

Credit Risk Management Practices of Commercial Banks in Kenya

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Abstract

Purpose: The purpose of the study was to investigate the current practices of credit risk management by commercial banks in Kenya. The study was guided by the following specific objectives: to evaluate the extent to which commercial banks use credit risk management practices and techniques in dealing with different types of risk; to assess the factors that influence effectiveness of Credit Risk Management practices used by commercial banks; and to examine the internal performance measures of bank lending used by commercial banks. **Methodology:** To undertake the study, a descriptive research design was used. The population consisted of all the commercial banks in Kenya. The sampling frame was obtained from the Central Bank of Kenya and included 45 elements. Stratified random sampling technique was used to select 33 respondents. A semi-structured questionnaire was used to collect the data from the banks. The data pertaining to background of the respondents was analyzed using content analysis while data pertaining to objectives of the study was analyzed using descriptive statistics; mean median and the mode. Correlations were undertaken. The data was presented using frequency tables, charts and bar graphs. Correlations, the statistical technique that can show whether and how strongly pairs of variables are related, was used to ascertain the relationships between factors influencing effectiveness of CRM and the internal performance measures. **Findings and Discussions:** The study discloses that commercial banks in Kenya make use of credit risk management practices that include; thorough loan appraisal, asking for collateral and checking the credit history of the borrowers. Additionally, the bankers use covenants, credit rationing, loan securitization, and loan syndication as risk management defenses. The factors that influence effectiveness of credit risk management systems used by commercial banks in Kenya include establishment of a credit policy that clearly outline the scope and allocation of bank credit facilities, maintenance a credit administration system that with adequate controls over credit; top management support; communication of credit guidelines to every officer in the credit department, screening of potential borrowers, employing well trained staff, constant review of the borrowers' liquidity and the use of supportive technology in credit analysis. The internal performance measures of bank lending used by commercial banks in Kenya include the Basel II criteria and bank profitability, including return on equity, return on assets and return on investment. Other indices are the developed benchmarks that include cost per each completed loan, cost per thousand dollars of loans, non-interest revenue from each loan, loans per employee.

Keywords: Commercial Bank; *Agency Theory*; *Information Asymmetry*; Credit Risk Management; Risk; *Moral Hazard* and Adverse Selection

ABBREVIATIONS

ABC	Activity Based - Costing
ADRs	American Depository Receipts
CBK	Central Bank of Kenya
CBs	Commercial Banks
CR	Credit Risk
CRM	Credit Risk Management
DEA	Data Envelopment Analysis
EAD	Exposure At default
FIs	Financial Institutions
GDP	Gross Domestic Product
IRB	Internal Rating Based
LGD	Loss Given Default
M	Maturity
OBS	Off-Balance-Sheet
PD	Probability of Default
RARC	Risk Adjusted Return on Capital
SA	Standardized Approach
SPSS	Statistical Package for Social Sciences
UAE	United Arab Emirates
UK	United Kingdom

USA United States of America
VaR Value at Risk

1.1 INTRODUCTION

1.1 Background of the Study

1.1.1 Credit Risk Management Practices

Attracting and retaining profitable customers, and increasing revenue from those customers, is a priority of the managers of all firms in today's globalised marketplace (BrownBridge and Harvey, 2000). It is particularly important in the highly competitive retail financial services market, where the core business of banking continues to be "the profitable management of risk" (Hogan, Avram, Brown, Ralston, Skully, Hempel, and Simonsen, 2001). For banks and other shareholder-owned financial services firms, risk management is consistent with their profit-maximizing objective and is evidenced by the focus of the commercial banks on providing tailored home and personal loan packages to profitable low-risk customers (Saunders and Lange, 2001).

Academic research suggests that the increasing availability of consumer credit to traditionally rejected households is a major influence on rising consumer bankruptcies in developed countries (Getter, 2000; Ziegel, 2001; Sullivan and Drecnik 2002). The authors show that the combination of more high-risk borrowers and more bankruptcies is a warning for financial institution managers not to allow their social role to override sound lending practice.

