

**THE EFFECTS OF LENDING RATE POLICY ON THE LOAN PORTFOLIO OF
COMMERCIAL BANKS IN KENYA**

BY

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DECLARATION

I declare that this research project is my original work and has never been submitted for a degree in any other university or college for examination/academic purposes.

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

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DEDICATION

I dedicate this research project to the Almighty God for His grace, mercy and blessings that have seen me through.

To my parents, Mr. and Mrs. Mwiroti, for their sacrifice that gave me a sound foundation that has enabled me to go all the way. To my wife, Dorcas, and daughter, Alyssa, who encouraged me whenever I felt like giving up.

ABSTRACT

The purpose of this study was to investigate the effects of the lending rate policy on the loan portfolio of commercial banks in Kenya. The lending rate policy was measured by the average annual lending rate of the selected commercial banks. Loan portfolio was composed of the annual average of total loans and advances, loan accounts and nonperforming loans.

The study employed a quantitative survey design. Secondary data was collected from the audited financial reports of sampled commercial banks for the period between 2002 and 2011. The data was analyzed using SPSS and the findings were presented in bar charts and tables. The techniques of data analysis included descriptive statistics, correlation analysis, regression analysis and test of autocorrelation.

The results of the data analysis indicated that the lending rates had a positive correlation with total loans and advances, total loan accounts and total nonperforming loans. However, only the nonperforming loans had a significant relationship with the lending rates. The main conclusion was that the high nonperforming loans portfolio in the Kenyan commercial banks is as a result of the increasing lending rates occasioned by the increases in the CBR and the high exchange rates. The coefficient of determination indicated that the empirical model had a deficiency of 21.98%. The researcher recommends that commercial banks come up with policies and models that would allow them to reflect the changes in CBR, foreign exchange rates and any other inherent risks in the lending business. Finally, the researcher suggests that a similar study be carried out targeting MFIs to get their perspective of the effect of lending rates on their loan portfolio.

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LIST OF ABBREVIATIONS

ATMs	Automated Teller Machines
BEPS	Banking Environment and Performance Survey
CAPM	Capital Asset Pricing Model
CBR	Central Bank Rate
EBRD	European Bank for Reconstruction and Development
LPM	Loan Portfolio Management
MFI	Micro Finance Institutions
MPT	Modern Portfolio Theory
MSE	Medium and Small Enterprises

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The loan portfolio is typically the largest asset and the predominate source of revenue. Lending is one of the main activities of banks in Kenya and other parts of the world as evidenced by the volume of loans that constitute banks assets and the annual substantial increase in the amount of credit granted to borrowers in the private and public sectors of the economy. According to Krishnan, Ritchken and Thomson (2003), lending is the principal business for most commercial banks. Loan portfolio is therefore typically the largest asset and the largest source of revenue for banks through interest income earnings, which assets are considered the most valuable assets of banks. On the contrary, it is one of the greatest sources of risk to a bank's safety and soundness (Caprio, and Klingebiel, 1996). Whether due to tax credit standards, poor portfolio risk management, or weakness in the economy, loan portfolio problems have historically been the major cause of bank losses and failures. Effective management of the loan portfolio and the credit function is fundamental to a bank's safety and soundness. Loan portfolio management (LPM) is the process by which risks that are inherent in the credit process are managed and controlled.

Effective loan portfolio management is crucial to controlling credit risk. In order to control risk, however, a bank must know the types and levels of credit risk in its portfolio. Lending rate policy reviews are important tools which can help banks identify this risk. Loan policy review provides an assessment of the overall quality of a loan portfolio (Fofack, 2005). Specifically, loan policy review: assesses individual loans, including repayment risks; determines compliance with lending procedures and policies; identifies lapses in documentation; provides credit risk

management priority findings; recommends practices and procedures to address findings and for banks that risk-rate their loans, a loan review evaluates risk grades and their accuracy. Reviewing of a bank's lending policy therefore determines a bank's risk appetite, and determines the quality and quantity/volume of the portfolio.

Financial institutions are exposed to a variety of risks among them; interest rate risk, foreign exchange risk, political risk, market risk, liquidity risk, operational risk and credit risk (Schuermann and Yusuf, 2003; Cooperman, Gardener and Mills, 2000). In some instances, commercial banks and other financial institutions have approved decisions that are not vetted; there have been cases of loan defaults and nonperforming loans, massive extension of credit and directed lending. Policies to minimize on the negative effects have focused on the review of lending policies.

1.1.1 The Concept of Loan Portfolio, Lending Rate Policy and Lending Policy Reviews

A loan portfolio is the total of all loans held by a bank or finance company on any given day. This can basically be measured using two variables; the portfolio quality and the quantity/volume. Loan portfolio management (LPM) is the process by which risks that are inherent in the credit process are managed and controlled. Because review of the LPM process is so important, it is a primary supervisory activity. Assessing LPM involves evaluating the steps bank management takes to identify and control risk throughout the credit process. The assessment focuses on what management does to identify issues before they become problems. For decades, good loan portfolio managers have concentrated most of their effort on prudently approving loans and carefully monitoring loan performance. Effective loan portfolio management begins with oversight of the risk in individual loans. Prudent risk selection is vital to maintaining favorable loan quality.

A lending rate policy is a bank's statement of its philosophy, standards, and guidelines that its staff must observe in granting or refusing a loan request. These policies determine which sector of the industry or business will be approved loans and which will be avoided, and must be based on the relevant government laws and regulations. It also determines the amount of exposure that a bank is willing to take. Bank lending rate policy provides the foundation for sound loan portfolio management whose basic objectives are: Made on a sound and collectible basis; profitable for shareholders and provide protection for depositors and finally the policy serves the need of the community (www.worldbank.org). It is further discussed by the World Bank that a lending rate policy should contain general outline of scope and allocation of credit; should be broad and not overly restrictive; should have flexible rules and provide for presentation of loans staff believes that are worthy of consideration which may or may not be in scope of the policy.

Lending rate policy reviews refers to the conscious and continuous process of amending a bank's lending philosophy, standards and guidelines that are used to determine who can access credit and who cannot, based on the existing interest rates, laws and regulations. The reviews are crucial in light of the constantly changing dynamics in terms of technology, market changes, competition and the regulatory environment (Muntiri, 2010). Loan review also referred to as credit review is the follow-up monitoring of a loan or extension of credit by a senior loan committee, bank auditor, or regulatory agency. Credit review is intended to determine whether the loan was made in accordance with the lender's written credit standards and in compliance with banking regulations. Missing documentation or signatures on loan documents, if detected by the credit review process, can then be corrected by the lending officer, thus preventing deterioration in credit quality and possible loss (<http://www.allbusiness.com>). Assessing Loan Portfolio involves evaluating the steps bank management takes to identify and control risk

throughout the credit process. The assessment focuses on what management does to identify issues before they become problems.

The factors that determine a bank's lending composition include among others: The legal environment in which banks operate. The "lending infrastructure of a country" (Berger and Udell, 2006) determines which lending technologies can be used and therefore to what extent banks are limited to certain types of lending. An important part of this infrastructure includes the commercial and bankruptcy laws that determine banks' creditor rights and their enforcement by the courts. Legal institutions may thus affect the composition of bank lending. For instance, asset-based lending technologies, where the value of collateral is more important than the financial ratios of the borrower, are used by many large banks to lend to opaque borrowers (Berger and Udell, 2006).

