

**EFFECT OF INTEREST RATES ON NON-PERFORMING LOANS IN
COMMERCIAL BANKS IN KENYA**

BY

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DECLARATION

I declare this is my original work and has not been submitted for examination in any other University.

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Signed

Date

SUPERVISOR.

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

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DEDICATION

I would like to dedicate this Project to Joseph Mwangi, my Mum Hellen, my Dad Simon, Rosemary, Benson, & Karen, and friends for their moral support during entire period of the project.

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LIST OF ABBREVIATIONS

APT	-	Arbitrage Pricing Theory
CAPM	-	Capital Asset Pricing Theory
CBK	-	Central Bank of Kenya
CBR	-	Central Bank Rate
GDP	-	Gross Domestic Product
KCB	-	Kenya Commercial Bank
KYC	-	Know Your Customer
KIPPRA	-	Kenya Institute of Policy Research and Analysis
M2	-	Narrow Money
MFC	-	Mortgage Finance Companies
NPL	-	Non-Performing Loans
OECD	-	Organization for Economic Co-operation and Development
ROA	-	Return on Assets
NPA	-	Non-Performing Assets
OLS	-	Ordinary Least Square

ABSTRACT

Lending money is the main traditional function of commercial banks, and this aspect of banking remains to date. However, loan defaults among commercial banks remain high leading to financial distress of the banks even eventual collapse. Interest rate has an inherent implicit cost on the credit issued by banks with antecedent implication on loan defaults. Thus, the study sought to establish the impact of interest rates on non-performing loans in commercial banks in Kenya. This study adopted a descriptive research design targeting all the 43 licensed commercial banks in Kenya. Secondary data was collected on the interest rate charged by the banks, total loan and advances, total non-performing loans, total assets, total risk weighted assets, noninterest expense, total revenue for five-year period (2009 – 2013). The data collected was analyzed using both descriptive and inferential statistics from multiple linear regression analysis using the ordinary least square method. The findings were presented in tables and figures. The study's findings established significant, negative and good linear relationships between banks' NPLs and interest rate; interest rate spread and total assets. Significant, positive and good linear relationships between banks' NPLs and cost income ratio; and, capital adequacy were also adduced. The study concludes that there is a strong relationship between financial performance of commercial banks with interest rate. The study recommended that there is need for banks to apply efficient and effective credit risk management that will ensure that loans are matched with ability to repay and minimize on their interest rate spread and other incidental costs so as to reduce loan default.

CHAPTER ONE:

INTRODUCTION

1.1 Background of the Study

The stability of the financial sector has become the basis of most macroeconomic policy owing to the recent global financial crisis (Vogiazas and Nikolaidou, 2011). Commercial banks are the dominant financial institutions in most economies and well-functioning commercial banks accelerate the rate of economic growth while poorly functioning commercial banks are an impediment to economic progress (Richard, 2011). Loans are a part of the assets of a commercial institution since they are meant to earn interest in the course of time (Kalani (2009). This, however, is not always the case. Some loans do not perform as expected of them and are termed non-performing loans (NPLs). According to Waweru and Kalani (2009), crises do not occur without warning; the best warning signs of financial crises are proxies for the vulnerability of the banking and corporate sector. The most obvious indicators in the view that can be used to predict banking crises are those that relate directly to the loan non-performance (Waweru and Kalani, 2009).

1.1.1 Interest Rate

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

Fluctuations of market interest rates exert significant influence on the activities of commercial banks. Banks determine interest rates offered to consumers, the mortgage production line ends in the form of purchased by an investor. The free market determines the market clearing prices investors will pay for mortgage-backed securities. These prices feedback through the mortgage industry to determine the interest rates offered to consumers. 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. Desmukh *et al.* (1983) 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.

1.1.2 Non-Performing Loans

A non-performing loan is a loan that is in default or close to being in default. This in many cases occur to loans that have been in default for 90 days. A loan is non-performing if payment of interest and principal are past due by 90 days. Central Bank of Kenya is the regulator of the banking industry in Kenya for all institutions licensed under the Banking Act. It issue guideline under sections 33(4) and 44A of the banking act, which empowers the Central Bank to issue guidelines, advise and direct business of institutions for the general carrying out of the purposes and provisions

of the Banking Act (Cap.488). Section 20, 31 and 44A of the banking Act place the following requirements upon institutions:

Section 20 requires institutions to maintain adequate provisions for bad and doubtful debts prior to declaring profits or dividends. Section 31 (3) (b) requires institutions to exchange information on non-performing loans. Section 44A limits the amount of interest institutions may recover on non-performing loans. According to Central Bank of Kenya prudential guideline (CBK/PG/04).

Non-Performing Loans and Advances are Loans and other credit extensions having pre-established repayment programs, when any of the following conditions exist: Principal or interest is due and unpaid for 90 days or more; or Interest payments for 90days or more have been re-financed, or rolled-over into a new loan.

In respect of current accounts (Overdrafts) and other credit extensions not having pre-established repayment programs, when any of the following conditions exist: Balance exceeds the customers approved limit for more than 90 consecutive days, the customer borrowing line has expired for more than 90 days, and Interest is due and unpaid for more than 90 days (CBK/PG/04).

NPLs are categorized as follows:

Substandard: Any loan, which is past due, or current account debt exceeds the approved limit, for more than 90days but less than 180 days. Banks make 20% provision for the unsecured portion of loans. Doubtful: Any loan or overdraft which is past due or exceed approved limit for more than 180 days. Banks make 100% Provisions of the outstanding

balance. Loss: Loans are considered uncollectible or of such little value that their continuance recognition as bankable assets is not warranted and the Principal or Interest is due and unpaid for over 360 days. Banks make 100% Provisions for the outstanding balance. (CBK/PG/04, 2014)

NPLs do not accrue interest or continue to accrue interest suspended which is not treated as income. Interest suspended account in the computation of provisions for NPLs. Collateral is progressively discounted at a rate of 20% p.a and 5% per quarter before the provisions can be done. (CBK Prudential Guidelines, 2014)

A non-performing loan is a loan that is in default or close to being in default. Many loans become non-performing after being in default for 90 days, but this can depend on the contract terms. A loan is non-performing when payments of interest and principal are past due for 90 days or more or at least 90 days of interest payments have been capitalized, refinanced or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons to doubt that payments will be made in full (Boudriga, Boulila and Jellouli, 2009).

The issue of non-performing loans has, therefore, gained increasing attentions since the immediate consequence of large amount of NPLs in the banking system is bank failure. According to McNulty, Akhigbe, and Verbrugge (2001), controlling NPLs is very important for both the performance of an individual bank and the economy's financial environment. Due to the nature of their business, commercial banks expose themselves to the risks of default from borrowers. Prudent credit risk assessment and creation of adequate provisions for bad and doubtful debts can cushion the banks risk. However,

when the level of non- performing loans (NPLs) is very high, the provisions are not adequate protection (Waweru and Kalani, 2009). The occurrence of banking crises has often been associated with a massive accumulation of Non-Performing loans which can account for a sizable share of total assets of insolvent banks and financial institutions. Therefore, the determinants of loan defaults should be established so as to reduce the level of non-performing loans.

1.1.3 Interest Rates and Non-Performing Loans

The impact of variations in market interest rates on banks' performance 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. Demirgüç-Kunt and Detragiache (1998) theorize that banks face insolvency due to falling asset values when bank borrowers are unable to repay their debt owing to high interest rates. Consistent with portfolio theory, Boudriga, Boulila and Jellouli (2009) opines that based on the inherent risks on lending banks seek to maximize returns by increasing interest rates. Capital asset pricing theory looks at systematic risk brought about by market movements which affects loan defaults risk. The theory is, thus, used in calculating loan risks and appropriate interest to be charged in order to reduce the effect of default risk and maximize returns (Khawaja and Din, 2007).

Investigation by Hancock (1985) confirms the conjecture that a higher level of market interest rates improves mortgage firm's 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. Desmukh *et al.* (1983) 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 loan portfolio is typically the largest asset and the predominate source of revenue for banks. As such, it is one of the greatest sources of risk to a bank's safety and soundness. The level of interest risk attributed to the bank's lending activities depends on the composition of its loan portfolio and the degree to which the terms of its loans (e.g., maturity, rate structure, and embedded options) expose the bank's revenue stream to changes in rates. Howells (2008) avers that an increase in interest rates makes savings from current income more attractive; increases repayment of existing floating-rate debt and thus lowers disposable income, with possible loan default. Besides, it increases the cost of goods obtained on credit which leads to loan defaults.

1.1.4 Commercial Banks in Kenya

In Kenya, the Banking Sector is composed of the Central Bank of Kenya (CBK), as the regulatory authority and the regulated; Commercial Banks, Non-Bank Financial Institutions and Forex Bureaus (CBK, 2014). In 2013, the banking sector comprised 44 institutions, 43 of which were commercial banks and 1 mortgage finance companies, and 120 Foreign Exchange Bureaus. Commercial banks and mortgage finance companies are

licensed and regulated under the Banking Act, Cap 488 and Prudential Regulations issued there under. Foreign Exchange Bureaus are licensed and regulated under the Central Bank of Kenya (CBK) Act, Cap 491 and Foreign Exchange Bureaus Guidelines issued there under. Out of the 43 commercial bank institutions, 31 were locally owned and 11 were foreign owned. The locally owned financial institutions comprised 3 banks with significant government shareholding, 27 privately owned commercial banks and 1 mortgage finance companies (MFCs). The foreign owned financial institutions comprised 8 locally incorporated foreign banks and 3 branches of foreign incorporated banks (CBK, 2014).

According to Mugwe (2013), since 2011, the rate of NPLs has been on a slow but steady rise. When NPLs are being continuously rolled over, resources that could otherwise be invested to profitable sectors of the economy become locked up (Central bank of Kenya, 2011). Intuitively, these NPLs hinder economic growth and impair economic efficiency (Ongore and Kusa, 2013). In CBK second report for the second quarter of 2013, it expected a marked rise in loan default for the remaining part of 2013 on the back of relatively high lending rates. While the CBK has slashed its lending rates by 2.5 percent to 8.5 per cent from 11 per cent in August 2013, commercial banks are yet to emulate this decrease. The average lending rate for commercial banks within the period stood at 17 per cent (Mugwe, 2013). Kenya has had high interest rate volatility. Interest rates and inflation since 2011 have posed a real danger to economy stability and growth. Inflation rose from 4.51 percent in January 2011 to about 18.7 percent by December 2011. The CBK had to intervene by raising the CBR to 11 percent in October 2011, 16.6 percent in

November and eventually 18 percent by December. Commercial banks reacted by increasing their lending rates to between 20 and 25 percent.