According to Ziegel (2001), sound lending practice has three key elements namely: the systematic identification of the risk of individual loan applicants, the adjustment of lending conditions to compensate for this risk prior to loan approval; and the implementation of timely arrears procedures when payments are missed. Financial institutions are very important in any economy. Their role is similar to that of blood arteries in the human body, because financial institutions pump financial resources for economic growth from the depositories to where they are required (Shanmugan and Bourke, 2003). Commercial banks are financial institutions and are key providers of financial information to the economy. They play even a most critical role to emergent economies where borrowers have no access to capital markets (Greuning and Bratanovic, 2003). Well-functioning commercial banks accelerate economic growth, while poorly functioning commercial banks impede economic progress and exacerbate poverty (Barth, Caprio and Levine, 2004).

Commercial banks (CBs) face various risks that can be categorized into three groups: financial risk, operational risk and strategic risk (Cornett and Saunders, 2002). These risks have different impact on the performance of commercial banks. The magnitude and the level of loss caused by CR compared to others is severe to cause bank failures (Chijoriga, 2000). Over the years, there have been an increased number of significant bank problems in both matured and emerging economies. Credit problems, especially weakness in credit risk management (CRM), have been identified to be a part of the major reasons behind banking difficulties (Grasing, 2002). Loans constitute a large proportion of CR as they normally account for 10-15 times the equity of a bank (Kitua, 2002). Kitua (2002) further argued that banking business is likely to face difficulties when there is a slight deterioration in the quality of loans, and that poor loan quality has its roots in the information processing mechanism. According to Kitua, the problem often begins right at the loan application stage and increases further at the loan approval, monitoring and controlling stages, especially when CRM guidelines in terms of policy and strategies/procedures for credit processing do not exist or weak or incomplete.

Lending has been, and still is, the mainstay of banking business, and this is more true to emerging economies like Kenya where capital markets are not yet well developed (Mwisho, 2001). To most of the transition economies, however, and Kenya in particular, lending activities have been controversial and a difficult matter. This is because business firms on one hand are complaining about lack of credits and the excessively high standards set by banks, while CBs on the other hand have suffered large losses on bad loans (Richard, 2006). It has been found out that in order to minimize loan losses and so as the CR, it is essential for CBs to have an effective CRM system in place (Basel, 2002). Given the asymmetric information that exists between lenders and borrowers, banks must have a mechanism to ensure that they not only evaluate default risk that is unknown to them ex ante in order to avoid adverse selection, but also that can evolve ex post in order to avoid moral hazards (Richard, 2006).

According to Heffernan (2002), banks face the twin problems of moral hazard (monitoring problem) and adverse selection (risk assessment problem) when dealing with small firm lending propositions. It is possible to argue that these problems can lead to a credit glut, but there has been some work in the UK, which has revealed the expected mismatches between providers (the commercial banks) and clients suggested by the theoretical papers (Binks, Ennew and Reed, 2003). Banks will find it difficult to overcome moral hazard, because (for relatively small amounts of finance) it is not economic to devote resources to monitor ventures closely. However, there are marketing implications of taking what might be cost minimization approaches to these twin problems of moral hazard and adverse selection (Kantor and Maital, 2001).

Given this importance, it is surprising to observe that not much is known about the extent by which

banks engage in the practice of credit risk management. In recent years, a number of studies have provided the discipline with insights into the practice of risk management within the corporate sector. Fatemi and Glaum (2000) provided a comprehensive picture of the risk management practices of German firms, including interest rate risk management, foreign exchange risk management, the use of derivatives, risk management systems, and the behavioral aspects of risk management. CRM is very essential to optimizing the performance of Financial Institutions (FIs). Recognizing this importance, this paper focuses on understanding the CRM systems of commercial banks operating in Kenya, the economy with a less developed financial sector.

1.1.2 Commercial Banks in Kenya

The banking sector in Kenya has, over the last few years, witnessed significant growth in consumer lending. This is evidenced by the growth in real private sector credit of 17.7 % in the twelve months to May 2007 (CBK, 2008). The resultant credit expansion has brought significant benefits to the economy, but the information asymmetry that is prevailing in the lending environment poses a real challenge in the form of credit risk for the banking sector in Kenya (CBK, 2008).