Bank ownership; domestic banks and foreign banks may focus on different customer types if they have access to different sorts of client information and process this information differently. Domestic banks tend to have a deep understanding of local businesses and base their lending decisions on the 'soft' qualitative information that is available on local and smaller firms with whom they develop long-term relationships (Berger and Udell, 2002; Petersen and Rajan, 2002). Such relationships also enable banks to collect information about borrowers' capacity to repay, thus reducing the cost of providing credit. Foreign banks may have difficulties in processing soft information. They often grant loans on a transaction-by-transaction basis using standardized decision methodologies. Such methods to assess creditworthiness tend to use 'hard' information like financial ratios calculated on the basis of financial statements (Berger *et al.*, 2001). Foreign banks that lack local knowledge may therefore mainly grant credit to large and foreign-owned firms, which tend to be more transparent than local SMEs (De Haas and Naaborg, 2006).

Bank size; The reasoning is similar to the ownership argument. Large banks may have a comparative advantage in lending to large customers as they can exploit scale economies in evaluating the hard information that is available on such customers (Berger and Udell, 2006). Small banks, however, may not be able to lend to large companies because of size limitations. They are, for instance, more constrained by regulatory lending limits. Small banks may also have a comparative advantage in processing soft information on borrowers (Giannetti & Ongena, 2008).

The lending policy regime; This forms an integral part of the LPM process. Its importance and content dictate the need to maintain a high standard of quality and a high degree of efficiency in preparation. Lending policy should be written to provide information and support to the current lending structure, thus minimizing any change to established standardized procedures while at the same time responding to changes in the environment like market dynamics, technology, and regulatory environment.

Lending rate policy reviews are done with the following three basic objectives in mind: to grant loans on a sound and collectible basis (portfolio quality); to invest the bank's funds profitably (volumes) for the benefit of shareholders and the protection of depositors and to serve the legitimate credit needs of their communities (Elton and Gruber, 1995). The loan review assesses loan quality at a specific point in time. This point is called the focal date. Depending on the sample reviewed, a review team may detect trends for a type of loan such as a specific industry or loan size. Financial institutions use loan reviews to: identify issues, and learn what modifications can be made to lending procedures, policies, and practices to address those issues. Financial institutions that fail to address problems early are prone to suffering from systemic weaknesses which can lead to deterioration in portfolio quality, thus reducing profitability and sustainability (Giannetti and Ongena, 2008).

If a financial institution's risk grades are used to determine its loan loss reserve, another important element of a loan review is the evaluation of the risk grades of individual loans. Additionally, if the loan review is conducted by an independent party, it can be particularly helpful in assessing incidences of fraud and theft that can directly affect the financial institution's bottom line.

1.1.2 Lending Rate Policy Reviews and Loan Portfolio-Theoretically Expected Relationship

In the wake of the credit crunch, banks realized that retail operations form an important source of funding for the asset side of the balance sheet. Loan products and increasing deposit size becomes the go to mark. In order to achieve this, it was necessary that commercial banks review their lending rate policies to reduce their exposure. The cost of financial intermediation has increased as evidenced by an increase in the cost resulting from higher capital costs and loan losses. The efficiency of the banking sector can be severely compromised by NPLs because of the huge losses involved. Ernst and Young (2004) established that probability of an uncertain loan becoming nonperforming is extremely costly to the banking system effectively impacting the efficiency of the banking sector. To improve their loan portfolio, commercial banks have been reviewing their loan policies in order to take into account the changes in the operating environment. This consequently influences the quantity and the quality of loans issued by commercial banks.

According to Munyiri (2010) lending rate policies affects the performance of commercial banks in Kenya by affecting the main source of income which is lending. A stringent lending rate policy would mean a bank is willing to take minimal risk and thus base their returns on maintaining the lowest loss rates from the portfolio. In this case the portfolio is expected to be small but devoid of losses in terms of nonperforming loans and provisions. This will relate to the portfolio quality. On the other hand a bank may decide to have a lax lending rate policy thus

allowing more people to be able to access credit. In this case, the players will expect to make their returns from the huge numbers of advances which will cover up for any possible losses due to the huge number of loans and advances. This brings in the volume aspect of the portfolio which is also determined by the lending rate policy.

1.1.3 Banking Sector in Kenya

As at 31st December 2011, the banking sector comprised of the Central Bank of Kenya, as the regulatory authority, 44 banking institutions (43 commercial banks and 1 mortgage finance company - MFC) and 4 representative offices of foreign banks. Out of the 44 banking institutions, 31 locally owned banks comprise 3 with public shareholding and 28 privately owned while 13 are foreign owned. The foreign owned financial institutions comprise of 9 locally incorporated foreign banks and 4 branches of foreign incorporated banks (Kithinji, 2011).

1.2 Statement of the Problem

Commercial banks adopt different credit risk management policies majorly determined by; ownership of the banks (privately owned, foreign owned, government influenced and locally owned), credit policies of banks, credit scoring systems, banks regulatory environment and the caliber of management of the banks. Banks may however have the best credit management policies but may not necessarily record high profits. In addition there are industry standards on what is a good credit policy and what is not and further banks have different characteristics. The market may thus be seen to regard an individual banks' poor performance more lenient when the entire banking sector has been hit by an adverse shock such as a financial crisis. Banks may be forced to adjust their credit policy in line with other banks in the market where a herding behavior is practiced by banks (Central Bank of Kenya, 1997).

Banking is both a risk-taking and profit-making business, and bank loan portfolios should return profits commensurate with their risk. Although this concept is intellectually sound and almost universally accepted by bankers and researchers alike, banks have had difficulty implementing it. Over the years, volatility in banks' earnings usually has been linked to the loan portfolio. While there are many contributing factors including market forces, anxiety for income, poor risk measurement, and weak risk management, a common underlying factor has been banks' tendency to underestimate or under price credit risk. Because bank managements and boards are responsible for serving their communities, achieving acceptable shareholder returns, and protecting the interests of depositors, they need to ensure that the loan portfolio provides consistent, reasonable returns. Individual credits and portfolio segments should be priced to provide reasonable shareholder returns while maintaining adequate capital and allowance levels. It is for this reason that this study aims at investigating the effects of commercial banks' lending policy reviews on the loan portfolio of commercial banks in Kenya.

Several studies had been done on the subject of lending policies and loan portfolios. Mokogi (2003) studied the economic implications of lending of Microfinance Institutions (MFI) on Medium and Small Enterprises (MSEs) in Kenya. He established that the lending of MFI to MSEs had led to economic growth. Anangwe (2004) did a study on the lending practices of financial institutions to the agricultural sector in Kenya. Anangwe established that financial institutions relaxed their lending policies to extend their lending and expand their market share. Kiniti (2006) studied lending rates determination in Kenya using a standard model. Kiniti established that treasury bills had the greatest influence on lending rates, followed by the interbank rate. Wanjohi (2008) studied the extent of use of financial statement analysis in corporate lending among commercial banks in Kenya. Commercial banks analyzed the loan applicants' financial statements especially the Small and Medium Enterprises which did not have

enough collateral to secure the loan. Otieno (2009) did an empirical study of the relationship between central bank rate (CBR) and commercial bank lending rates in Kenya. However, during the study period, there were little fluctuations on the CBR thus not much variation in the lending rates were directly linked to the CBR. Munyiri (2010) studied lending policies and their effects on performance of commercial banks in Kenya. Munyiri did not include lending policy reviews and how they affect loan portfolio. From the above discussion, it is clear that more research needs to be done to establish the effects of commercial banks' lending policy reviews on the loan portfolio. This study therefore sought to fill this research gap by establishing the effects of commercial banks' lending rate policy reviews on the loan portfolio of commercial banks in Kenya.

1.3 Objective of the Study

The objective of this study was to investigate the effects of commercial banks' lending rate policy on the loan portfolio of commercial banks in Kenya.

1.4 Value of the Study

This study is expected to be valuable to the following stakeholders. The management of commercial banks in Kenya would find the results of this study intriguing as a source of information on the effects of commercial banks' lending policy reviews on the loan portfolio. Proper insight would give them an added advantage in managing their credit. In addition, the findings of this study will help the managers in formulating relevant credit policies that improve credit management of the banks and reduce the level of nonperforming loans.