1.2 Research Problem

It is accepted that the quantity or percentage of non-performing loans (NPLs) is often associated with bank failures and financial crises in both developing and developed countries (Caprio and Klingebiel, 2002). In fact, there is abundant evidence that the financial/banking crises in Sub-Saharan African countries were preceded by high non-performing loans (Mugwe, 2013). In spite of this apparent association between banking crises and Non-Performing loans, the literature on the causes on non-performing loans has focused on the macroeconomic determinants and less on the influence of interest rate (Fofack, 2005).

Saharan Africa, of which Kenya is a case, the probability of a banking crisis occurring may be even more important because non-performing loan-related risks are compounded by the structure of the banking system which is dominated by a few large banks (Fofack, 2005). Kenya's experience with the financial reform process shows a widening interest rate spread following interest rate liberalization. In addition, in the 1990s financial institutions witnessed declining profitability, non-performing loans and distress borrowing which hugely affected the commercial banks profitability (Mugwe, 2013). However, despite the implications of Non-Performing loans for banking crisis, for investment and economic growth, and for anticipating future banking and financial crises, very few studies have been done on the effect of interest rate on the level of non-performing loans (Kigen, 2014).

Haneef and Karim (2012) found the accumulation of Non-Performing loans to be attributable to economic downturns and macroeconomic volatility, terms of trade deterioration, high interest rates, excessive reliance on overly high-priced interbank borrowings, insider lending and moral hazard. Kigen (2014) analyzing determinants of Non-Performing loans in Kenya and found that following interest rate liberalization, there is high implicit costs with tight monetary policy through increased reserve and cash ratios and declining non-performing loans. Adano (2013) investigated the loan performance in Kenyan commercial banks and found that loan performance as measured by loan default is negatively related to lending rate and total loans advanced. Ochami (2013) investigated the factors that contribute to the level of non-performing loans on Housing Finance Company Kenya Limited and found that significant relationship between collateral value, loan purpose and non-performing loans. This study, therefore, seeks to answer the following research questions: What is the impact of interest rate on non-performing loans in commercial banks?

1.3 Objective of the Study

To establish the effect of interest rates on non-performing loans in commercial banks in Kenya.

1.4 Value of the Study

Since the study will be one of the few done on correlating interest rate and the level of NPL in commercial banks, therefore, it will be of immense benefit for future research and pedagogical purposes given that it will form part of empirical studies and academic knowledge. Future studies therefore, will be benchmarked against the literature and

secondary materials drawn from it. The study will thus act as a reference for such future studies.

Increased levels of NPLs depress the economic growth since Commercial banks are reluctant to engage in lending. This affects the national economy since customers who for instance were investing in real estate development which form a big part of our national economy are no longer able to venture into further business. Hence this study enables the national economic leaders and policy makers to develop plans to mitigate factors that might hinder national economy growth.

This study by establishing the effect of interest rate and the level of NPLs, will be of use to the management of financial institutions, research institutions such as Kenya Institute of Policy Research and Analysis (KIPPRA) and the regulatory authority such as the Central Bank of Kenya. The study will act as an eye opener on whether the interest rates they charge influences the high level of loan defaults or not. The relevant bodies will thus make appropriate policies regarding their lending and borrowing interest rate that will balance the risk and revenue so as to enhance their performance during economic booms and bust. From the findings of this study, commercial banks are able to predict the likelihood of a loan taken up to become non-performing because it reduces its value and also leads to reputational damage. Performing loans imply increase in shareholders' value (wealth). NPLs amputate shareholders earnings through diminished financial performance of banks.

CHAPTER TWO:

LITERATURE REVIEW

2.1 Introduction

This chapter contains the review of theoretical and empirical literature concerning non-performing loans in the commercial banking sector and interest rates. It also highlights the research gaps and provides a critique of the theoretical and empirical literature.

2.2 Review of Theories

2.2.1 Portfolio Theory

Portfolio theory of investment tries to maximize portfolio expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets. Although Portfolio Theory is widely used in practice in the financial industry and several of its creators won a Nobel Prize for the theory, in recent years the basic Portfolio Theory have been widely challenged by fields such as behavioral economics (Markowitz 1952)

Portfolio theory is a mathematical formulation of the concept of diversification in investing, with the aim of selecting a collection of investment assets that has collectively lower risk than any individual asset. That this is possible can be seen intuitively because different types of assets often change in value in opposite ways. For example, when prices in the stock market fall, prices in the bond market often increase, and vice versa. A collection of both types of assets can therefore have lower overall risk than either individually. But diversification lowers risk even if assets' returns are not negatively correlated indeed, even if they are positively correlated (Markowitz ,1952).

More technically, portfolio theory models assets return as a normally distributed (or more generally as an elliptically distributed random variable), define risk as the standard deviation of return, and model a portfolio as a weighted combination of assets so that the return of a portfolio is the weighted combination of the assets' returns. By combining different assets whose returns are not perfectly positively correlated, portfolio theory seeks to reduce the total variance of the portfolio return. Portfolio theory also assumes that investors are rational and markets are efficient.(Sharpe 1964)

Portfolio theory was developed in the 1950s through the early 1970s and was considered an important advance in the mathematical modelling of finance. Since then, many theoretical and practical criticisms have been levelled against it. These include the fact that financial returns do not follow a Gaussian distribution or indeed any symmetric distribution, and those correlations between asset classes (Micheal, Sproul 1998).

2.2.2 Capital Asset Pricing Theory

William Sharpe (1964) published the Capital Asset Pricing Theory (CAPM). Parallel work was also performed by Treynor (1961) and Lintner (1965). CAPM extended Harry Markowitz's portfolio theory to introduce the notions of systematic and specific risk. For his work on CAPM, Sharpe shared the 1990 Nobel Prize in Economics with Harry Markowitz and Merton Miller.

Tobin's (1958) super-efficient portfolio used the market portfolio. According to him, all investors will hold the market portfolio, leveraging or de-leveraging it with positions in the risk-free asset in order to achieve a desired level of risk. CAPM decomposes a portfolio's risk into systematic and specific risk. Systematic risk is the risk of holding the

market portfolio. As the market moves, each individual asset is more or less affected. To the extent that any asset participates in such general market moves, that asset entails systematic risk. Specific risk is the risk which is unique to an individual asset. It represents the component of an asset's return which is uncorrelated with general market moves (Lintner, 1965).

No matter how much we diversify our investments, it's impossible to get rid of all the risk. As investors, we deserve a rate of return that compensates us for taking on risk. The capital asset pricing model (CAPM) helps us to calculate investment risk and what return on investment we should expect. Here we look at the formula behind the model, the evidence for and against the accuracy of CAPM, and what CAPM means to the average investor (Sharpe, 1964).

When the CAPM was first introduced, the investment community viewed the new model with suspicion, since it seemed to indicate that professional investment management was largely a waste of time. It was nearly a decade before investment professionals began to view the CAPM as an important tool in helping investors understand risk. The key element of the model is that it separates the risk affecting an asset's return into two categories. The first type is called unsystematic, or company-specific, risk. The long-term average returns for this kind of risk should be zero. The second kind of risk, called systematic risk, is due to general economic uncertainty. The CAPM states that the return on assets should, on average, equal the yield on a risk-free bond held over that time plus a premium proportional to the amount of systematic risk the stock possesses. (Markowitz 1952)

The treatment of risk in the CAPM refines the notions of systematic and unsystematic risk developed by Markowitz in the 1950s (Markowitz, 1952). Unsystematic risk is the risk to an asset's value caused by factors that are specific to an organization, such as changes in senior management or product lines. For example, specific senior employees may make good or bad decisions or the same type of manufacturing equipment utilized may have different reliabilities at two different sites. In general, unsystematic risk is present due to the fact that every company is endowed with a unique collection of assets, ideas and personnel whose aggregate productivity may vary.

A fundamental principle of modern portfolio theory is that unsystematic risk can be mitigated through diversification. That is, by holding many different assets, random fluctuations in the value of one was offset by opposite fluctuations in another. For example, if one fast food company makes a bad policy decision, its lost customers will go to a different fast food establishment. The investor in both companies will find that the losses in the former investment are balanced by gains in the latter (Markowitz, 1952)

Systematic risk is risk that cannot be removed by diversification. This risk represents the variation in an asset's value caused by unpredictable economic movements. This type of risk represents the necessary risk that owners of a firm must accept when launching an enterprise. Regardless of product quality or executive ability, a firm's profitability was influenced by economic trends. In the capital asset pricing model, the risk associated with an asset is measured in relationship to the risk of the market as a whole. (Sharpe, 1964)

Kabiru (2002) indicated that the principles of portfolio analysis play a great role in the management of credit risk. The effect of credit risk management practices adopted by

financial institutions has led to diversifying their exposure limits across the borrowers and among various types of debt facilities. Capital asset pricing model (CAPM) developed by William Sharp is well applicable in investment decisions. It describes the identification of an investment's return and diversification of risk on the investments at hand.

Financial institutions can lend money with rate of interest or buy bond. The market return describes the market which contains the asset and financial institutions can establish limits on the amount of credit to advance to a borrower or firm, diversifying the portfolio composition eventually reducing the risk of credit loss hence achieving higher financial performance. In this regards, management of the financial institutions including SACCOs needs to seek ways of managing credit risks they are exposed to minimize on the credit loss and maximize on financial returns (Kabiru, 2002).

2.2.3 Arbitrage Pricing Theory

The Arbitrage Pricing Theory (APT) was developed primarily by Ross (1976). It is a one-period model in which every investor believes that the stochastic properties of returns of capital assets are consistent with a factor structure. The Arbitrage Pricing Theory (APT) describes the price where a mispriced asset is expected to be. It is often viewed as an alternative to the capital asset pricing model (CAPM), since the APT has more flexible assumption requirements. Whereas the CAPM formula requires the market's expected return, APT uses the risky asset's expected return and the risk premium of a number of macro-economic factors. Arbitrage use the APT model to profit by taking advantage of mispriced securities. A mispriced security will have a price that

differs from the theoretical price predicted by the model. By going short an overpriced security, while concurrently going long the portfolio the APT calculations were based on, the arbitrage is in a position to make a theoretically risk-free profit. (Ross, 1976)

The basis of arbitrage pricing theory is the idea that the price of a security is driven by a number of factors. These can be divided into two groups: macro factors, and company specific factors. The APT is a substitute for the Capital Asset Pricing Model (CAPM) in that both asset a linear relation between assets' expected returns and their covariance with other random variables. (Ross, 1976)

The difference between CAPM and arbitrage pricing theory is that CAPM has a single non-company factor and a single beta, whereas arbitrage pricing theory separates out non-company factors into as many as proves necessary. Each of these requires a separate beta. The beta of each factor is the sensitivity of the price of the security to that factor. Arbitrage pricing theory does not rely on measuring the performance of the market. Instead, APT directly relates the price of the security to the fundamental factors driving it. The problem with this is that the theory in itself provides no indication of what these factors are, so they need to be empirically determined. Obvious factors include economic growth and interest rates. For companies in some sectors other factors are obviously relevant as well - such as consumer spending for retailers. The potentially large number of factors means more betas to be calculated. There is also no guarantee that all the relevant factors was identified.