There were 45 commercial Banks in Kenya as at June, 2010 (Central Bank of Kenya (CBK), 2010). These commercial banks offer both corporate and retail banking services. Licensing of financial institutions in Kenya is done by the minister of finance through the central bank of Kenya. The companies Act, the Banking Act and the Central Bank of Kenya, govern the banking industry. Ideally financial reforms and free market should spur the adoption of innovations that improve efficiency and provide a healthy balance between lending and deposit rates. According to Central Bank of Kenya (CBK) (2008), the sector remained stable in 2006 with positive developments recorded in all key financial indicators. Total assets expanded by 19.5% from Kshs. 640 billion as at December 2005 to Kshs. 760 billion as at December 2006. As a result of the improved performance, the level of non-performing advances declined from the previous year's level of 99 billion to 95 billion as at end of December 2006. This sought to provide some answers in this area. More specifically, the study aims at shedding light on the question of the practices of credit risk management by commercial banks in Kenya.

1.2 Statement of the Problem

In the Commercial Banks, management of Credit Risk has caused loan losses problem in developing countries, including Kenya. Effective CRM system minimizes the CR, hence the level of loan losses. There is extensive literature on the management of CR in CBs, which allowed the formulation of a deductive research design. Most literature, however, is from the developed world. Empirical studies show differences in approaches to CRM when different contexts are considered (Menkhoff, Neuberger and Suwanaporn, 2006; Mlabwa, 2004).

Linbo (2004) examined efficiency versus risk in large domestic USA banks and found that profit efficiency is sensitive to credit risk and insolvency risk but not to liquidity risk or to the mix of loan products (Linbo, 2004). The author adds that magnitude of risk taking depends on the structure and side of the market in which competition takes place and also concluded that if the bank is a monopoly or banks are competing only in the loan market, deposit insurance has no effect on risk taking. Wetmore (2004) examined the relationship between liquidity risk and loans-to-core deposits ratio of large commercial bank holding companies and concluded that the average loan-to-core deposit ratio had increased over the period studied, which reflects a change in the asset/liability management systems of banks. Khambata and Bagdi (2003) examined off-balance-sheet (OBS) credit risk across the top 20 Japanese banks. The main results of this study indicated that financial derivatives are heavily used by the top four banks and that loan commitments are the largest source of credit risk among traditional OBS instruments.

Al-Tamimi (2002) investigated the degree to which the UAE commercial banks use risks management techniques in dealing with different types of risk. The study found that the UAE commercial banks were mainly facing credit risk and that inspection by branch managers and financial statement analysis were the main methods used in risk identification. The main techniques used in risk management according to this study were establishing standards, credit score, credit worthiness analysis, risk rating and collateral.

Salas and Saurina (2002) examined credit risk in Spanish commercial and savings banks; they used panel data to compare the determinants of problem loans of Spanish commercial and savings banks in the period 1985-1997, taking into account both macroeconomic and individual bank-level variables. The GDP growth rate, firms, family indebtedness, rapid past credit or branch expansion, inefficiency, portfolio composition, size, net interest margin, capital ratio and market power are variables that explain credit risk. Their findings raise important bank supervisory policy issues: the use of bank-level variables as early warning indicators, the advantages of mergers of banks from different regions, and the role of banking competition and ownership in determining credit risk.

None of the above studies focused on the credit risk management systems of commercial banks in Kenya. This study sought to to investigate the current systems of credit risk management by commercial banks in Kenya.

1.3 Purpose of the Study

The general objective of the study was to investigate the credit risk management systems used by commercial banks in Kenya.

1.4 Specific Objectives

The study was guided by the following specific objectives:

- (i) To evaluate the extent to which commercial banks use credit risk management practices and techniques in dealing with different types of risk.
- (ii) To assess the factors that influence effectiveness of Credit Risk Management practices used by commercial banks.
- (iii) To examine the internal performance measures of bank lending used by commercial banks.

1.5 Importance of the Study

Owing to the increasing variety in the types of counterparties and the ever-expanding variety in the forms of obligations, credit risk management has jumped to the forefront of risk management activities carried out by commercial banks. This study is designed to shed light on the current practices of the commercial banks in Kenya. It is anticipated that the study will be of benefit to the following stakeholders:

1.5.1 Commercial Banks

Commercial banks are important financial institutions whose investments and expertise play an active part in the development of the national economy in many parts of the world. The study makes managerial contributions for players in the banking industry, in that it provides a basis for better understanding the types of credit risks they face and factors that would enhance effectiveness of the risk mitigation systems they adopt. The credit managers will be able to make tactical decisions based on the results of a scientific study rather than relying on their intuition, experience, or trial and error. The findings will further enhance the manager's understanding of each of the key systems and hence help them increase their organisation's overall performance.