The policy makers would obtain knowledge of the loan portfolio and the possibly lending policy reviews that will enhance proper credit risk management and reduce loan defaulting and

nonperforming loans. The findings of this study would be important in formulation of policies regarding the monetary policies and money circulation in the country.

The study would provide information to potential and current scholars on the effects of commercial banks' lending policy reviews on the loan portfolio in Kenya this would expand their knowledge on in this field and even suggest areas for further research. The study will also suggest areas for further research where future scholars can research on. This study therefore will be important in guiding future researchers and scholars.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section draws on literature in the area of lending policy reviews and loan portfolio. Secondary material such as books, journals, and articles which carry previous research work on the study topic are analyzed. The material is of importance to this study as it forms a basis for observations which will be made during the study in line with the study objective.

2.2 Theoretical Framework

2.2.1 Modern Portfolio Theory (MPT)

Modern Portfolio Theory (MPT) is a theory of investment which 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 MPT 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 assumptions of MPT have been widely challenged by fields such as behavioral economics (Sharpe, William 1964). MPT 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. In conventional portfolio theory one typically seeks to minimize

portfolio variance for a given expected portfolio return (Markowitz, 1991; Elton and Gruber, 1995). The centerpiece of this theory is the Capital Asset Pricing Model (CAPM) devised by Markowitz (1952). In spite of criticisms and ongoing concerns about its validity and testability, concepts in CAPM such as efficient frontier, security market lines, asset "betas" and so-on are still considered relevant and important in the selection and management of portfolios of assets. The key assumptions of Markowitz's Modern Portfolio Theory (MPT) (Markowitz, 1952) theory are that asset returns are normally distributed and that investors face a risk-return trade-off. It is widely accepted that most asset returns are non-normally distributed and this can be seen in the extreme tail risks as witnessed in the financial crisis during the credit crunch. Such events are not covered adequately by a normal distribution function. In the property industry, most portfolio optimization practices ignore the normality assumption of asset returns. To complicate matters further, the short time series of property returns data further compromises the stability of the estimated returns and covariance matrix. In portfolio literature such issues are referred to as estimation errors. Such deficiencies in the optimization methodology could provide statistically incorrect outputs, i.e. portfolio weights. The appeal of this paper is that it works around these shortcomings rather than ignoring them altogether.

More technically, MPT models an asset's return as a normally distributed (or more generally as an elliptically distributed random variable), defines risk as the standard deviation of return, and models 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, MPT seeks to reduce the total variance of the portfolio return. MPT also assumes that investors are rational and markets are efficient. MPT was developed in the 1950s through the early 1970s and was considered an important advance in the mathematical modeling of finance. Since then, many theoretical and practical criticisms have been leveled

against it (Harrel and Kiefer, 1993). These include the fact that financial returns do not follow a Gaussian distribution or indeed any symmetric distribution, and that correlations between asset classes are not fixed but can vary depending on external events (especially in crises).

Since von Neumann and Morgenstern (1944), many researchers have tried to model portfolio optimization problems within an expected utility maximization framework. Different utility functions have been used in this approach, and the most notable recent works in this area are those of Long (1990) and Luenberger (1993), where log optimal portfolios are constructed and analyzed. Single period portfolio optimization theory was initially developed by Markowitz (1952), where he introduced mean variance portfolio optimization and efficient portfolio theory, which also led to the one fund theorem of Tobin (1958). However, these single period models were not sufficient to reflect the real financial world which is dynamically changing over time, and different approaches have been devised to solve multi-period portfolio selection problems.

Merton has used stochastic control theory with continuous time dynamics to model multi period portfolio optimization problems by reducing the problem into solving Hamilton-Jacobi-Bellman equations. His most important contributions include the two papers: Merton (1969) and Merton (1971). Since then, a lot of literature has been produced in expanding the model and applying stochastic control theory in finance. Some of the important works in this field are summarized in Merton (1990).

The theories in stochastic calculus have also been used extensively in solving different problems in finance. This method has led the development in asset pricing theory, but it has also been introduced to the portfolio optimization world by Karatzas, Lehoczky, and Shreve (1987) ..

There are other works that are focused on adding different constraints to above models, and on adding transaction costs due to rebalancing. A good reference in reviewing literature in this area

as well as models that are not based on expected utility maximization is Rabin and Thaler (2001).

2.2.2 Expected Utility Theory

It is logical that the explanations rooted in human and social psychology would hold great promise in advancing our understanding of stock market behavior. More recent research has attempted to explain the persistence of anomalies by adopting a psychological perspective. Evidence in the psychology literature reveals that individuals have limited information processing capabilities, exhibit systematic bias in processing information, are prone to making mistakes, and often tend to rely on the opinion of others. Rabin and Thaler (2001) discusses the explanation of risk aversion in the expected utility theory is not plausible by providing examples of how the theory can be wrong and misleading. They call for a better model of describing choice under uncertainty. It is now widely agreed that the failure of expected utility theory is due to the failure to recognize the psychological principles governing decision tasks.

2.2.3 Relationship Portfolio Concepts

The relationship theories have been contributed by many management scientists. Fiocca (1982) explaining various factors associated with the customer buying behavior and supplier relationships. Campbell and Cunningham (1983) proposed a synchronized analysis of portfolio strategy for marketing management. The following text reviews their contributions along with other contributors.

Fiocca (1982) suggests a number of mechanisms for assessing the proposed axes: "Difficulty in managing the customer" is a function of the level of competition for the customer, customer buying behavior and the characteristics of the product bought by the customer. "Strategic

importance" is determined by the value/volume of purchases, the potential and prestige of the customer, customer market leadership, and the overall desirability to the supplier in making strategic improvements and adaptation to customer specifications. The strength of supplier/customer relationships is again measured by applying a mix of objective, judgmental or subjective factors that include: length of relationship; importance of the customer; friendship; co-operation in product development; and social distance.

Customer profitability was calculated by taking the revenue from that customer (gross value of sales minus the commission paid) and subtracting from it direct costs, pseudo-direct costs (the costs that could be attributed to groups of similar customers and therefore apportioned accordingly) and indirect costs. When the profitability of each customer was calculated it was found that about 20 per cent of customers accounted for 80 per cent of profits. Perceived strength of the relationship was calculated using the variables: technical ability, experience, pricing requirements, speed of response, frequency of contact, degree of cooperation, trust, length of relationship, friendship and management distance (frequency of contact). Their analysis of two key customers showed that while both were profitable, the company was currently not supplying even half of the customers' requirements and could potentially significantly increase its own net revenues. A criticism of the Fiocca model put forward by Yorke and Droussiotis (1994) is that it does not recognize the importance of considering customer profitability. It simply assumes that different cells can be associated with different levels of profitability.

Reviewing back, Campbell and Cunningham (1983) proposed a three-step portfolio analysis strategy for marketing management. Using the case study of a major packaging supplier, they suggest a three-step analysis using two variables at each stage. The first step focuses on the

nature and attractiveness of the customer relationship using customer life cycle stage on one axis and various customer data on the other.

2.2.4 Customer-Supplier Relationship Theories

The conceptual issues in customer-supplier relationships have been led by Shapiro *et al.* (1987) and Krapfel *et al.* (1991). Besides, Turnbull and Zolkiewski (1997) have also contributed to these theories subjecting towards appropriate tests. Shapiro *et al.* (1987) in developing a customer classification matrix focus on customers as profit centers. Three variables – costs to serve suppliers, customer behavior and management of customers – were used to investigate the profit dispersion of the customer portfolio. Four types of costs – presale, production, distribution and post-sale service costs – were used to define the cost to serve axis. Combining this calculation with the net price charged they found that such analysis identified a wide range of profit margins both by customer and type of product sold.