2.3 Determinants of Non-Performing Loans

2.3.1 Lending Interest Rate

Risky projects. This leads to high borrowing cost for borrowers which increase NPL levels. Lending money is perhaps the most important of all banking activities, for the interest charged on loans is how the banks earn cash flows. Interest rate is the price a borrower pays for the use of money they borrow from a lender/financial institutions or fee paid on borrowed assets (Collins and Wanjau, 2011). It measures the price at which borrowers of funds are willing to pay to the owners of capital while at the same time measures the price at which lenders are willing to lend their money to enterprise in exchange for consumption. Cost of loan includes the principal repayments and interest rates are agreed at the time of the loan application (Caporale and Gil-Alana, 2010). According to Boudriga, Boulila and Jellouli (2009), when there is no ceilings on lending rates, it is easier for banks to charge a higher risk premium and therefore give loans to more

2.3.2 Interest Rate Spread

Bank lends a certain percentage of the customer deposits at a higher interest rate than it pays on such deposit; interest rate spread. The difference between the gross costs of borrowing and the net return on lending defines the intermediary costs (information costs, transaction costs (administration and default costs and operational costs) (Collins and Wanjau, 2011). 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 (Crowley, 2007).

The interest rate spread in Kenya is relatively high for a long period limiting thus the access to loans and leading to NPLs. The factors that determine interest rate spreads include low level of savings, low supply of loans, insufficient competition in the domestic banking system, the inefficiency and low profitability of banks, uncertainty in the economic environment, the inherited low quality of loan portfolios, institutional limitations, etc (Hou, 2012). Hawtrey and Liang (2008) opine that interest rate spread is highly correlated with non-performing loans and narrowing of interest rate spreads is related to superior bank efficiency.

2.3.3 Cost Efficiency

Low cost efficiency is a signal of poor management practices, thus implying that as a result of poor loan underwriting, monitoring and control, NPLs are likely to increase. Hou (2012) who found a direct link between loan quality and cost efficiency. Inaba, Kozu and Sekine (2008) posit that there exists a trade-off between allocating resources for underwriting and monitoring loans and measured cost efficiency. Banks which devote less effort to ensure higher loan quality are more cost-efficient; however, there is a corresponding burgeoning number of NPLs in the long run.

Watanabe and Sakuragawa (2008) examined empirically the relation between cost efficiency and non-performing loans and concluded a high negative significant correlation. On the other hand, Vogiazas and Nikolaidou (2011) established that low cost efficiency is positively associated with increases in future non-performing loans and links this to 'bad' management with poor skills in credit scoring, appraisal of pledged collaterals and monitoring borrowers. Hawtrey, K., & Liang, (2008) found a is strong

evidence in favor of the bad management proposition and propose that regulatory authorities in emerging economies should focus on managerial performance in order to enhance the stability of the financial system by reducing non-performing loans.

2.3.4 Size of Bank

The size of the bank is negatively related to non-performing loans (Aral and Weill, 2007). Aktan and Masood (2009) suggest that smaller banks adopt small business loan underwriting practices that are riskier than those of larger banks, riskier in that small banks prefer to lend to small firms that lack hard financial data to support the lending decision and riskier to the extent that the failure rates of small businesses are higher than those of larger, established firms. Caporale and Gil-Alana (2010) reveal that rapid credit expansion, bank size, capital ratio and market power explain variation in non-performing loans. Rajiv and Dhal (2003) utilize panel regression analysis established that cost and terms of credit, banks size influence NPLs. Nakayiza (2002) found a negative relation between bank size and non-performing loans and argue that bigger size allows for more diversification opportunities. However, Ennis and Malek (2005) examine US banks' performance across size classes over the period 1983–2003 and conclude that the evidence for the too-big-to-fail distortions is in no way definite

2.3.5 Capital Adequacy

Capital adequacy is seen as an instrument limiting excessive risk taking of bank owners with limited liability and, thus, promoting optimal risk sharing between bank owners and depositors (Agoraki, Delis and Pasiouras, 2011). Banks with higher capital and liquidity buffers are better able to support businesses and households in bad times since buffers

enhance the capacity of banks to absorb losses and uphold lending during a downturn. Stringent capital requirement comes at a cost since by imposing high capital requirements, banks will be constrained to some extent by competitive pressures, which would occur due to competition on loan (Barth, Caprio and Levine, 2013).

Banks are likely to lend less, charge more for loans and pay less on deposits as part of their actions to restore an acceptable return on the larger capital base; as banks became more constrained, their ability to expand credit is limited (Farhan, Sattar, Chaudhry and Khalil, 2012). Agoraki, Delis and Pasiouras (2011) revealed that banks with lower market power tend to take on lower credit risk and have lower probability of default. The findings also revealed that capital requirements reduce credit risk, but this effect weakens for banks with sufficient market power; NPL is influenced mainly by bank-specific factors such as capital adequacy.

Salas and Saurina (2002) reveal that rapid credit expansion, bank size, capital ratio and market power explain variation in NPLs. Haneef and Karim (2012) state that cost of financial intermediation has increased as evidenced by an increase in the cost resulting from higher capital costs and loan losses. The other hand, Hou (2012) considers the cost of loan loss provision as endogenous sunk costs which can escalate over time making banking sector to become more concentrated with more stringent regulation on loan loss provisions and capital adequacy; banks are more likely to profit-maximize (charge higher interest rates) in order meet the guideline on capital adequacy ratio.

2.3.6 Economic Growth

The economic growth as measured by growth in real GDP and NPLs has significant evidence of negative relationship. When more income improves the debt servicing capacity of borrower which in turn contributes to lower non-performing loans, there are strong positive growths in real GDP. Conversely, the level of NPLs will increase when there is a slowdown in the economy (low or negative GDP growth) (Salas and Saurina, 2002). According to Fofack (2005), if expansion is associated with rapid credit growth, large increases in asset prices, a high level of investment, export growth and excessive capital accumulation, the level of credit risk is higher because risk is built up in a boom but materializes in the downturn. The impact of GDP growth and the business cycle on credit risk is usually represented as pro-cycle. Salas and Saurina (2002) reveal that real growth in GDP, rapid credit expansion, bank size, capital ratio and market power explain variation in NPLs. Furthermore, Hu, Li and Yung-Ho (2006) examine the Spanish banking sector from 1984 to 2003 and provide evidence that NPLs are determined by GDP growth, high real interest rates and lenient credit terms.

2.3.7 Inflation Rate

Inflation reflects the general increase in prices of commodities measured by consumer price index. When inflation is drastically reduced, banks see one of their main sources of revenue disappear and stabilization from chronic inflation may lead to a reduction in the size of the banking system, which adversely affects the economy (Marsh, Featherstone and Garrett, 2003). There are positive relationship between inflation rate and non-performing loans. The evidence shows the high level of impaired loans in a number of

Sub-Saharan African countries with flexible exchange rate regimes are contribute by inflationary pressure. Furthermore, the rapid erosion of commercial banks' equity and consequently higher credit risk in the banking sector of these African countries is under responsible of inflation (Fofack, 2005). The increase in inflation ultimately forces interest rates upwards and as such has a profound impact on the interest rate and NPLs.

2.4 Review of Empirical Studies

Data collected by Khemraj and Pasha (2009) showed that the Gross Domestic Product (GDP) of an economy and the volume of NPLs are inversely related (Khemraj & Pasha, 2009). The authors are of the opinion that reduction in the volume of NPLs in any economy is synonymous with good economic performance. Ahmad and Ariff (2007) studied the major determinants of credit risk of commercial banks in developing economies and discovered that credit risk in emerging economy banks is higher than that in developed banks.

Vogiazas and Nikolaidou (2011) carried out an investigation into the determinants of NPLs in the Romanian banking sector during the banking crisis (Farhan, Sattar, Chaudhry, & Khalil, 2012). Data collected indicated that expenditure on construction and investment, the rates of inflation and unemployment, and Romania's external debt to GDP and M2 (Narrow money and Intermediate money) were the main influencing factors of the country's credit risk in the banking sector.

Hawtrey and Liang (2008) studied the bank interest margins in fourteen 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 used a single step panel regression with fixed effects and found out significant coefficients for most of the variables. The transaction size and managerial efficiency (operating efficiency to gross income) were negatively related to the margins that they attributed towards management efficacy in getting 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, and opportunity cost and implicit interest payments have positive impact on overall interest rate spreads.

Norris and Floerkemeir (2007) used 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, non-interest income, capital adequacy, return on assets, liquidity, deposit market share, foreign bank participation, real GDP growth, inflation, money market rate and change in the nominal exchange rate. Using both pooled OLS and fixed effect regression they concluded that bank specific factors of size, liquidity, ROA, market concentration, market power explain a large proportion of banking spreads.

Khawaja and Din (2007) investigated the determinants of interest rate spreads in Pakistan using panel data of 29 banks from 1998 to 2005. They used industry variables of concentration and deposit inelasticity (measured as interest rate insensitive current and saving deposits) and firm variables of market share, liquidity, administrative costs, asset quality and macroeconomic variables of real output, inflation and real interest rates. They

concluded that inelasticity of deposit supply was the major determinant of interest rate spread.

Kwambai and Wandera (2013) sought to relate the country economic conditions to NPLs by tracing the genesis of NPLs in Kenya to the external environment in which the commercial banks operate. When the country held multiparty elections for which it was ill-prepared in 1992, the Central Bank of Kenya was compelled to print money ostensibly to fund the elections. The author explains that this resulted in a sharp increase in the interest rates as the government later embarked on efforts to clear up excess liquidity. As after-effects of the same, Oloo (2001) explains that the domestic debt rose from Kes.45 billion in 1992 to Kes. 166 billion in 1993; treasury bills also rose from 23 per cent in early 1992 to 76 per cent in 1993.

On regulatory guidelines, Collins and Wanjau (2011) through their study established that interest rates policies and regulations are relevant in mitigating interest rates, moral hazards, and loan defaulters. The study in Kenya revealed that the Central Bank of Kenya (CBK), regulates interest rates charged by banks through interest rate ceiling (81.5 per cent). Collins and Wanjau found that the maximum value of NPA ratio was estimated to be 34.85 per cent, while the minimum value was 9.23 (Collins & Wanjau, 2011). According to the same study by the authors, the maximum IRS was 25.19 per cent while the minimum value was 12.25 per cent. The regulation has, however, not been effective since commercial banks still charge high interest rates, an average of 11.5 per cent, as compared to the CBK lowered rate of 8.5 per cent (Oketch, 2011).