1.5.2 The Regulatory Bodies and the Government

The study will provide information on the credit risk challenges and problems facing the banking industry in Kenya to the regulatory bodies that include the Central Bank of Kenya and the Capital Markets Authority. This information will assist in developing policies aimed at improving the performance of the industry. The research findings shall also aid in the improvement of the already formulated policies and enforcement of the same in order to facilitate full implementation and in conformity with the constitution of the country. To the Government, which plays the role of a regulator in the industry, this study will provide some insight into their strengthening objective of financial services thereby being in a position to determine areas to lay emphasis on in ensuring the smooth running of the industry.

1.5.3 Academic Researchers

The study has made a significant contribution to the growing body of research on credit risk management in the financial sector. The findings may also be used as a source of reference for other researchers. In addition, academic researchers may need the study findings to stimulate further research in this area of competitive strategies and as such form a basis of good background for further researches.

1.6 Scope of the Study

The study focused on all the commercial banks in Kenya, whose number stood at 45 as at 30 June 2010 (CBK, 2010). There was one respondent from each of the banks, the head of credit management.

1.7 Definition of Terms

The following is the definition of the various terms used in this study:-

1.7.1 Commercial Bank

The Banking Act, Cap 488 defines a bank as a company, which carries on, or purposes to carry on banking business. A bank is thus an institution that deals largely with money.

1.7.2 Agency Theory

Friedman's views on the role of business in society are an example of agency theory, which recognizes only one line of responsibility between the manager, as the agent of the shareholders, to the board of directors. This theory is based on the concept of the principal-agent relationship. In this relationship, principals represent individuals, or groups of individuals, who are in control of a set of economic functions or assets in some form of ownership or property rights (Nance, Smith, and Smithson, 2003).

1.7.3 Information Asymmetry

After the Nobel Prize was presented to Akerlof, Spence and Stiglitz, for their contributions to market with asymmetric information, the term "information asymmetry" became known to the nooks and corners of the world. Stiglitz (2001) defined information asymmetry as the: [...] fact that different people know different things:

workers know more about their ability than does the firm; the person buying insurance knows more about his health, whether he smokes and drinks immoderately, than the insurance firm; the owner of a car knows more about the car than potential buyers; the owner of a firm knows more about the firm than a potential investor; the borrower knows more about his risk and risk taking than the lender.

One way to characterize information asymmetry is the extent to which managers know more about the firm than investors as a group. A second characterization is the extent to which the amount of information regarding the firm varies from one group of investors to another (Watts and Zimmerman, 2005). Among investors in public markets, information asymmetry is predicated on the existence of uninformed (liquidity) traders and informed traders. Informed traders have an incentive to trade on private information that is expected to become public.

1.7.4 Moral Hazard and Adverse Selection

Whilst moral hazard transpires in the behavior of either the consumers or the providers of financial services, adverse selection arises especially where public confidence is low and describes a particular consumer behavior, which leads to the distortion of competition and diminution of the quality of products and services that are available in the marketplace (Akerlof, 2001). Moral hazard and adverse selection become a source of concern for policy makers because of their propensity to expand to the whole industry. In this event, they take the form of herd behavior (Brown, Bridge and Harvey, 2000).

1.7.5 Risk

The danger that a certain unpredictable contingency can occur, which generates randomness in cash flow (Auronen, 2003).

1.7.6 Credit Risk Management

Credit risk refers to the losses incurred when the value of assets (including off balance sheet assets) decline or become worthless due to changes in the fiscal status of those to who credit is provided (Oldfield and Santomero, 2000).

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the literature related to the purpose of the study. The chapter is organized according to the specific objectives in order to ensure relevance to the research problem. The review was undertaken in order to eliminate duplication of what has been done and provide a clear understanding of existing knowledge base in the problem area. The literature review is based on authoritative and original sources such as journals, books, thesis and dissertations.

