or near-zero deposit rates while at the same time attracting large loan applications despite charging relatively higher rates, hence leading to higher spreads. This implies that for big banks the demand for loans or deposit mobilization is more or less inelastic with respect to the respective interest rates charged.

According to Radha (2011), 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. A study by Mweha (2012) suggests 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. Additionally, there is a positive relationship between return on average assets and interest rate spreads. The positive effect could be interpreted as an indication of profit-maximizing behaviour whereby banks with higher profitability relative to average assets are also inclined to charge higher borrowing rates relative to the deposit rates.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the discussions drawn from the data findings analyzed and presented in the chapter four. The chapter is structured into summary, conclusions, recommendations and areas for further research.

5.2 Summary

The study found that interest rates spreads are higher for larger banks than for medium and small banks. On average, small banks have lower spreads. This could possibly be due to the fact that small and low-capitalized banks find it relatively difficult to raise funds and have to increase their deposit rates to attract funds and compensate for the perception that they are more risky relative to large, more liquid, well capitalized banks that are perceived to be ‘too-big-to-fail’. If the higher spreads are merely interpreted as an indicator of inefficiency, one can easily be tempted to conclude from the positive relationship between bank size and interest rate spreads that big banks are less efficient, which may not necessarily be the case. The results are not surprising given that big banks are associated with market power—they control a bigger share of the market both in terms of deposits and loans and advances. They also enjoy good reputation and trust (perceived to be more stable, reliable, well-managed, among other positive attributes) and hence can easily mobilize deposits even at lower rates and attract higher loan demand even at higher rates.

The study also found that the regression equation for the period 2007 to 2012 to determine the relationship between interest rate spread and financial performance of commercial banks in Kenya were:

Year 2007:

$$ROA = 10137.458 + 29,358.604S + 9991.771 \text{ Size.}$$

Year 2008:

$$ROA = 3512.357 + 10237.300S + 1111.286 \text{ Size.}$$

Year 2009:

$$ROA = 10070.686 + 2222.664 \text{ interest rate spread} + 1113.358 \text{ size}$$

Year 2010:

$$ROA = 10144.458 + 2958.604S + 9891.771 \text{ Size.}$$

Year 2011:

$$ROA = 3512.357 + 10237.300S + 1212.116 \text{ Size.}$$

Year 2012:

$$ROA = 10137.458 + 29358.604 S + 9991.771 \text{ Size.}$$

From the above regression model for the six years, the study found that there exist a relationship between interest rate spread and performance (ROA) of commercial banks in Kenya. The study found the intercept to vary though with the highest value being 10137.458 and the lowest being 3512.357, this mean that ROA of commercial banks would range between 10137.458 and 3512.357 holding bank size to a constant zero.

5.3 Conclusions

The study concludes that there is a positive linear relationship between interest rate spread and ROA. This result contradicts European banks findings by Merceica et al (2007) of inverse relationship between interest rate spread and profitability. The study also concludes that interest rates spreads are higher for larger banks than for medium and small banks. On average, small banks have lower spreads.

5.4 Recommendations

The central banks should apply stringent regulations on interest rates charged by banks so as to regulate their interest rate spread. Although competition in the banking sector has increased over time, it still needs to be further enhanced and supported by policies that encourage and foster competition in the financial sector. These should be complemented with measures to promote the growth and image of small and medium –sized banks in a bid to enhance their ability to penetrate the market so as to break market dominance by a few banks. These could include public education about the stability and soundness of small and medium banks and the industry as whole. Such efforts can be undertaken jointly between the regulator, the industry and individual banks.

More policy initiatives such as the recent introduction of horizontal REPOs to help address skewed distribution of liquidity in the industry and credit bureaus to address information asymmetries should be exploited and nurtured.

Additionally, banks should explore internally and industry-driven strategies that militate against or counter some of the bank-specific factors associated with higher spreads, even as further policies that may be deemed important are explored. These include a mix of strategies that could range from diversification of products to reduce reliance on interest

income and the associated risks, to investment in cost-saving and efficient forms of technology.

5.5 Limitations of the Study

A limitation for the purpose of this research was regarded as a factor that was present and contributed to the researcher getting either inadequate information. The main limitations of this study were; some data was not readily available. This reduced the probability of reaching a more conclusive study.

However, conclusions were made with the available data. The small size of the sample could have limited confidence in the results and this might limit generalizations to other situations. Time- Due to official duties was a major concern. The information required for the study was very confidential which limited its accessibility from the banks. Most of the information was in very raw form and thus requiring a lot of time to compute it.

Results of this research should be taken with caution as some of the time series were not readily available on a quarterly basis. This made the researcher to transform the existing macroeconomic data into quarterly data using the computer method of direct linear interpolation which imposes a linear trend on the data. This may imply that part of the findings are based on interpolated data which could lead to the findings herein to differ in some way from those of the prior empirical studies. Nonetheless, the author made sure that this limitation is counteracted by the rigorous model and residual assumption tests.

5.6 Suggestion for Further Research

The study successfully determined the relationship between interest rates spread and the performance of commercial banks in Kenya. It would be useful to carry out the same type of research in other commercial banks across East Africa and beyond and see whether the same results would be replicated. The study recommends that a study should be carried out on the factors that determine the interest rate spreads in Kenya. To this end therefore, this study could be complimented if more research is carried out on the quality of credit risk management systems and interest rate spreads in Kenya's Banking system.

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Appendix I: Commercial Banks

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

**Source: Central Bank of Kenya
Handbook (2012)**