Kolapo, Ayeni and Oke (2012) found in their study that loan loss provision has a significant positive influence on NPLs; and an increase in loan loss provision increases credit risk, deteriorates loan quality and consequently adversely affects bank performance. Tireito (2012) did a study on the relationship between interest rates and non-performing loans in commercial banks in Kenya. He collected financial statements for five years (2007-2011) from the 43 banks. Analysis was done using correlations, regression and coefficients. The results showed that there was no significant relationship between interest rate and non-performing loans in commercial banks in Kenya. Akahege (2011) carried out a research on the determinants of NPL among commercial banks in Kenya. His study found out that poor credit analysis by banks, sources of income, interest rates charged by banks, loan repayment period, staff turnover and other behavioral aspect like morality of individual were the major causes of loan default which resulted in NPLs in banks

Ongweso (2005) carried out a study on the relationship between interest rates and non-performing loans. The study covered the period 2000-2004. The findings indicated a declining trend of average interest rates ranging from 12.00% in 2000 to 2.96% in 2004, does indicating improved macro-economic variables over the period. Further the level of non-performing loans on average declined for all the commercial banks for the period under review. Although the study found out a positive relationship between the level of interest and non-performing loans, whereby an increase in interest rates increased non-performing loans, a test of significance however revealed a weak relationship between the two.

Nakayiza (2013) studied the contribution of interest rates on loan portfolio performance in commercial banks. The study was conducted on Centenary Bank, Entebbe Road Branch. The study examined: how Centenary Bank has maintained loan portfolio within acceptable limits to enhance performance, how the Bank has ensured compliance with regulatory requirements to enhance its performance, and how the Bank has worked out problem loans, including rescheduling and restructuring so as to enhance its performance. The study used questionnaires on 73 respondents of Centenary Bank and documentary review. The results indicate that the Bank has followed procedures and regulations in administering credit, although there is still clients' defaulting on loan repayments and increasing the effect of bad debts in the bank. This has created risk in loan portfolio performance and has affected profitability. The findings further revealed that there is lack of effective analysis on the impact of increasing interest rates on loan repayment trends. Besides, fair interest rates favour clients' willingness to repay affordably.

Kanyuru (2011) carried out a research on the determinants of lending rates of commercial banks in Kenya. She found out that cost of funds (loans) was determined by taxation policies, core liquid asset requirement, transaction cost, CBK and its regulatory role, management fees and staff costs. The research further revealed that interest rates were majorly influenced by inflation, demand for loans, foreign exchange rates and other macro and micro economic environment factors.

Were and Wambua (2013) did a study on the determinants of interest rate spread of commercial banks in Kenya. The study used a panel data analysis approach. The results show showed that bank-specific factors such as bank size based on bank assets, credit

risk as measured by non-performing loans to total loans ratio, liquidity risk, return on average assets and operating costs play a significant role in the determination of interest rate spreads. The impact of macroeconomic factors such as real economic growth and inflation is not significant. Similarly, the impact of policy rate as an indicator of monetary policy was found to be positive but weak. On average, big banks had higher spreads compared to small banks. Kipyego and Wandera (2013) did a study on the effects of credit information sharing on Non-Performing loans. The study was done on Kenya Commercial Bank (KCB) between years 2007 to 2012. The results showed that credit information sharing has reduced NPLs as it: increases transparency among financial institutions, helps the banks lend prudently, lowers the risk level to the banks, acts as a borrowers discipline against defaulting and it also reduces the borrowing cost i.e. interest charge on loans.

Oloo (2001) traced the genesis of NPLS in Kenya to the external environment in which the Kenyan banks operate. He argues that when the government was faced by the clamour for, multiparty, it held an election in 1992 for which it was ill prepared. Out of desperation, the CBK was compelled to imprudently print money ostensibly to fund the elections. The result was a sharp increase in interest rates as the government thereafter, sought to clear up excess liquidity. The domestic debt rose from Kes. 45 billion in 1992 to Kes. 166 billion, in 1993. Oloo further comments that the interest rate on treasury bills rose from 23% in early 1992 to 76% in 1993. This argument points that external environment had an influence on the level at NPLs in the banking industry in Kenya.

Caporale and Gil-Alana (2010) did a study on the interest rate dynamics in Kenya. They used data on four commercial banks' interest rates (Deposits, Savings, Lending and Overdraft) together with the 91-Day Treasury bill rate, for the time period July 1991 – August 2010. The results indicate that all series examined are non-stationary with orders of integration equal to or higher than 1. The analysis of various spreads suggested that they also are non-stationary I(1) variables, the only evidence of mean reversion being obtained in the case of the Deposits –Treasury Bill rate spread with auto correlated errors. The structure of interest rates displayed a high degree of persistence and recommended policy actions to make interest rate in the markets more flexible and competitive.

Mang'eli (2012) did a study on the relationship between interest rate spread and financial performance of the commercial banks in Kenya. The study sampled the 10 quoted commercial banks. The study established that interest rate spread affect the performance of commercial banks, as it increases the cost of loans charged on the borrowers, regulations on interest rates have far reaching effects on performance of commercial since they determine the interest rate spread in banks and also help mitigate moral hazards incidental to performance of commercial banks, credit risk management technique remotely affects the value of a bank's interest rates spread as interest rates are benchmarked against the associated non-performing loans and non-performing loans is attributable to high cost of loans.

Ngari (2013) investigated the relationship between interest rates spread and the performance of commercial banks in Kenya. The study was a census of all the 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 since they 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’. The findings also found a positive linear relationship between interest rate spread and financial performance (ROA).

Langat, Chepkulei and Rop (2013) looked at the effect of interest rates spread on the performance of banking industry in Kenya. The study sampled 15 commercial banks in Nairobi and used both primary and secondary data. The findings showed that Central Bank regulations, credit risk and macro-economic environment influence the extent of interest rates spread and hence contribute to the performance of banking industry. The interest rate spread provided sufficient margins for banks to continue operating in the market. The study concluded that interest rates spread to a large extent affect the performance of commercial banks in Kenya.

Kamunge (2013) undertook a study on the effects of interest rate spread on the level of Non-Performing loans by commercial banks in Kenya. The study was conducted on all the 43 commercial banks and secondary data used. The results indicated that interest rate spread and debt collection cost were statistically significant in explaining level of Non-Performing loans; a unit change in Log of interest rate spread led to a positive change in level of Non-Performing loans while a unit change in Log debt collection cost caused a negative and significant change in level of Non-Performing loans. Besides, a unit change

in log credit appraisal cost caused a negative and insignificant change in log level of non-performing change.

2.5 Summary of Literature Review

Studies on Non-Performing Loans (NPLs) have over the years focused on macroeconomic and bank-related factors. Factors which fall in between these two categories have as a result been given limited attention. Borrower characteristics, though very vital in predicting the risk factor of a loan, have not been directly examined as it influences the non-performance of a loan. There is increasing need to understand exactly how lending procedures determine the probability of a loan becoming non-performing. Regulatory guidelines for commercial banks differ from one country to another. Even with this difference in practice, what all countries have in common is the endeavour to establish good lending practices, and have proper guidelines that will lower the risk factor of loans and improve on their performance.

Though, as shown in the literature, several studies have been conducted on NPLs across the world, Kenya included. None of the studies in Kenya, however, have specifically focused on the linkage between interest rates and NPLs. The studies conducted so far do not provide an integrated and holistic view on the problem of non-performing loans in the commercial banking sectors. So much of the literature has not drilled down to specific causes. They dwell more on the symptoms and the problem specifically provide applicable remedies to address.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology of the study. It describes the procedure that was followed in conducting the study. It comprises of the research design, population, sample, data collection and data analysis.

3.2 Research Design

The research design employed in this study was descriptive in nature. According to Mugenda and Mugenda (2003), a descriptive research generates explanatory information or characteristics about a specific population or phenomenon that provides factual, accurate and systematic data that provide a basis for further investigations. A descriptive research design helps to ascertain and describe the characteristics of the variables of interest in a situation (Sekaran, 2003). This design was adopted since the research is concerned with assessing the relationships between the variables and attempts to describe such things as interest rates, non-performing loans in commercial banks and relationship thereof.

3.3 Population and Sample

The study population was commercial banks licensed by Central Bank of Kenya as the research findings generalized about the forty three commercial banks (Central Bank of Kenya, 2014). The choice of this study population is premised on the fact that all commercial banks in the country have encountered non-performance in loans (CBK,

2002-2014). The study censused all the commercial banks. However, the commercial banks were grouped into the three peer groups as classified by the CBK to control the size effect: large, medium and small banks. There are only 6 large banks, 15 medium size banks and 22 small size banks.

3.4 Data Collection

The study exclusively used secondary data. The secondary data was collected using a secondary data collection form. Data was collected from the 43 commercial banks. While the independent variables was interest rate related variables, dependent variable was non-performing loans. The data was collected from banks financial performance data filled with CBK as it is a regulatory requirement for commercial banks to report their financial statement reports with the Regulator. The secondary data collected was: average interest rate charged (average lending and deposit interest rate), total loan and advances, total non-performing loans. Control data on variables: total assets, total risk weighted assets, non-interest expense, and total revenue was collected. The data was collected for a five-year period (2009 – 2013) which was considered long enough to get a meaningful relationship.

3.5 Data Analysis

The data was analyzed using Statistical Package for Social Sciences (SPSS version 20). Descriptive statistics such as frequencies, mean, median, mode, minimum and maximum values, and standard deviations as measures of central tendencies and dispersion was produced. Other measures of distribution such as skewness and kurtosis was used. Inferential statistics was conducted using multiple linear regression to analyze the data.

3.5.1 Regression Model

The study used multiple linear regression model to measure the relationship between interest rates and NPLs as the independent and dependent variables respectively. Thus, the independent variables included: lending interest rate and interest rate spread income while dependent variable was non-performing loan ratio. The study introduced control variables that might have an effect on the relationship such as cost efficiency, size of the bank and capital adequacy. Thus the regression model is:

$$\text{NPL} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

NPL is non-performing loans ratio as measured by the ratio of non-performing loans to total loan and advances

β_0 - the constant; $\beta_1, \beta_2, \beta_3, \beta_4$ - are regression coefficients;

X_1 is the lending interest rates as measured by the ratio of the total interest income on loans over average loan balance;

X_2 is interest rate spread measured as the difference between average lending and deposit interest rate;

X_3 is cost efficiency measured as the ratio of non-interest expense divided by revenue;

X_4 is size of bank as measured by the natural logarithm of individual bank's total assets

X_5 is capital adequacy measured by the ratio of the bank's capital to total risk weighted assets; and,

e – Error term which measures heteroskadiscity.