2.2 Credit Risk Management Practices

Credit risk is most simply defined as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms. The goal of credit risk management is to maximize a bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters (Oldfield and Santomero, 2000). Banks need to manage the credit risk inherent in the entire portfolio as well as the risk in individual credits or transactions. Banks should also consider the relationships between credit risk and other risks. Wyman (2002) noted that effective management of credit risk is a critical component of a comprehensive approach to risk management and essential to the long-term success of any banking organization.

Banks are increasingly facing credit risk (or counterparty risk) in various financial instruments other than loans, including acceptances, inter-bank transactions, trade financing, foreign exchange transactions, financial futures, swaps, bonds, equities, options, and in the extension of commitments and guarantees, and the settlement of transactions.

Although specific credit risk management practices may differ among banks depending upon the nature and complexity of their credit activities, a comprehensive credit risk management program will address these four areas. These practices should also be applied in conjunction with sound practices related to the assessment of asset quality, the adequacy of provisions and reserves, and the disclosure of credit risk, all of which have been addressed in other recent Basel Committee documents (Oldfield and Santomero, 2000).

2.2.1 Steps for Risk Management Techniques

Oldfield and Santomero (2000) investigated risk management in financial institutions. In this study, they suggested four steps for active risk management techniques: the establishment of standards and reports; the imposition of position limits and rules (i.e. contemporary exposures, credit limits and position concentration); and the creation of self investment guidelines and strategies; and the alignment of incentive contracts and compensation (performance-based compensation contracts).

Wyman (2002) argues that profit efficiency is sensitive to credit risk and insolvency risk but not to liquidity risk or to the mix of loan products; risk management practices are a precondition for successful financial liberalization; commercial banks are mainly faced with credit risk; loans are the largest and most

obvious source of this type of risk; inspection by branch managers and financial statement analysis are the main methods used in risk identification; and the appropriate risk weight for an off-balance-sheet contract is likely to depend on the size of the bank.

2.2.2 Types of Risks Facing Commercial Banks

Risk management is a cornerstone of prudent banking practice. Undoubtedly all banks in the present-day volatile environment are facing a large number of risks such as credit risk, liquidity risk, foreign exchange risk, market risk and interest rate risk, among others – risks which may threaten a bank's survival and success. In other words, banking is a business of risk. For this reason, efficient risk management is absolutely required. Carey (2001) indicates in this regard that risk management is more important in the financial sector than in other parts of the economy. The purpose of financial institutions is to maximize revenues and offer the most value to shareholders by offering a variety of financial services, and especially by administering risks. Recently many commercial banks have appointed senior managers to oversee a formal risk management function.

According to Jeremy and Stein (2000), the main forms of risk are:

Credit risk - risk that party to contract fails to fully discharge terms of contract; **Interest rate risk** - risk deriving from variation of market prices owing to interest rate change; **Market risk** - more general term for risk of market price shifts; **Liquidity risk** – risk asset owner unable to recover full value of asset when sold (or for borrower, credit not rolled over); **Market liquidity risk** – risk that a traded asset market may vary in liquidity of the claims traded; and **Systematic risk** - that the financial system may undergo contagious failure following other forms of shock/risk. Carey (2001) identified other types of risks as being operational risk, risk of fraud and reputation risk.

Risk can be classified into systematic and unsystematic risk. Systematic risk is associated with the overall market or the economy, whereas unsystematic risk is related to a specific asset or firm. Some of the systematic risk can be reduced through the use of risk mitigation and transmission techniques. In this regard Oldfield and Santomero (2000) refer to three generic risk-mitigation strategies: eliminate or avoid risks by simple business practices; transfer risks to other participants; and actively manage risks at the bank level (acceptance of risk). Thus, financial intermediaries may avoid specific risks by simplifying business practices and minimizing activities that inflict risk. Activities with which the financial institution is committed to proceed can be adeptly managed or transferred. Certain risks which are inevitable or transferred must be engulfed by the bank. Inevitable risks are those too complex to separate from assets. The subsequent risk is accepted by the bank as being crucial to its business; banks are specialized in dealing with this sort of risk, and reap the benefits.

2.2.3 Lending Process

2.2.3.1 Process and Work Analysis of Bank Lending Activity

Koch and Macdonald (2000) pointed out that the activities in the process of commercial and industrial (C&I) loans follow eight steps. These steps are application, credit analysis, decision, document preparation, closing, recording, servicing and administration, and collection.