Shapiro *et al.* (1987) suggest that while many suppliers believe that if they analyze the breakdown of their accounts, most accounts will fall into the “carriage trade” and “bargain basement” quadrants. Yet, when analysis is actually performed, it will usually show that over half a suppliers' accounts fall into the “passive” and “aggressive” quadrants. They contend that “Four aspects of the customer's nature and position affect profitability: customer economics, power, the nature of the decision-making unit, and the institutional relationship between the buyer and seller” (Shapiro *et al.*, 1987). They further developed the approach and demonstrated that the grid can be successfully used to segment customers in mature industrial markets. Turnbull and Zolkiewski (1997) also tested this matrix using the case study of a UK-based computer systems house and identified a scatter of customer projects across the matrix.

Krapfel *et al.* (1991) define relationship value as a function of four factors: criticality, quantity, substitution and slack. They also use a portfolio approach to analyze customer-supplier relationships and propose a relationship classification matrix based on the concepts of "relationship value" and "interest commonality".

2.2.5 Value-Based Portfolio Model

This model analyzes optimal portfolio choice and consumption with values management in the organization-supplier-customer triadic relationship. The value concept in the above relationship governs the customer portfolio decision in terms of formulation of recursive utility over time. It shows that the optimal portfolio demand for products under competition varies strongly with the values associated with the brand, industry attractiveness, knowledge management and ethical issues of the organization. The extent of business values determines the relative risk aversion in terms of functional and logistical efficiency between the organization and supplier while the switching attitude may influence the customers if the organizational values are not strong and sustainable in the given competitive environment. The model assumes that a high functional value integrated with the triadic entities would raise the market power of the organization, sustain decisions of customer portfolios and develop long-run relationships thereof. The customer value concept is utilized to assess product performance and eventually to determine the competitive market structure and the product-market boundaries (Campbell and Cunningham 1983).

The value based portfolio model explains that the value based customer portfolios would enhance the customer value as the product efficiency viewed from the customers' perspective, i.e. as a ratio of outputs (e.g. resale value, reliability, safety, comfort) that customers obtain from a product relative to inputs (price, running costs) that customers have to deliver in exchange. The

derived efficiency value can be understood as the return on the customer's investment. Products offering a maximum customer value relative to all other alternatives in the market are characterized as efficient. Market partitioning is achieved endogenously by clustering products in one segment that are benchmarked by the same efficient peer(s) Turnbull and Zolkiewski (1997). This ensures that only products with a similar output-input structure are partitioned into the same sub-market. As a result, a sub-market consists of highly substitutable products.

2.3 Measurement of Loan Portfolio

Effective loan portfolio management begins with oversight of the risk in individual loans. Prudent risk selection is vital to maintaining favorable loan quality. Therefore, the historical emphasis on controlling the quality of individual loan approvals and managing the performance of loans continues to be essential (Funso, Kolade and Ojo, 2012). But better technology and information systems have opened the door to better management methods. A portfolio manager can now obtain early indications of increasing risk by taking a more comprehensive view of the loan portfolio.

The model adopted by Funso, Kolade and Ojo (2012) underpinned to the model of Kargi (2011) in his study "Credit Risk and the Performance of Nigerian Banks" which measured profitability with Return on Asset (ROA) as a function of the ratio of Non-performing loan to loan & Advances (NPL/LA) and ratio of Total loan & Advances to Total deposit (LA/TD) used as indicators of credit risk. However, the study improved on the model by incorporating the ratio of loan loss provision to classified assets (LLP/CL) as a measure for credit risk.

2.4 Empirical Evidence

Various empirical studies confirm that loan portfolio constitutes a large proportion of the assets in most commercial banks is relatively illiquid and exhibits the highest credit risk (Koch and MacDonald, 2000). The largest source of risk for any financial institution resides in its loan portfolio. Loan portfolio is ideally expected to be the schemes' largest asset. It should also be noted that since most small firms financing is not supported by bankable collateral, the quality of the loan portfolio is absolutely crucial (Koch and MacDonald, 2000).

Lending is the principal business activity for most commercial banks. The loan portfolio is typically the largest asset and the predominate source of revenue (Morsman, 2003). As such, it is one of the greatest sources of risk to a bank's safety and soundness. Whether due to lax lending policies, poor portfolio risk management, or weakness in the economy, loan portfolio problems have historically been the major cause of bank losses and failures. Effective management of the loan portfolio and the credit function is fundamental to a bank's safety and soundness.

For decades, good loan portfolio managers have concentrated most of their effort on prudently approving loans and carefully monitoring loan performance. Although these activities continue to be mainstays of loan portfolio management, analysis of past credit problems, such as those associated with oil and gas lending, agricultural lending, and commercial real estate lending in the 1980s, has made it clear that portfolio managers should do more (Von Stauffenberg, 2002). Traditional practices rely too much on trailing indicators of credit quality such as delinquency, nonaccrual, and risk rating trends. Banks have found that these indicators do not provide sufficient lead time for corrective action when there is a systemic increase in risk.

Ralph De Haas, Daniel Ferreira and Anita Taci (2009) did an empirical study on the determinants of the composition of banks' loan portfolios with evidence from transition countries. In this study Taci *et al.* (2009) explores how bank characteristics and the institutional environment influence the composition of banks' loan portfolios. They used a new and unique data set based on the European Bank for Reconstruction and Development, London, United Kingdom (EBRD) Banking Environment and Performance Survey (BEPS), which was conducted for 220 banks in 20 transition countries. Taci *et al.* (2009) revealed that bank ownership, bank size, and legal creditor protection were important determinants of the composition of banks' loan portfolios. In particular, they found that foreign banks played an active role in mortgage lending. Moreover, banks that perceived pledge and mortgage laws to be of high quality chose to focus more on mortgage lending. The information gathered from the BEPS survey allows Taci *et al.* (2009) to disentangle these determinants and see which ones matter the most for portfolio composition in practice. To do so, they estimated four types of regressions for each dependent variable. They started with an OLS regression with errors clustered by country and an OLS regression with country fixed effects. Both variants were more conservative than standard OLS because they corrected for the fact that observations from the same country were likely to have a common component to their error term.

Effective loan portfolio management begins with oversight of the risk in individual loans. Prudent risk selection is vital to maintaining favorable loan quality. Therefore, the historical emphasis on controlling the quality of individual loan approvals and managing the performance of loans continues to be essential. But better technology and information systems have opened the door to better management methods. A portfolio manager can now obtain early indications of increasing risk by taking a more comprehensive view of the loan portfolio (Wyman, 2000).

To manage their portfolios, bankers must understand not only the risk posed by each credit but also how the risks of individual loans and portfolios are interrelated. These interrelationships can multiply risk many times beyond what it would be if the risks were not related. Until recently, few banks used modern portfolio management concepts to control credit risk. Now, many banks view the loan portfolio in its segments and as a whole and consider the relationships among portfolio segments as well as among loans. These practices provide management with a more complete picture of the bank's credit risk profile and with more tools to analyze and control the risk (Athanasoglou et al, 2005).

Tadeo Andrew Satta (2006) did a study on Performance evaluation of three small firms' financing schemes in Tanzania. The purpose of this paper was to shed light on performance evaluation of small firms' financing schemes with a view to assessing their potential for improving small firms' access to finance. An integrated methodology based on five commonly used methodologies was formulated to evaluate the performance of the three small firms financing schemes. This integrated methodology used a number of selected performance indicators that included the following: Portfolio quality which is the largest source of risk for any financial institution. Loan portfolio is ideally expected to be the schemes' largest asset. It should also be noted that since most small firms financing is not supported by bankable collateral, the quality of the loan portfolio is absolutely crucial. Three accounting ratios were used to measure portfolio quality including: portfolio at risk (PQ_1) which measures the portion of the loan portfolio "contaminated" by arrears (opa) as a percentage of the total portfolio (pop) where the desired level is less than 10 per cent; risk coverage (PQ_2) which shows what proportion of the portfolio at risk (par) is covered by actual loan losses (all) where the rate could be as high as 90 per cent (Jansson, 2002); and amount of loans written off ratio (PQ_3) which represents the

amount of loans that a scheme has removed from its books because of a substantial loss (*vll/agp*) where a maximum of 4 per cent is envisaged (Saltzman and Salinger, 1998).