The study used the regression coefficients to test the magnitude of the relationship between interest rate and relate variables and Non-Performing loans. The study used analysis of variance (ANOVA) and t-test to test the significance of this relationship. Pearson correlation analysis was used to test the existence of the relationship between interest rate and NPLs, the magnitude and nature of the relationship.

CHAPTER FOUR:

DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.1 Introduction

The main objective of the study was to investigate the effect of interest rates on non-performing loans in commercial banks. The data was obtained from 43 commercial banks. The study used descriptive and inferential analytical techniques to analyze the data obtained. Data was collected on subcomponents of the variables which were total loan and advances, total non-performing loans, lending interest, deposit interest rate, total assets, total revenue, noninterest expense and total risk weighted assets.

4.2 Descriptive Statistics

Table 4.1 presents the descriptive statistics and the distribution of the variables considered in this research: non-performing loans ratio, interest rate, interest rate spread, cost income ratio, total assets and capital adequacy. The descriptive statistic considered were minimum, maximum, mean and standard deviation. Mean was used to establish the average value of the data, standard deviation gave the dispersion in the data.

Table 4.1: Descriptive Statistics

Statistics	Non-Performing Loans Ratio	Interest Rate	Interest Rate Spread	Cost Income Ratio	Total Assets	Capital Adequacy
N	43	43	43	43	43	42
Mean (Kes)	6.86	19.01	14.12	65.43	47,502.8	31.62
Std. Deviation (Kes)	5.58	5.55	4.95	33.59	62,299.8	22.78
Minimum (Kes)	0.00	11.41	6.60	26.10	2,259.6	13.47
Maximum (Kes)	27.45	41.45	28.67	223.16	271,466.9	108.27
1st Quartile (Kes)	3.26	15.68	10.66	47.12	8,591.5	16.73
2nd Quartile (Kes)	4.79	18.09	13.21	59.77	19,338.7	24.32
3rd Quartile (Kes)	10.66	20.80	16.75	69.84	67,948.6	35.14

Table 4.1 shows that Non Performing Loans Ratio had a mean of 6.86% and standard deviation of 5.58. That is, the commercial banks, on average, incurred loan default of Ksh6.86 on every Ksh100 advanced as loan or credit. However, there was much variability in loan default as some did not experience the same especially the banks that fully subscribed to the Sheriah laws (Islamic finance) while others incurred as high as 27.45% NPL. The first and the third quartile values were 3.26% and 10.66% respectively showing that the first 25% of the banks incurred NPL of Ksh0.326 for every shilling given out as loan while the last 25% incurred between Ksh0.107 and Ksh0.275.

Mean value of interest rate was 19.01% which denotes that, in average the commercial banks charged 19% interest rate. Interest rate had a standard deviation of 5.55%. Other commercial banks charged as high as 41.45% interest rate. However, 75% charged at most 20.80% interest rate. On the other hand, interest rate spread had a mean of 14.12 and standard deviation of 4.95 which depicts a wide disparity between lending and

deposit interest rate among commercial banks with 75% having a spread of at most 16.75 and a maximum value of 28.67.

Cost Income Ratio had a mean of 65.43. This depicts that banks on average incurred a cost of Ksh0.654 on every shilling earned with high variability from one bank to the next given a standard deviation of 33.59. On total assets, the mean value was Ksh47,502,800,000 and standard deviation of 62,299,800,000. A larger standard deviation than mean depict high variability in the commercial banks' sizes. Capital adequacy had a mean of 31.62 and standard deviation of 22.78. This depicts that on average, every shilling of the total risk weighted assets owned by commercial banks was tied to Ksh0.3162 in total capital. The ratio of total capital to risk weighted assets had a high variability of 22.78 with some banks having as high as 108.27.

4.3 Inferential Statistics

The inferential statistics involved the use of correlation and multiple linear regression analysis. The regression analysis was done using Ordinary Least Squares (OLS) method. However, before running the regressions, descriptive statistics and correlation analysis were considered. Correlation analysis shows the relationships between the different variables considered in the study. The correlation matrix presented simple bivariate correlations not taking into account other variables that may influence the results.

4.3.1 Correlation Analysis

The study sought to establish the relationship between the independent and control variables, and commercial banks' NPLS. Pearson Correlation analysis was used to achieve this end at 99% and 95% confidence levels. The correlation analysis enabled the

testing of study's hypothesis that interest rate has a significant effect on banks' NPLs. Table 4.2 shows a consistent negative and moderate linear relationships between banks' total asset as a proxy of size and NPLs. This depicts that as banks grow in size, their level of NPLs decreases. Cost Income Ratio had a consistent positive and moderate correlation with NPLs. This illustrates that banks strive to incur low cost in loan recovery. Interest rate and spread thereof had negative correlation with NPLs in 3 of the 5 cases. This shows that the interest rate is negatively linearly related with NPLs. Capital adequacy had a positive linear relationship with NPLs.

Table 4.2: Correlation Analysis with NPL

	2009	2010	2011	2012	2013
Interest Rate	-0.086	0.044	0.155	-0.078	-0.327
Interest Rate Spread	-0.025	0.046	0.215	-0.091	-0.404
Cost Income Ratio	0.056	0.320	0.497	0.186	0.143
Total Assets	-0.364	-0.494	-0.519	-0.564	-0.459
Capital Adequacy	0.241	0.342	0.636	0.250	-0.093

Table 4.3 shows significant, negative and good linear relationships between banks' NPLs and: interest rate ($R = -0.663$, $p = .029$); interest rate spread ($R = -0.559$, $p = .007$); and total assets ($R = -0.539$, $p < .001$). The study also established a significant, positive and good linear relationships between banks' NPLs and: cost income ratio ($R = 0.567$, $p = .044$); and, capital adequacy ($R = 0.318$, $p = .040$). The study established low linear correlation among and between independent variables depicting lack of multicollinearity.

Table 4.3: Correlation Matrix

		NPL	Interest Rate	Interest Rate	Cost Income	Total Assets	Capital Adequacy
NPL		1					
Interest Rate	Pearson Correlation	-.663*	1				
Interest Rate Spread	Pearson Correlation	-.559**	.390	1			
Cost Income Ratio	Pearson Correlation	.567*	.315	.195	1		
Total Assets	Pearson Correlation	-.539**	-.279	-.109	-.409	1	
Capital Adequacy	Pearson Correlation	.318*	.297	.400	.361	-.204	1

** . Correlation is significant at the 0.01 level (2-tailed); * . Correlation is significant at the 0.05 level (2-tailed).

4.3.2 Regression Analysis

Regression analysis was used to measure the relationship between individual independent (interest rate, interest rate spread, cost income ratio, total assets and capital adequacy) and dependent variable (non-performing loans ratio). The regression analysis was of the form:

$$NPL = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

Whereby NPL is non-performing loans ratio, X_1 is the lending interest rates, X_2 is interest rate spread, X_3 is cost efficiency, X_4 is size of bank, X_5 is capital adequacy, β_0 is regression constant, β_0 to β_5 is regression coefficients and e is model's error term.

Table 4.4 illustrates that the strength of the relationship between NPLs and independent variables. From the determination coefficients, it can be noted that there is a good relationship between dependent and independent variables given an R values of 0.700

and R-square values of 0.490. This shows that the independent variables accounts for 49% of the variations in NPL ratio of commercial banks.

The study also used Durbin Watson (DW) test to check that the residuals of the models were not auto correlated since independence of the residuals is one of the basic hypotheses of regression analysis. Being that the DW statistic were close to the prescribed value of 2.0 (2.192) for residual independence, it can be concluded that there was no autocorrelation.

Table 4.4: Model Goodness of Fit

R	R Square	Adjusted Square	R	Std. Error of the Estimate	Durbin-Watson
.700 ^a	.490	.419		4.30321	2.192

Predictors: (Constant), Capital Adequacy , Cost Income Ratio, Total Assets, Interest Rate, Interest Rate Spread_a

Dependent Variable: Non Performing Loans Ratio_b

Analysis of Variance (ANOVA) was used to make simultaneous comparisons between two or more means; thus, testing whether a significant relation exists between variables (dependent and independent variables). This helps in bringing out the significance of the regression model. The ANOVA results presented in Table 4.5 shows that the regression model has a margin of error of $p < .001$. This indicates that the model has a probability of less than 0.1% of giving false prediction; this point to the significance of the model.

Table 4.5: Analysis of Variance

	Sum of Squares	df	Mean Square	F	Sig.
Regression	639.484	5	127.897	6.907	.000b
Residual	666.635	36	18.518		
Total	1306.119	41			

a. Dependent Variable: Non Performing Loans Ratio

b. Predictors: (Constant), Capital Adequacy, Cost Income Ratio, Total Assets, Interest Rate, Interest Rate Spread

Table 4.6 shows that the regression coefficients of independent variables. The following regression model was established:

$$\text{NPL} = 69.147 - 0.775 * \text{Interest Rate} + \text{Interest Rate Spread} + \text{Cost Income Ratio} - 2.327 * \text{Total Assets} + 0.072 * \text{Capital Adequacy} \quad p < .001$$

From the equation, the study found that holding interest rate, interest rate spread, cost income ratio, total assets and capital adequacy at zero NPL ratio will be 69.147. This depicts that banks would still incur Ksh0.691 loan default on every shilling loaned. Additionally, when interest rate spread, cost income ratio, total assets and capital adequacy are constant, a unit increase in interest rate would lead to a 0.775 decrease in NPL ratio.

When interest rate, cost income ratio, total assets and capital adequacy are constant, a unit increase in interest rate spread would lead to a 0.318 increase in NPL ratio. Holding accounts interest rate, interest rate spread, total assets and capital adequacy constant, a unit increase in cost income ratio would lead to a 0.017 increase in banks' NPL. When interest rate, interest rate spread, cost income ratio, total assets and capital adequacy are

constant, a unit increase in total assets would lead to 2.327 decrease in NPL ratio. Moreover, holding accounts interest rate, interest rate spread, cost income ratio and total assets constant, a unit increase in capital adequacy would lead to a 0.072 increase in banks' NPL ratio.

Table 4.6: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	69.147	17.253		4.008	.000
Interest Rate	-.775	.312	-.771	-2.482	.018
Interest Rate Spread	.318	.365	.282	.869	.391
Cost Income Ratio	.017	.024	.102	.716	.479
Total Assets	-2.327	.684	-.536	-3.401	.002
Capital Adequacy	.072	.047	.292	1.551	.130

a. Dependent Variable: Non Performing Loans Ratio

4.3.3 Multicollinearity Test

The study conducted a multicollinearity tests to determine if two or more predictor (independent) variables in the multiple regression model are highly correlated. Tolerance indicates the percent of variance in the independent variable that cannot be accounted for by the other independent variable while variance inflation factor (VIF) is the inverse of tolerance. Table 4.7 shows that tolerance values ranged between 0.135 and 0.705 with corresponding VIF values ranging between 1.419 and 6.811. Since tolerance values were above 0.1 and VIF below 10, there was no multicollinearity in the model.