2.2.3.2 Internal Measures before Lending Decision

According to Menkhoff, Neuberger and Suwanaporn (2006), the factors for evaluation generally used in this situation are in line with the 6C principles of basic lending. These 6C's are Character, Capacity, Capital, Collateral, Conditions and Control, which are also important reference indexes for banks when making a credit analysis to decide whether or not a borrower is worthy of a loan. Viewed overall, according to the 6C principles, the internal measure for measuring the value or quality of the output at this stage, regarding the visiting report, can be determined by whether the collection of information by the loan officer concerning the 6C's is accurate and complete, or not (Haider and Birley, 2001).

By analyzing a borrower's situation using the 6C principles, the comparatively more difficult situations encountered by a loan officer become capacity and condition because in addition to the understanding and analysis of the information about capacity and condition, it is also necessary to determine whether any future changes will affect the financial situation and the loan repaying ability of an enterprise. Therefore, if an excellent, professional loan officer can accurately and completely collect information in these capacity and condition, the value of the visiting report will be high (Koch and Macdonald, 2000).

2.2.4 Credit Risk Control Tools

Tools like covenants, collateral, credit rationing, loan securitization and loan syndication have been used by banks in developing the world in controlling credit losses (Hugh, 2001). Marphatia and Tiwari (2004) argued that risk management is primarily about people – how they think and how they interact with one another. Technology is just a tool; in the wrong hands it is useless. This stresses further the critical importance of qualified staff in managing CR. Figure 2.1 presents a summary of the CRM system as explained in the literature. It is established in the financial economics literature that the CRM system of a CB is made up of credit policy and strategies that provide general and detailed operational guidelines. It also includes the facilitating factors such as quality of staff and technology.