Kargi (2011) evaluated the impact of credit risk on the profitability of Nigerian banks. Financial ratios as measures of bank performance and credit risk were collected from the annual reports and accounts of sampled banks from 2004-2008 and analyzed using descriptive, correlation and regression techniques. The findings revealed that credit risk management has a significant impact on the profitability of Nigerian banks. It concluded that banks' profitability is inversely influenced by the levels of loans and advances, non-performing loans and deposits thereby exposing them to great risk of illiquidity and distress. Epure and Lafuente (2012) examined bank performance in the presence of risk for Costa-Rican banking industry during 1998-2007. The results showed that performance improvements follow regulatory changes and that risk explains differences in banks and non-performing loans negatively affect efficiency and return on assets while the capital adequacy ratio has a positive impact on the net interest margin.

Kithinji (2010) assessed the effect of credit risk management on the profitability of commercial banks in Kenya. Data on the amount of credit, level of non-performing loans and profits were collected for the period 2004 to 2008. The findings revealed that the bulk of the profits of commercial banks are not influenced by the amount of credit and non-performing loans, therefore suggesting that other variables other than credit and non-performing loans impact on profits.

Ngene (2002) did an empirical investigation into portfolio performance measures by pension fund managers and the challenges they face in portfolio management in Kenya. They found out that many investors mistakenly base the success of their portfolios on returns alone. Few consider the risk that they took to achieve those returns. Also, Maina (2003) carried out a

research on the risk based capital standards and the riskiness of bank portfolios in Kenya. Mbote (2006) did a research on the relationship between the type of mortgages and the level of non-performing loan portfolio in the mortgage companies in Kenya. Kenya due to poor loan portfolio procedures that affected their financial performance (Waweru and Kalani, 2009). They argued that portfolio models, although not frequently used in management, can indeed be adapted by commercial institutions and other organizations in the sector to establish a sustainable financial performance. Maithulia, (1995) did an empirical investigation of commercial banks in Kenya portfolio diversification.

2.5 Chapter Summary

This chapter reviewed literature that has been done by various scholars in the field of portfolio management, credit risk management and lending policy. To achieve this, the chapter looked at the theories on which the study is built: Modern Portfolio Theory (MPT); Expected Utility Theory; Relationship Portfolio Concepts; Customer-Supplier Relationship Theories; Value-Based Portfolio Model. The study reviewed these theories and how they relate to the whole process of credit risk management among commercial banks. The study further looked at the measurement of loan portfolio quality where it considered the model adopted by Funso, Kolade and Ojo (2012) underpinned to the model of Kargi (2011) in his study “Credit Risk and the Performance of Nigerian Banks” which measured profitability with Return on Asset (ROA) as a function of the ratio of Non-performing loan to loan & Advances (NPL/LA) and ratio of Total loan & Advances to Total deposit (LA/TD) used as indicators of credit risk.

The study also looked at the empirical studies including: Ralph De Haas, Daniel Ferreira and Anita Taci (2009) on the determinants of the composition of banks’ loan portfolios with evidence from transition countries; Tadeo Andrew Satta (2006) on Performance evaluation of three small

firms' financing schemes in Tanzania; Kargi (2011) on the impact of credit risk on the profitability of Nigerian banks. Munyiri (2010) studied lending policies and their effects on performance of commercial banks in Kenya. Munyiri did not include lending policy reviews and how they affect loan portfolio. Kithinji (2010) on the effect of credit risk management on the profitability of commercial banks in Kenya; and Ngene (2002) on portfolio performance measures by pension fund managers and the challenges they face in portfolio management in Kenya. From the above discussion, limited studies have concentrated on credit policy reviews and portfolio performance. At the same time it is clear that apart from the traditional determinants of portfolio size and quality there seems to be some other factors that determine this (Kithinji 2010).

From the above discussion, it is clear that more research needs to be done to establish the effects of commercial banks' lending policy reviews on the loan portfolio. This study therefore seeks to fill this research gap by establishing the effects of commercial banks' lending policy reviews on the loan portfolio among commercial banks in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out various stages and phases that were followed in completing the study. The following subsections are included; research design, data collection instruments, and data collection procedures and data analysis.

3.2 Research design

The study used the quantitative survey research design. The values of the independent variables were correlated with the dependent variable through correlation analysis. The relationship between the independent variables with the dependent variable was established through regression analysis.

3.3 Population of the Study

Population in statistics is the specific population about which information is desired. According to Ngechu (2004) a population is a well defined set of people, services, elements, events, group of things or households that are being investigated. The target population for this study included 43 commercial banks transacting business in Kenya as at December 2011 (Appendix I).

3.4. Sample Size

A sample is a representative of the population. Stratified random sampling technique was used to group the population into three strata: 6 large commercial banks, 14 medium commercial banks and 23 small commercial banks. The researcher selected 2 large commercial banks(Equity Bank

Limited and Barclays Bank Kenya Limited), 5 medium commercial banks (Commercial Bank of Africa Kenya Limited, Diamond Trust Bank Kenya Limited, Citibank Kenya Limited, National Bank of Kenya Limited and Chase Bank Kenya Limited) and 8 small commercial banks (Fina Bank Kenya Limited, Consolidated Bank of Kenya Limited, African Banking Corporation Limited, Giro Commercial Bank Limited, Guardian Bank Limited, Transnational Bank Limited, Habib Bank Limited and Credit Bank Limited) to make a sample size of 15 commercial banks.

Table 3.4 Target Population and Sample Size.

Category	Population	Sample Size	Sample Proportion
Large	6	2	33%
Medium	14	5	33%
Small	23	8	34%
Total	43	15	100%

3.5 Data Collection

The researcher collected secondary data from commercial banks in Kenya. The records related to the loan portfolios for the period between 2002 and 2011. This period was significant since the level of competition increased considerably driven by the pressure on commercial banks to deliver double digit growth during the tough times. This period was also chosen because of the financial changes that occurred including: The global financial crisis during the year 2008-2009, post election violence in Kenya during the 2007/2008 period and high inflation that led to the Central Bank of Kenya raising its Central Bank Lending Rate (CBR). The researcher collected the average annual figures of the total loans and advances, total loan accounts and total nonperforming loans. The data was collected from published financial statements and risk manuals of the selected commercial banks.

3.6 Data Analysis

The researcher collected data on the total loans issued, number of loan accounts, the level of nonperforming loans and the lending rates. Data collected was presented using tables. The Statistical Package for Social Sciences was used to analyze the data. In order to determine the effects of commercial banks' lending rate policy on the loan portfolio, the researcher conducted a regression analysis using the following regression model: $Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + \epsilon$.

Where: Y = Lending rate policy (Y was measured by the average annual lending rate of the selected commercial banks)

B_0 = Constant

B_1 = Coefficient of Total Loans and Advances

X_1 = Total Value of Loans and Advances

B_2 = Coefficient of Number of Loan Accounts

X_2 = Total Number of Loan Accounts

B_3 = Coefficient of Total value of Non-performing Loans

X_3 = Total Value of Non-performing Loans

ϵ = Error term

The lending rate policy was the independent variable and was measured by the average lending rate of commercial banks. The total loans and advances, the number of loan accounts, and the number of non performing loans were the dependent variable. The data on above variables was collected from secondary sources contained in loan records and audited financial reports of the sampled commercial banks.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research methodology. The study findings are presented as an evaluation of the relationship between lending rates and the loan portfolio components including the total loans and advances, the number of loan accounts, and the number of non performing loans of the selected commercial banks in Kenya. The data analysis techniques include descriptive statistics, correlation analysis, regression analysis, coefficient of determination and test of autocorrelation.