Table 4.7: Collinearity Statistics

	Tolerance	VIF
Interest Rate	.147	6.811
Interest Rate Spread	.135	7.416
Cost Income Ratio	.705	1.419
Total Assets	.572	1.749
Capital Adequacy	.399	2.506

The study conducted a normal P-P plot of regression standardized residual to determine if the normality of the model's residuals. Figure 4.1 indicates that the dependent variable was normally distributed and that the probability of outliers was minimal. The findings imply that the responses were lying close to the line of normality. Furthermore, it implied that the data was ideal for all type of analysis, including parametric and regression analysis

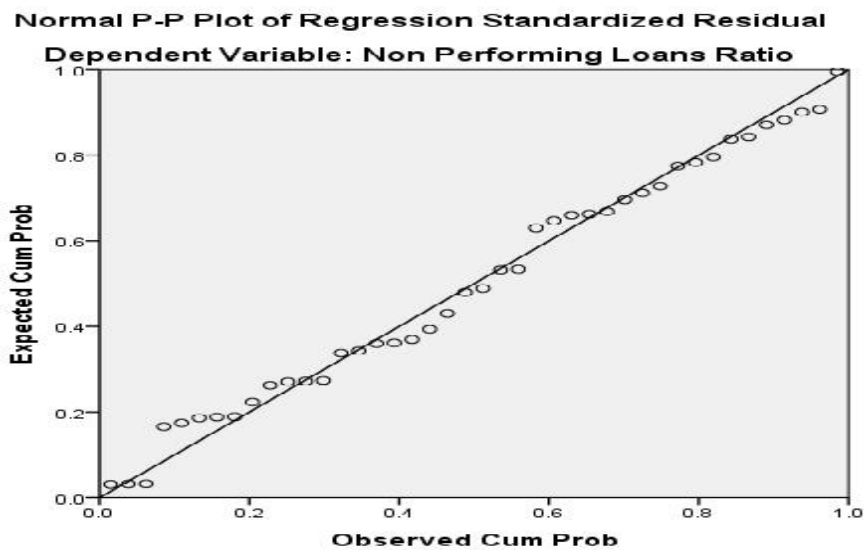


Figure 4.1: P-P Plot

4.4 Summary and Interpretation of Findings

From the findings, there is evidence that suggests that several bank specific factors (size of the bank, interest rate margins or spread, cost income ratio as a measure of efficiency, the terms of credit (interest rate), risk profile of banks (measured by total total capital to risk weighted assets) are important determinants of NPLs. This study only considers four bank specific variables owing to data availability. The study established the following equation:

$$\text{NPL} = 69.147 - 0.775 * \text{Interest Rate} + 0.318 * \text{Interest Rate Spread} + 0.017 * \text{Cost Income Ratio} - 2.327 * \text{Total Assets} + 0.072 * \text{Capital Adequacy}$$

The study established significant, negative and good linear relationships between banks' NPLs and interest rate; interest rate spread and total assets. The findings established a significant, positive and good linear relationships between banks' NPLs and cost income ratio; and, capital adequacy.

The impact of real interest rates on NPLs is extensively documented in the literature. In fact, several studies report that high real interest rate is positively related to this variable (see for example, Jimenez and Saurina, 2005 and Fofack, 2005). We construct this variable by subtracting the annual inflation rate from the weighted average lending rate of each bank.

Excessive lending by commercial banks is often identified as an important determinant of NPLs (Salas and Saurina, 2002; and Jimenez and Saurina, 2005; Keeton and Morris, 1987; and Sinkey and Greenwalt, 1991; and Keeton, 1999). The variable to capture credit growth is constructed by finding the annual percentage change in the loan portfolio for each bank. For instance, some studies report a negative association between NPLs and bank size (see Rajan and Dhal, 2003; Salas and Saurina, 2002; Hu et al, 2006). According to these studies, the inverse relationship means that large banks have better risk management strategies that usually translate into more superior loan portfolios vis-à-vis their smaller counterparts. There are also studies which provide evidence of a positive association between NPLs and bank size (see Rajan and Dhal, 2003). Similar to previous studies, we find a significant negative association between the interest rate variable and NPLs (Fofack, 2005; Jimenez and Saurina, 2005). This indicates that when a commercial bank increases its interest rates this may translate immediately into higher non-performing loans. Credit risk assessment and management ensures that loan are channeled to intended purposes, loans are allocated to only those who qualify/can repay, loan security/collateral is enough to cover loan, assessment of the character of the loan candidate and there is sufficient margin to cover loan. Mode or type of interest rate charged (whether fixed or float) for they all have different dynamics that might affect the borrower's ability to repay credit loaned (Hu et al, 2006). Credit risk management, therefore, directly influences the level of loan nonperformance in commercial banks.

CHAPTER FIVE:

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

Loan defaults among commercial banks remain high leading to financial distress of the banks even eventual collapse. Interest rate has an inherent implicit cost on the credit issued by banks with antecedent implication on loan defaults. Thus, the study sought to determine if there exists a relationship between interest rate and the level of non-performing loans as reflected in the books of the various commercial banks in Kenya. The research was to find out how the loanees had been affected by the increased installments arising from the interest rate change.

This study adopted a descriptive research design targeting all the 43 licensed commercial banks in Kenya. Secondary data was collected on the interest rate charged by the banks, total loan and advances, total non-performing loans, total assets, total risk weighted assets, noninterest expense, total revenue for five-year period (2009 – 2013). The data collected was analyzed using both descriptive and inferential statistics from multiple linear regression analysis using the ordinary least square method. The findings were presented in tables and figures.

The study's findings established significant, negative and good linear relationships between banks' NPLs and interest rate; interest rate spread and total assets. Significant, positive and good linear relationships between banks' NPLs and cost income ratio; and, capital adequacy were also adduced. The study concludes that there is a strong relationship between financial performance of commercial banks with interest rate.

The study recommended that there is need for banks to apply efficient and effective credit risk management that will ensure that loans are matched with ability to repay and minimize on their interest rate spread and other incidental costs so as to reduce loan default

5.2 Conclusion

The study found that there is strong relationship between financial performance of commercial banks with interest rate spread, the study further revealed that there was greater variation on performance of commercial banks as results of change in interest rate spread, default risk and inflation, the study further revealed that there was a negative relationship between performance of commercial, interest spread and defaults risk and inflation. The study found that inelasticity of deposit supply was the major determinant of interest rate spread. Modeling in full the way spreads between interest rates on three-month Treasury bills and rates for the alternative instruments widen and narrow over time would require an almost limitless set of determining factors.

The study found that the key indicator of financial performance and efficiency of commercial banks is the spread between lending and deposit rates. If this spread is large, it works as an impediment to the expansion and development of financial intermediation. This is because it discourages potential savers due to low returns on deposits and thus limits financing for potential borrowers. This has the economy-wide effect of reducing feasible investment opportunities and thus limiting future growth potential. It has been 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 commercial banks are high.

The study revealed that the magnitude of interest rate spread varies and 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 is found to be the major reasons behind differences in spread.

5.3 Policy Recommendation

Banks should endeavour to embrace KYC know your customer before the credit can be sanctioned. This are the means employed to know and understand all the particulars and character of the borrower before giving out the money. It can be achieved through scrutinizing the previous banking's from the statements, employment or the business transactions from the borrower. Banks should not mainly hang on collateral for them to secure the loans so that they can lend.

Banks should also apply efficient and effective credit risk management that will ensure that loans are matched with ability to repay, loan defaults are projected accordingly and relevant measures taken to minimize the same. Banks should also enhance periodic credit risk monitoring of their loan portfolio to reduce the level of NPA. This can be achieved by hiring qualified debt collectors and competent personnel.

It is recommended that commercial banks should use the services provided by Credit Reference Bureaus for the purpose of determining the credit worthiness of borrowers as a means of minimizing bad loans. CRBs help lenders make faster and more accurate credit decisions. It is recommended that commercial banks needs to invest on debt collections

and this will entail hiring qualified and experienced debt collectors, lawyers so as to increase litigation of defaulters and auctioneers. This is from the fact that there is an inverse relationship between debt collection costs and the level of NPA.

It is recommended that Central Bank which is the Regulatory Authority of commercial banks in Kenya should apply stringent regulations on interest rates charged by commercial banks so as to regulate their interest rate spread and also they should come up with rigorous policies on loan advances so as to mitigate moral hazards such as insider lending and information asymmetry. It is recommended that management should organize regular trainings in areas like credit management, risk management and financial analysis. This would sharpen the knowledge and skills of credit officers so as to improve on the quality of credit appraisals.

5.4 Limitation of the Study

In attaining its objective the study was limited to 43 commercial banks in Kenya. Micro finance institutions were excluded since their operation is different from the one of commercial banks. The study could not therefore incorporate the impact on these of companies.

Secondary data was collected from the firm financial reports. The study was also limited to the degree of precision of the data obtained from the secondary source. While the data was verifiable since it came from the Central Bank publications, it nonetheless could still be prone to these shortcomings. The study was limited to establishing the effect of interest rates spread on the performance of commercial banks in Kenya.

The study was based on a five year study period from the year 2009 to 2013. A longer duration of the study will have captured periods of various economic significances such as booms and recessions. This may have probably given a longer time focus hence given a broader dimension to the problem.

There were cases where different financial institutions attached different meanings to the same item .For example; a word like non-performing loans was used interchangeably with the word impaired loans. In other instances loan loss provision was used to mean allowance for impairment.

5.5 Suggestions for Further Studies

The study sought to determine the effect of interest rates spread on the performance of commercial banks in Kenya. There is need for a study to be conducted to determine the relationship between non-performing loans and performance of commercial banks as it was found that default risk negatively affects the performance of commercial banks.

From the findings and conclusion, the study recommends an in-depth study to be carried out on the relationship between increase in interest rate and performance of commercial banks in Kenya.

Given the arguments that inflation rate is affected by economic growth of the country, there is need for a study to be conducted to establish the relationship between performances of commercial banks and economic growth.

In order to better the effects of credit information sharing on default risk, there is need to a study to be carried out to determine the impact of credit information sharing on defaults

in commercial banks, this will assist in commercial banks reduce the number of non-performing loan and also reduce the default risk.

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Appendices

Appendix I: List of Commercial Banks

Bank	Size Index
Large Peer Group >5%	
Kenya Commercial Bank Ltd	13.54%
Equity Bank Ltd	10.06%
Cooperative Bank Ltd	8.74%
Standard Chartered Bank (K) Ltd	8.29%
Barclays Bank of Kenya Ltd	8.08%
CFC Stanbic Bank Ltd	5.01%
Medium Peer Group > 1% < 5%	
NIC Bank Ltd	4.32%
Diamond Trust Bank Ltd	4.10%
Commercial Bank of Africa Ltd	4.08%
I&M Bank Ltd	4.08%
Citibank N.A.	3.42%
National Bank of Kenya Ltd	3.00%
Baroda Bank Ltd	1.92%
Chase Bank Ltd	1.87%
Bank of Africa Ltd	1.83%
Prime Bank Ltd	1.71%
Housing Fin. Co. of Kenya Ltd	1.49%
Imperial Bank Ltd	1.44%
Family Bank Ltd	1.42%
Bank of India	1.08%
Eco bank Kenya Ltd	1.06%
Small Peer Group <1%	
African Banking Corporation Ltd	0.76%
Fina Bank Ltd	0.74%
Consolidated Bank of Kenya Ltd	0.66%
Gulf African Bank Ltd	0.56%
Giro Commercial Bank Ltd	0.54%
Equatorial Commercial Bank Ltd	0.52%
Fidelity Bank Ltd	0.48%
Guardian Bank Ltd	0.48%
Victoria Commercial Bank Ltd	0.48%
Development Bank of Kenya Ltd	0.47%
Habib A.G. Zurich	0.43%
K-Rep Bank Ltd	0.42%
Trans-National Bank Ltd	0.42%

First Community Bank Ltd	0.41%
Paramount Universal Bank Ltd	0.32%
Habib Bank Ltd	0.32%
Oriental Commercial Bank Ltd	0.31%
Credit Bank Ltd	0.29%
Jamii Bora Bank Ltd	0.27%
Middle East Bank (K) Ltd	0.26%
UBA Bank Kenya Ltd	0.18%
Dubai Bank Ltd	0.15%
Charterhouse Bank Ltd	0.00%

Appendix II: Data Collection Form

Date:.....

Commercial Bank:.....

Data	2009	2010	2011	2012	2013
Total Loan and Advances					
Total Non-Performing Loans					
Lending Interest					
Deposit Interest Rate					
Total assets					
Total Revenue					
Noninterest Expense					
Total Risk Weighted Assets					

Appendix III: Non Performing Loans in Percentage

	2013	2012	2011	2010	2009
Kenya Commercial Bank	6.56	5.43	5.03	8.14	12.50
Equity Bank	4.20	2.22	2.36	4.90	7.38
Co-operative Bank of Kenya	3.87	4.36	3.62	4.24	8.05
Standard Chartered Bank	2.35	1.49	0.70	1.29	1.42
CFC Stanbic Bank	2.54	1.56	1.32	2.52	3.43
Barclays Bank of Kenya	2.95	3.51	5.27	7.06	7.61
NIC Bank	3.87	2.97	3.03	3.23	4.13
Commercial Bank of Africa	3.24	3.67	4.68	5.14	3.47
Diamond Trust Bank	1.27	1.33	1.07	1.31	1.38
I&M Bank	0.95	0.88	1.44	2.37	3.39
Citibank	0.58	0.60	0.49	0.61	0.58
Chase Bank	2.51	1.56	1.72	2.38	4.00
Bank of Africa	3.87	2.13	1.65	1.71	1.36
Bank of Baroda	2.18	2.23	2.96	3.32	9.84
National Bank of Kenya	10.08	7.33	3.99	4.21	9.01
Prime Bank	1.82	2.70	3.54	3.56	4.88
Housing Finance	8.40	6.79	5.20	5.85	8.10
Imperial Bank	5.15	3.95	4.29	4.36	5.27
Eco bank	7.20	4.52	7.55	16.53	22.48
Family Bank	6.90	12.38	9.44	8.15	5.27
Bank of India	1.00	1.56	2.31	2.17	3.53
ABC Bank	4.32	3.34	2.86	4.28	5.61
Consolidated Bank	11.68	10.81	8.29	10.98	13.04
Equatorial Commercial Bank	11.26	7.00	6.80	19.42	12.65
Gulf African Bank	5.72	3.31	6.33	2.26	0.27
Development Bank of Kenya	11.50	13.67	16.86	12.38	11.92
GT Bank Kenya	2.42	3.60	5.84	8.77	7.79
Giro Commercial Bank	5.35	2.92	2.19	3.98	4.28
Fidelity Commercial Bank	7.80	9.84	3.93	9.03	2.74
Guardian Bank	5.52	5.97	6.35	16.23	19.23
Victoria Commercial Bank	0.00	0.00	0.00	0.00	0.00
First Community Bank	6.87	13.85	12.67	7.32	0.90
Habib A.G. Zurich	2.07	2.81	2.73	3.33	5.34
K-Rep Bank	4.98	10.87	10.67	17.63	21.44
Trans-National Bank	13.15	9.90	8.88	20.85	20.40
Paramount Universal Bank	8.30	9.49	12.52	16.52	17.43
Habib Bank Ltd	7.79	9.07	1.70	2.34	3.04
Credit Bank	7.45	8.63	9.95	16.87	8.32
Oriental Commercial Bank	8.27	10.72	11.13	11.18	19.60
Middle East Bank	16.21	1.63	1.99	1.34	1.90
Jamii Bora Bank	3.70	10.16	40.60	29.44	21.80
UBA Kenya Bank	1.55	8.47	4.02	0.00	1.23
Dubai Bank	38.91	26.55	19.06	24.95	27.81

Appendix IV: Interest Rate in Percentage

Bank	2013	2012	2011	2010	2009
Kenya Commercial Bank	17.51	20.17	13.81	14.79	17.65
Equity Bank	18.11	22.68	17.00	17.29	16.44
Co-operative Bank of Kenya	17.50	20.10	14.32	13.13	13.74
Standard Chartered Bank	16.43	17.31	12.51	16.19	16.70
CFC Stanbic Bank	14.69	17.37	13.19	10.08	13.42
Barclays Bank of Kenya	17.56	19.60	16.95	18.51	17.84
NIC Bank	12.72	15.15	11.50	11.53	12.95
Commercial Bank of Africa	15.99	20.43	13.16	13.62	13.75
Diamond Trust	15.89	20.84	14.00	13.99	15.08
I&M Bank	15.51	19.59	15.07	14.35	17.83
Citibank	23.28	30.63	14.36	13.42	13.93
Chase Bank	21.44	21.25	17.77	17.12	17.53
Bank of Africa	16.73	18.77	13.87	12.56	12.52
Bank of Baroda	25.29	25.66	19.89	21.30	23.24
National Bank of Kenya	19.74	28.16	22.30	25.19	31.86
Prime Bank	18.24	23.42	17.07	16.19	17.85
Housing Finance	15.14	16.40	13.40	12.24	11.60
Imperial Bank	26.39	33.43	27.88	25.80	26.36
Eco bank	13.89	16.51	15.13	10.99	10.50
Family Bank	18.34	24.18	16.32	17.39	17.04
Bank of India	27.69	28.03	29.44	30.63	27.99
ABC Bank	20.89	22.20	17.40	18.97	20.84
Consolidated Bank	19.74	24.81	16.16	13.29	14.03
Equatorial Commercial Bank	18.25	23.54	15.38	12.76	15.74
Gulf African Bank	14.26	15.41	12.86	10.92	9.97
Development Bank of Kenya	18.13	19.27	16.59	14.68	13.73
GT Bank Kenya	19.45	23.34	19.58	19.56	18.42
Giro Commercial Bank	21.54	29.25	18.30	16.91	18.54
Fidelity Commercial Bank	20.55	23.20	15.86	15.37	15.25
Guardian Bank	16.94	20.84	14.59	13.99	15.60
Victoria Commercial Bank	16.44	25.56	18.00	16.77	16.67
First Community Bank	13.67	16.95	13.86	13.66	11.16
Habib A.G. Zurich	32.78	43.85	22.62	21.60	25.15
K-Rep Bank	20.31	24.45	18.07	17.62	23.54
Trans-National Bank	23.37	21.20	19.11	19.70	20.43
Paramount Universal Bank	24.14	20.18	18.88	18.53	18.68
Habib Bank Ltd	21.42	24.08	21.75	25.69	29.08
Credit Bank	27.11	28.06	17.68	21.06	19.96
Oriental Commercial Bank	16.29	17.60	14.22	11.96	10.17
Middle East Bank	15.94	19.42	15.04	12.76	15.26
Jamii Bora Bank	13.64	16.47	28.75	37.74	19.78
UBA Kenya Ltd	31.83	52.14	40.15	41.68	
Dubai Bank	8.90	18.92	10.68	10.41	8.15

Appendix V: Interest Rate Spread in Percentage

Bank	2013	2012	2011	2010	2009
Kenya Commercial Bank	14.67	15.55	12.12	13.11	15.58
Equity Bank	16.35	19.78	15.55	15.99	15.37
Co-operative Bank of Kenya	14.74	15.15	11.31	11.16	11.31
Standard Chartered Bank	13.41	13.54	10.99	14.75	14.64
CFC Stanbic Bank	12.81	13.01	11.47	8.49	10.82
Barclays Bank of Kenya	16.19	17.87	16.13	17.55	16.01
NIC Bank	8.78	8.65	7.77	8.44	7.97
Commercial Bank of Africa	12.29	15.35	10.53	11.22	10.11
Diamond Trust	11.46	13.31	10.29	10.48	9.91
I&M Bank	10.62	11.73	11.27	10.30	12.17
Citibank	20.36	26.92	12.53	12.24	12.56
Chase Bank	15.97	12.54	12.94	12.74	12.77
Bank of Africa	9.45	9.29	8.20	8.58	8.06
Bank of Baroda	18.39	16.28	14.67	16.62	17.47
National Bank of Kenya	16.54	21.57	19.88	23.00	29.12
Prime Bank	12.42	14.17	11.83	11.29	12.32
Housing Finance	11.20	9.81	10.22	9.01	7.49
Imperial Bank	18.39	21.16	19.01	19.33	16.16
Eco bank	8.25	7.85	9.79	8.52	5.67
Family Bank	16.01	18.36	14.61	16.21	15.75
Bank of India	21.59	18.05	24.12	24.22	22.01
ABC Bank	13.98	14.19	12.51	14.66	16.53
Consolidated Bank	12.24	13.79	10.74	10.08	11.73
Equatorial Commercial Bank	11.90	12.02	9.54	8.36	11.50
Gulf African Bank	11.97	12.87	11.39	9.72	9.13
Development Bank of Kenya	11.85	11.34	11.18	11.10	7.76
GT Bank Kenya	14.40	13.73	14.25	14.60	13.23
Giro Commercial Bank	14.56	18.13	12.09	11.75	12.83
Fidelity Commercial Bank	11.71	10.43	9.13	8.74	8.28
Guardian Bank	9.95	10.44	8.15	7.01	9.14
Victoria Commercial Bank	11.34	17.18	13.77	12.55	11.23
First Community Bank	12.14	15.41	13.06	12.60	9.80
Habib A.G. Zurich	28.90	38.41	19.83	19.32	22.64
K-Rep Bank	16.42	19.14	16.42	16.37	21.83
Trans-National Bank	18.14	14.75	15.96	16.53	16.21
Paramount Universal Bank	14.25	11.04	10.79	11.57	12.29
Habib Bank Ltd	18.13	19.63	19.34	23.52	26.81
Credit Bank	20.59	17.54	12.31	16.02	17.44
Oriental Commercial Bank	8.32	5.66	7.07	6.60	5.35
Middle East Bank	8.69	10.32	9.54	8.14	10.55
Jamii Bora Bank	9.59	14.82	28.37	37.40	15.74
UBA Kenya Ltd	26.61	42.42	35.64	39.26	-0.55
Dubai Bank	4.40	11.23	8.14	8.39	6.42