4.2 Descriptive Statistics

The researcher used the SPSS to ascertain the descriptive statistics of the collected data (Appendix II) by establishing the minimum amount, maximum amount, mean and the standard deviation from the mean.

Table 4.2.1 Loan Portfolio Elements and Lending Rates Performance for the Period 2002-2011.

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Loans and Advances	10	1123000	1849050	1437246.1	208078.902
Loan Accounts	10	676453	1397650	1055998.8	214295.4049
Non Performing Loans	10	307950	758002	578771	148818.5316

Lending Rates	10	15.3	28.6	20.63	0.13482602
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Figure 4.2.1 Performance of Loan Portfolio Elements for the Period 2002 to 2011

The performance of the average total loans and advances, loan accounts and nonperforming loans for the period between 2002 and 2011 was represented in a line graph as shown below:

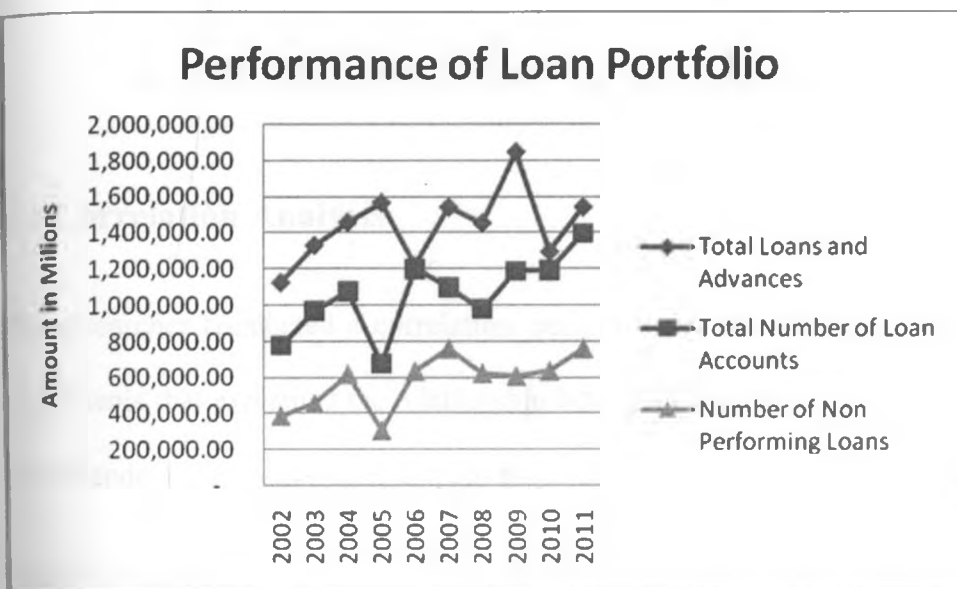
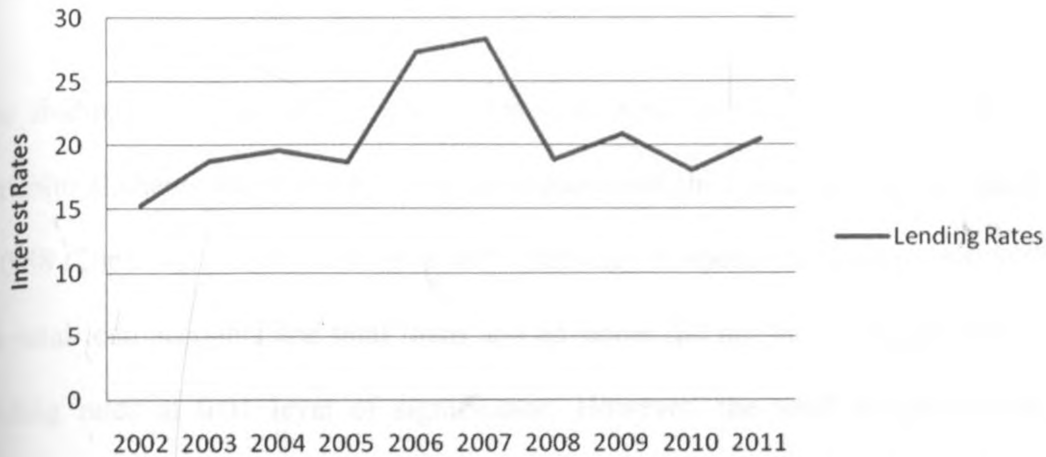


Figure 4.2.2 Performance of Lending Rates for the Period 2002-2011

The performance of the average lending interest rates of the sampled commercial banks for the period 2002-2011 was represented in a line graph as shown below:

Performance of Lending Rates



4.3 Correlation Analysis

The researcher conducted a correlation analysis using the SPSS and came up with correlation coefficients that explained the relationship between the independent variable (Lending Rate) and the dependent variables (loans and advances, loan accounts and nonperforming loans).

Table 4.3 Correlation between Loan Portfolio Elements and Lending Rates

Correlations		Lending Rates
Total Loan Accounts	Pearson Correlation	0.575276373
	Sig. (2-tailed)	0.081867681
Total Loans and Advances	Pearson Correlation	0.046320631
	Sig. (2-tailed)	0.898890746
Total Nonperforming Loans	Pearson Correlation	0.499655163
	Sig. (2-tailed)	0.00873775

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

The findings indicated that at the commercial banks during the period 2001-2011 the loan portfolio elements that had a positive correlation with the Lending Rates included loan accounts at 0.58 (2dp), loans and advances at 0.05 (2dp) and nonperforming loans at 0.50(2dp). Notably, the total loan accounts and total loans and advances did not have a significant correlation with lending rates at 0.01 level of significance. However, the total nonperforming loans had a significant correlation with the lending rate at 0.01 level of significance for the study period between 2002-2011.

4.4 Regression Analysis

In addition to the above analysis, the researcher conducted a multiple regression analysis so as to test relationship among the independent variables. The researcher applied the SPSS to aid in the computation of the measurements of the multiple regressions for the study.

Table 4.4.1 Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.975268811	0.951149254	0.780171641	0.063214335

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (lending rate) that is explained by all the three independent variables (total loans and advances, total loan accounts and total nonperforming loans).

The three independent variables that were studied, explained 78.02% (2dp) of the relationship between loan portfolio elements and lending rate policy of commercial banks in Kenya as represented by the R^2 . This therefore means that there are other factors not studied in this research which contributes 21.98% (2dp) of the relationship between the loan portfolio and lending rate policy at the commercial banks. Therefore, further research should be conducted to investigate these factors affecting 21.98% of the loan portfolio of commercial banks in Kenya.

Table 4.4.2 ANOVA Model

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	155.6103958	7	37.02223006	65.56300466	.001607906
	Residual	118.0079921	190	.623996052		
	Total	343.1636025	196			

From the ANOVA Model the analysis of variance and the ' F ' statistic (65.56) suggested that the model is fit and it is valid with the existing set of independent variables.

4.5 Coefficients of the Independent Variables

The researcher also conducted multiple regression analysis to establish the relationship between the independent variables and the dependent variable and the extent of impact that each independent variable had on the overall loan portfolio of the sampled commercial banks.

Table 4.5: Coefficients of Independent Variables

Coefficients		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	0.6047	0.5609		1.0387	0.7358
	Loan Accounts	0.4364	0.1571	0.6936	1.0278	0.8072
	Loans and Advances	0.2149	0.1081	0.3317	1.0268	0.8608
	Non Performing Loans	0.4741	0.2146	0.5721	2.9209	0.0084

In order to determine the relationship between lending rate policy and the three independent variables for the commercial banks, the researcher conducted a multiple regression analysis. As per the SPSS generated table 4.9, the equation ($Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + \epsilon$) becomes:

$$Y = 0.605 + 0.436 X_1 + 0.215 X_2 + 0.474 X_3 + 0.5609$$

Where Y is the dependent variable (lending rate), X_1 is the total loan accounts, X_2 is total loans and advances and X_3 is total nonperforming loans.