Appendix VI: Cost Income Ratio In Percentage

Bank	2013	2012	2011	2010	2009
Kenya Commercial Bank	51.55	50.52	52.72	61.05	66.86
Equity Bank	45.05	45.30	46.67	51.00	60.16
Co-operative Bank of Kenya	58.55	58.45	62.01	58.92	62.80
Standard Chartered Bank	39.81	40.85	45.59	42.55	41.48
CFC Stanbic Bank	50.19	60.84	64.62	68.88	69.71
Barclays Bank of Kenya	52.93	52.00	51.63	53.99	59.33
NIC Bank	37.73	38.15	39.11	44.48	48.64
Commercial Bank of Africa	46.74	47.18	49.11	45.85	54.65
Diamond Trust Bank	37.45	35.47	41.99	47.65	54.48
I&M Bank	31.06	34.58	29.09	32.79	42.09
Citibank	20.29	23.88	29.37	38.92	31.86
Chase Bank	55.59	63.20	63.35	68.83	68.79
Bank of Africa	65.60	71.86	70.50	66.58	71.66
Bank of Baroda	22.40	32.12	23.62	22.72	40.08
National Bank of Kenya	75.52	75.39	59.76	56.89	59.86
Prime Bank	40.63	49.10	44.39	49.94	51.52
Housing Finance	47.74	50.36	47.00	48.22	58.05
Imperial Bank	48.40	47.60	49.37	50.16	54.42
Eco bank	143.97	254.31	95.92	77.78	141.89
Family Bank	66.75	70.49	77.17	71.50	81.09
Bank of India	22.54	35.23	22.88	23.92	25.92
ABC Bank	62.18	57.95	56.70	54.14	61.24
Consolidated Bank	137.63	77.45	77.92	69.95	75.86
Equatorial Commercial Bank	79.42	194.78	90.67	93.64	76.50
Gulf African Bank	71.98	69.88	81.97	104.41	131.24
Development Bank of Kenya	43.32	70.15	59.72	47.66	77.99
GT Bank Kenya	70.42	68.02	61.15	63.81	78.13
Giro Commercial Bank	54.03	70.06	55.76	36.47	61.90
Fidelity Commercial Bank	60.22	69.70	57.75	20.41	79.64
Guardian Bank	55.04	60.71	52.34	60.77	45.95
Victoria Commercial Bank	39.51	40.35	44.23	39.78	43.93
First Community Bank	77.51	69.51	82.26	130.55	145.11
Habib A.G. Zurich	39.70	40.33	53.61	51.25	46.04
K-Rep Bank	63.42	64.99	66.20	86.67	101.68
Trans-National Bank	65.74	61.46	57.47	66.18	70.93
Paramount Universal Bank	66.83	69.27	59.45	33.24	75.88
Habib Bank Ltd	31.10	28.71	41.38	43.65	45.60
Credit Bank	99.14	103.78	95.86	52.24	75.57
Oriental Commercial Bank	76.64	62.19	43.90	42.08	76.85
Middle East Bank	70.67	79.32	69.70	52.53	76.98
Jamii Bora Bank	79.35	75.58	138.70	124.60	80.23
UBA Kenya Bank	203.13	348.16	176.02	143.63	244.87
Dubai Bank	55.54	73.22	67.77	75.22	63.27

Appendix VII: Total Assets in Ksh Millions

Bank	2013	2012	2011	2010	2009
Kenya Commercial Bank	323,312	305,161	282,494	251,356	195,012
Equity Bank	238,194	215,829	176,911	143,018	100,812
Co-operative Bank of Kenya	228,874	199,663	167,772	154,340	110,678
Standard Chartered Bank	220,524	195,493	164,182	142,746	123,779
CFC Stanbic Bank	170,726	133,378	140,087	107,139	97,337
Barclays Bank of Kenya	207,010	185,102	167,305	172,415	164,875
NIC Bank	112,917	101,772	73,581	59,014	47,558
Commercial Bank of Africa	124,882	100,456	83,283	75,459	65,687
Diamond Trust	114,136	94,512	77,448	83,600	66,679
I&M Bank	110,316	91,520	76,903	62,552	44,009
Citibank	71,243	69,580	74,646	62,070	51,372
Chase Bank	76,569	49,105	36,513	21,859	12,970
Bank of Africa	52,683	48,958	38,734	26,699	16,920
Bank of Baroda	52,022	46,138	36,701	32,332	21,940
National Bank of Kenya	92,493	67,155	68,665	60,027	51,404
Prime Bank	49,461	43,463	35,185	32,444	23,700
Housing Finance	46,755	40,686	31,972	29,326	18,239
Imperial Bank	43,006	34,590	25,618	19,719	15,358
Eco bank	36,907	31,771	27,210	26,892	13,949
Family Bank	43,501	30,985	26,002	20,188	13,306
Bank of India	30,721	24,877	23,352	19,671	15,395
ABC Bank	19,640	19,071	12,507	10,349	8,972
Consolidated Bank	16,779	18,001	15,318	10,479	6,899
Equatorial Commercial Bank	15,562	14,109	12,927	10,399	4,461
Gulf African Bank	16,054	13,562	12,915	9,594	7,749
Development Bank of Kenya	15,581	13,417	11,523	10,645	8,109
GT Bank Kenya	25,638	17,150	14,630	20,944	18,331
Giro Commercial Bank	13,623	12,280	11,846	10,234	6,914
Fidelity Commercial Bank	12,779	11,772	10,789	8,209	5,499
Guardian Bank	12,835	11,745	8,836	8,031	6,778
Victoria Commercial Bank	13,644	10,323	7,645	6,215	5,130
First Community Bank	11,305	9,959	8,740	6,380	4,452
Habib A.G. Zurich	11,009	9,702	8,722	8,127	7,339
K-Rep Bank	13,199	9,546	9,319	7,670	7,136
Trans-National Bank	9,658	8,801	7,287	4,762	3,364
Paramount Universal Bank	8,029	7,255	4,727	4,420	3,100
Habib Bank Ltd	8,078	7,014	5,861	5,426	4,659
Credit Bank	7,309	6,407	5,394	4,530	3,665
Oriental Commercial Bank	7,007	6,220	5,030	4,558	3,052
Middle East Bank	5,766	5,870	4,639	4,018	3,141
Jamii Bora Bank	7,010	3,480	2,070	1,726	491
UBA Kenya Ltd	3,710	2,924	3,206	3,028	1,216
Dubai Bank	2,927	2,584	2,316	1,874	1,596

Appendix VIII: Capital Adequacy in Percentage

Bank	2013	2012	2011	2010	2009
Kenya Commercial Bank	22.45	22.72	20.69	23.16	14.89
Equity Bank	23.57	30.10	21.67	27.88	31.49
Co-operative Bank of Kenya	20.57	23.79	16.42	16.54	21.01
Standard Chartered Bank	20.80	18.04	14.30	14.32	14.46
CFC Stanbic Bank	20.53	25.54	19.04	16.20	16.04
Barclays Bank of Kenya	17.31	25.77	27.81	31.15	23.83
NIC Bank	15.62	16.44	15.89	15.51	8.69
Commercial Bank of Africa	13.48	16.07	14.54	14.51	12.83
Diamond Trust Bank	20.52	19.84	16.78	22.93	20.16
I&M Bank	19.02	17.34	18.72	19.92	18.71
Citibank	35.39	41.82	31.48	36.03	29.89
Chase Bank	15.03	13.21	12.61	14.47	13.40
Bank of Africa	12.72	13.16	16.00	15.17	15.92
Bank of Baroda	21.61	19.61	21.40	23.61	20.56
National Bank of Kenya	24.15	28.42	29.18	36.92	42.56
Prime Bank	18.40	17.03	16.51	13.76	15.74
Housing Finance	21.58	29.51	34.03	48.73	34.09
Imperial Bank	15.00	18.71	20.63	21.17	21.54
Eco bank	30.56	32.51	25.58	38.67	15.67
Family Bank	18.94	22.68	17.01	24.19	18.11
Bank of India	41.52	40.52	46.41	43.24	34.66
ABC Bank	99.99	14.40	17.60	20.13	26.93
Consolidated Bank	10.81	15.03	12.65	13.18	15.69
Equatorial Commercial Bank	12.25	8.87	14.27	14.49	20.77
Gulf African Bank	18.14	14.51	14.24	16.23	17.05
Development Bank of Kenya	23.61	24.91	27.08	27.18	45.95
Giro Commercial Bank	27.81	27.69	26.25	24.87	23.35
Fidelity Commercial Bank	18.51	18.48	15.17	17.49	14.55
Guardian Bank	17.97	17.29	18.23	19.36	19.36
Victoria Commercial Bank	19.84	25.09	21.99	27.37	23.02
First Community Bank	14.80	15.75	14.19	14.43	18.71
Habib A.G. Zurich	33.16	56.91	37.48	60.95	67.30
K-Rep Bank	21.40	21.52	19.77	21.61	444.92
Trans-National Bank	31.38	38.68	46.87	70.62	71.64
Paramount Universal Bank	41.84	47.52	53.96	47.44	34.04
Habib Bank Ltd	49.27	42.09	33.58	41.72	64.78
Credit Bank	26.61	30.75	30.02	37.58	33.38
Oriental Commercial Bank	30.41	30.16	35.28	35.99	40.31
Middle East Bank	36.26	40.26	43.58	52.53	50.64
Jamii Bora Bank	83.56	83.59	110.47	100.00	94.28
UBA Kenya Bank	46.90	72.63	70.02	81.40	270.39
Dubai Bank	17.19	46.34	36.46	35.68	27.83