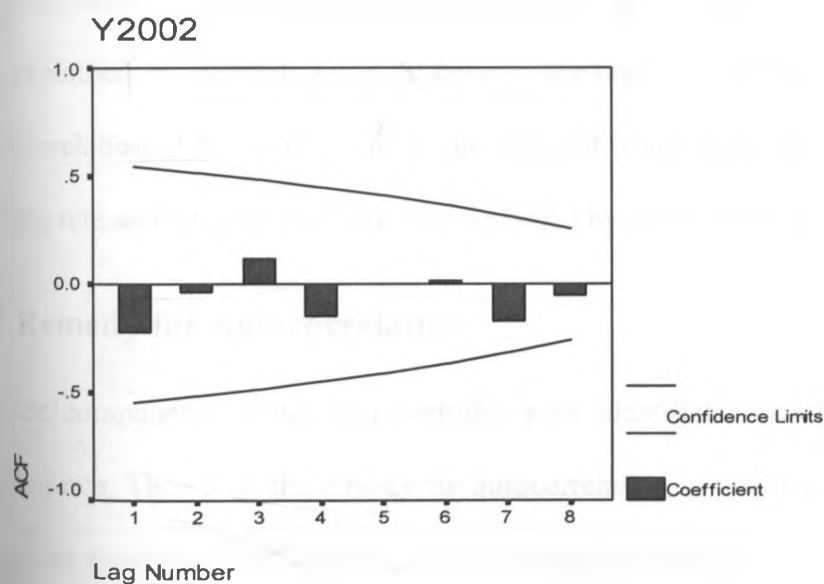
As per the regression equation, if all factors (total loan accounts, total loans and advances and total nonperforming loans) were taken into account and held at zero, the lending rate at commercial banks will be 0.6047. The data findings analyzed also showed that if all other independent variables were taken at zero, a unit increase in total loan accounts would lead to 0.436 unit increase in the lending rate at the commercial banks. Further, a unit increase in total loans and advances would lead to a 0.215 increase in lending rate at the commercial banks

whereas a unit increase in total nonperforming loans would lead to 0.474 increase in lending rate at the commercial banks. The results of the test showed that the coefficient estimates of all the independent variables were positive conveying the message that these three independent variables (loan accounts, loans and advances, nonperforming loans) were affected positively by the increase in the lending rates of commercial banks. From the above analysis of the coefficients, it could also be inferred that the lending rate had a significant effect on the nonperforming loans at 0.01 level of significance.

4.6 Test of Autocorrelation

Autocorrelation is a statistical method used for time series analysis. An auto-correlated time series is predictable, probabilistically, because future values depend on current and past values.

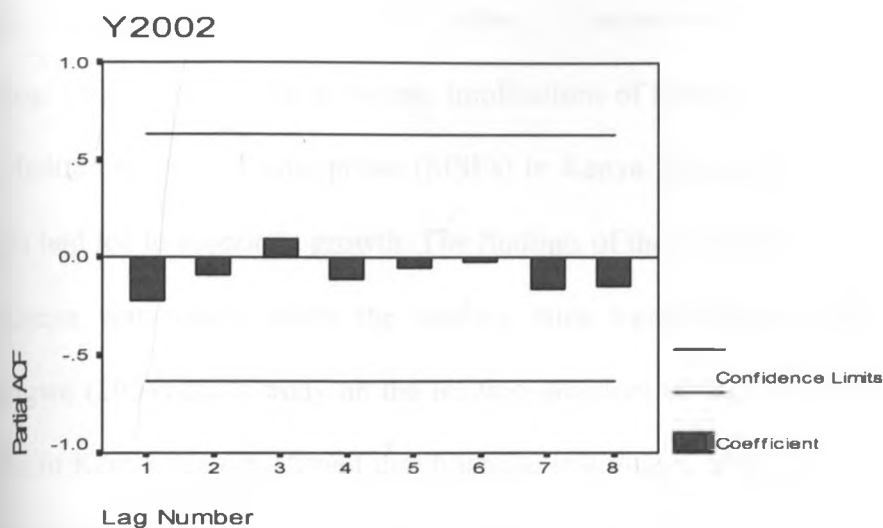
Figure 4.6.1 Test of Autocorrelation of Lending Rate Policy



The autocorrelation function was the tool used for assessing the autocorrelation of the Lending Rate at the sampled commercial banks. It was established that generally the lending rate had a negative autocorrelation. Therefore the lending rate was not predictable, probabilistically,

because future values did not depend on current and past values within the 10 year period (2002-2011).

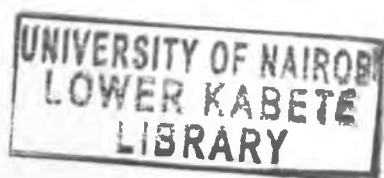
Figure 4.6.2 Partial Autocorrelation of Lending Rate Policy



A partial autocorrelation is the amount of correlation between a variable and a lag of itself that is not explained by correlations at all lower-order-lags. The findings indicated a negative partial autocorrelation of the lending rate at the sampled commercial banks. This indicated the level of lending rate and a lag of itself was not explained by correlations at all lower-order-lags.

4.7 Remedy for Autocorrelation

All the components of the loan portfolio were identified to be positively correlated with the lending rate. Therefore, the remedy for autocorrelation of lending rates at the commercial banks would be maintenance of a steady and predictable level of lending rates.



4.8 Discussion of Results

The results were discussed in relation to empirical studies and linkage of the findings to the established theories on portfolio management.

Many researchers in the past have studied the subject of lending policies and loan portfolios.

Mokogi (2003) studied the economic implications of lending of Microfinance Institutions (MFI)

on Medium and Small Enterprises (MSEs) in Kenya. He established that the lending of MFI to

MSEs had led to economic growth. The findings of the study indicated that the economic growth

in Kenya was lowest when the lending rates were highest among the commercial banks

Anangwe (2004) did a study on the lending practices of financial institutions to the agricultural

sector in Kenya. He established that financial institutions relaxed their lending policies to extend

their lending and expand their market share. This was confirmed by the drop in the interest rates

between 2008 and 2010 when commercial banks were engaged in fierce competition for clients

to rebuild the Kenya economy just after the post election violence of 2007-2008. Kiniti (2006)

studied lending rates determination in Kenya using a standard model. He established that

treasury bills had the greatest influence on lending rates, followed by the interbank rate. The

findings of the study confirmed that the lending rates relied heavily on the Central Banking Rate

and the two rates had a positive correlation. Munyiri (2010) studied lending policies and their

effects on performance of commercial banks in Kenya. This study furthered this research by

including lending rate policy reviews and has managed to ascertain the effects of the lending rate

reviews on the loan portfolio items like loan accounts, total loans and advances and total

nonperforming loans which has indicated that there generally exists a positive correlation but

only nonperforming loans have a significant correlation with the lending rate policy of

commercial banks.

Funso et al. (2012) held that effective loan portfolio management begins with oversight of the risk in individual loans. They also hold that prudent risk selection is vital to maintaining favorable loan quality. Therefore, the historical emphasis on controlling the quality of individual loan approvals and managing the performance of loans continues to be essential. The findings of this study have equally established that the lending rate policy has a significant correlation with the growth of the nonperforming loans book. Therefore, the tightening of the loan collection policy, the increase in doubtful loans provisions upon any increase in lending rates can be explained by this positive correlation.

Kargi (2011) holds that profitability of commercial banks is a function of the ratio of Non-performing loan to total loans and advances. This study confirms this theory by ascertaining that the increase in lending rate leads to increased nonperforming loans hence increases the credit risk and exposes the bank to losses on loan default.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides the summary of the findings from chapter four and also gives the conclusions and recommendations of the study based on the objective of the study which was to investigate the effects of commercial banks' lending rate policy on the loan portfolio of commercial banks in Kenya.

5.2 Summary of the Findings

This study established in the period between 2002-2011 the commercial banks in Kenya operated at an average lending of 15.3% which translated to average total loans and advances of Kes 1,437,246.10 , average total loan accounts of 1,055,998.80 and total nonperforming book of Kes 578,771 figures being in thousands.

The findings also indicated that commercial banks in Kenya during the period 2002-2011 had a positive correlation between the lending rates and loan portfolio elements (total loan accounts, total loan and advances and total nonperforming loans). However only the nonperforming loans had a significant correlation with the lending rate at 0.01 level of significance.

The coefficient of determination (R^2) indicated that the three independent variables that were studied, explained 78.02% of the relationship between loan portfolio elements and the lending rate policy of commercial banks in Kenya. The ANOVA model ' F ' statistic (65.56) suggested that the model was fit and valid with the existing set of independent variables. The resultant multiple regression equation was $Y = 0.605 + 0.436 X_1 + 0.215 X_2 + 0.474 X_6 + 0.5609$. Where Y

was the dependent variable (lending rate policy), X_1 was the total loan accounts, X_2 was total loans and advances and X_3 was total nonperforming loans.

Lastly, the findings established that generally the lending rate at the commercial banks had a negative autocorrelation during the 10 year period (2002- 2011). In other words, the lending rate was not predictable, probabilistically, because future values did not depend on current and past values.

5.3 Conclusions

From the above findings the researcher concluded that in the period between 2002-2011 the commercial banks had a fluctuating lending rate affected by fluctuations in the CBR and the turbulent foreign exchange rates occasioned by the global financial crisis. In the same period, the total loan accounts, total loans and advances and nonperforming loans responded by increasing significantly. Therefore, the increase in the nonperforming loans could be attributed to the increased lending rates during the period.

The coefficient of determination (R^2) at 78.02% and 'F' statistic at 65.56 indicated that the model was fit and valid with the existing set of independent variables. This therefore signified that the management of the lending rate policy could sufficiently provide a solution to the nonperforming loans in the commercial banks. However, the remaining factors accounting for the explanation of the 21.98% could need to be indentified before coming up with a conclusive theory to apply conventionally.

5.4 Recommendations for Policy and Practice

In terms of policy, the researcher recommends that commercial banks come up with policies that will ensure that the lending rate is aligned with the credit collection policy, the provisions for bad

debts and the marketing initiative for prudent financial management and financial literacy on repayment of loans. It should also inform the need for a robust credit referencing bureau, especially during periods of high interest rates to avoid multiple defaulters from accessing credit and exposing the commercial banks to a huge credit risks.

In the practice of lending by commercial banks in Kenya and all over the globe, there is urgent need to come up with an efficient model to ensure that the lending rate policy determination takes into account other factors other than the CBR and foreign exchange rates. This was evidenced by the coefficient of determination (R^2) and 'F' statistic which signified that total loans accounts, total loans and advances and total nonperforming loans were not the only loan portfolio elements explained by the changes in the lending rate policy.

5.5 Limitations of the Study

The study was based on the secondary data mainly collected from audited financial statements of the sampled commercial banks for the period between 2002 – 2011. Therefore, the integrity of the findings was as good as the integrity of the financial statements. This implies that if there were any material errors or misrepresentation of facts in the financial statements then the findings could also be limited by those errors and misrepresentations.

5.6 Suggestion for Further Study

The researcher suggests a similar study be conducted through a survey of the MFIs in Kenya. This is because the MFIs are quickly growing their loan portfolios though they do not have the legal capacity to carry out other banking services like risk mitigation through hedging and trading in derivatives. This therefore creates an urgent need to establish the factors that affect the loan portfolio elements of MFIs especially the nonperforming loans in order to institute appropriate credit risk mitigations.

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APPENDIX I:

LIST OF COMMERCIAL BANKS & THEIR MARKET SHARE IN GROSS ASSETS

Rank	BANK	% Gross Assets
	6 LARGE BANKS >5%	
1	Kenya Commercial Bank Ltd	14.2%
2	Equity Bank Ltd	8.6%
3	Co-operative Bank of Kenya Ltd	8.5%
4	Barclays Bank of Kenya Ltd	8.4%
5	Standard Chartered Bank Kenya Ltd	7.9%
6	CFC Stanbic Bank Kenya Ltd	6.7%
	14 MEDIUM BANKS (1-5)%	
7	Commercial Bank of Africa Ltd	4.1%
8	I & M Bank Ltd	3.8%
9	Diamond Trust Bank Kenya Ltd	3.7%
10	NIC Bank Ltd	3.6%
11	Citibank. N.A. Kenya	3.5%
12	National Bank of Kenya Ltd	3.5%
13	Chase Bank Ltd	1.9%
14	Bank of Africa Kenya Ltd	1.8%
15	Bank of Baroda Kenya Ltd	1.8%
16	Prime Bank Ltd	1.7%

17	Ecobank Kenya Ltd	1.4%
18	Family Bank Ltd	1.3%
19	Imperial Bank Ltd	1.3%
20	Bank of India Ltd	1.1%
	23 SMALL BANKS <1%	
21	Consolidated Bank of Kenya	0.8%
22	Fina Bank Ltd	0.7%
23	Gulf African Bank Ltd	0.6%
24	African Banking Corporation Ltd	0.6%
25	Equatorial Commercial Bank Ltd	0.6%
26	Giro Commercial Bank Ltd	0.6%
27	Development Bank of Kenya Ltd	0.6%
28	Fidelity Commercial Bank Ltd	0.5%
29	K-Rep Bank Ltd	0.5%
30	Guardian Bank Ltd	0.5%
31	First Community Bank Ltd	0.4%
32	Habib Bank A.G. Zurich	0.4%
33	Transnational Bank Ltd	0.4%
34	Victoria Commercial Bank Ltd	0.4%
35	Charterhouse Bank Ltd	0.3%
36	Habib Bank Ltd	0.3%

37	Credit Bank Ltd	0.3%
38	Paramount Universal Bank	0.3%
39	Oriental Commercial Bank	0.2%
40	Middle East Bank Kenya Ltd	0.2%
41	UBA Kenya Ltd	0.1%
42	Dubai Bank Ltd	0.1%
43	Jamii Bora Bank Ltd	0.1%

Source: Central Bank of Kenya Banking Services Delivery Report (2011).

APPENDIX II

AVERAGE ANNUAL FIGURES FROM SELECTED COMMERCIAL BANKS

Year	Lending Rates	Loans and Advances (000s)	Loan Accounts (000s)	Non Performing Loans (000s)
2002	15.30	1,123,000.00	776,069.00	389,000.00
2003	18.80	1,329,000.00	968,022.00	456,000.00
2004	19.60	1,457,870.00	1,078,601.00	618,480.00
2005	18.70	1,567,050.00	676,453.00	307,950.00
2006	27.30	1,214,440.00	1,201,656.00	634,403.00
2007	28.30	1,542,254.00	1,099,650.00	758,002.00
2008	18.90	1,453,070.00	978,620.00	622,480.00
2009	20.90	1,849,050.00	1,189,610.00	607,950.00
2010	18.00	1,294,440.00	1,193,657.00	635,443.00
2011	20.50	1,542,287.00	1,397,650.00	758,002.00

Source: Audited Financial Reports (2002 – 2011) at Nairobi Securities Exchange Library in Nairobi, Kenya.