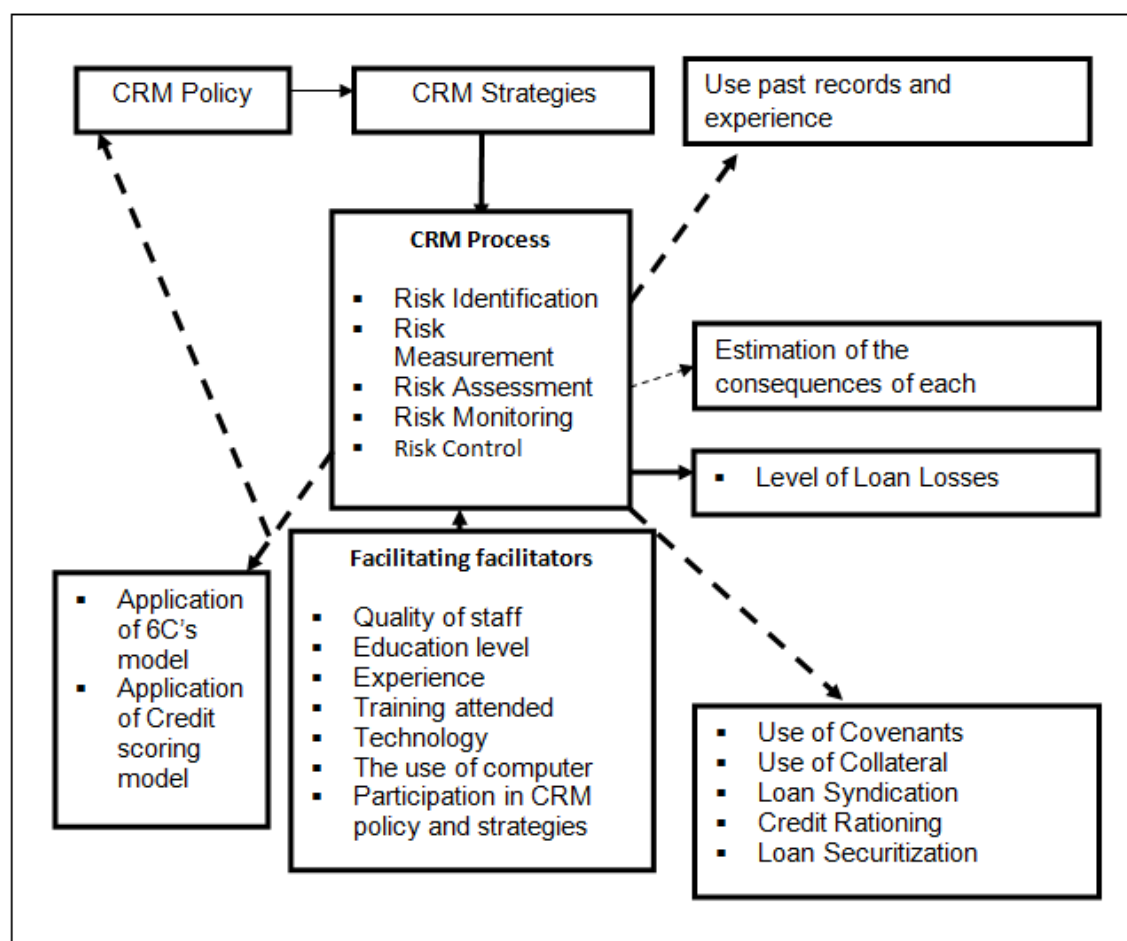


Figure 2.1: Research model for the CRM System of a commercial bank

Source: Berger and Udell (2002)

2.3 Factors Influencing Effectiveness of Credit Risk Management practices

Loans that constitute a large proportion of the assets in most banks' portfolios are relatively illiquid and exhibit the highest CR (Koch and MacDonald, 2000). The theory of asymmetric information argues that it may be impossible to distinguish good borrowers from bad borrowers (Auronen, 2003), which may result in adverse selection and moral hazards problems. Adverse selection and moral hazards have led to substantial accumulation of non-performing accounts in banks (Bester, 2001; Bofondi and Gobbi, 2003). The very existence of banks is often interpreted in terms of its superior ability to overcome three basic problems of information asymmetry, namely ex ante, interim and ex post (Uyemura and Deventer, 2000).

2.3.1 Credit Risk Management Process

According to Basel (2004), the management of CR in banking industry follows the process of risk identification, measurement, assessment, monitoring and control. It involves identification of potential risk factors, estimate their consequences, monitor activities exposed to the identified risk factors and put in place control measures to prevent or reduce the undesirable effects. This process is applied within the strategic and operational framework of the bank.

2.3.2 Risk – Adjusted Performance Measures

Several risk-adjusted performance measures have been proposed (Heffernan, 2002; Kealhofer, 2003). The measures, however, focus on risk-return trade-off, which include measuring the risk inherent in each activity or product and charge it accordingly for the capital required to support it. This does not solve the issue of recovering loanable amount. Effective system that ensures repayment of loans by borrowers is critical in dealing with asymmetric information problems and in reducing the level of loan losses, thus the long-term success of any banking organization (Basel, 2004; IAIS, 2003).

2.3.3 Credit Risk Management Practices

Effective CRM involves establishing an appropriate CR environment; operating under a sound credit granting process; maintaining an appropriate credit administration that involves monitoring process as well as adequate controls over CR (Basel, 2004; Greuning and Bratanovic, 2003; IAIS, 2003). It requires top management to

ensure that there are proper and clear guidelines in managing CR, that is, all guidelines are properly communicated throughout the organization; and that everybody involved in CRM understand them.

Considerations that form the basis for sound CRM system include: policy and strategies (guidelines) that clearly outline the scope and allocation of a bank credit facilities and the manner in which a credit portfolio is managed, that is, how loans are originated, appraised, supervised and collected (Basel, 2004; Greuning and Bratanovic, 2003; PriceWaterhouse, 2001). Screening borrowers is an activity that has widely been recommended by, among others (Derban, Binner and Mullineux, 2005). The recommendation has been widely put to use in the banking sector in the form of credit assessment. According to the asymmetric information theory, a collection of reliable information from prospective borrowers becomes critical in accomplishing effective screening.

2.3.4 Assessment of Borrowers

The assessment of borrowers can be performed through the use of qualitative as well as quantitative techniques. One major challenge of using qualitative models is their subjective nature (Bryant, 2001; Chijoriga, 2000). However, borrowers attributes assessed through qualitative models can be assigned numbers with the sum of the values compared to a threshold. This technique is termed as “credit scoring” (Heffernan, 2002; Uyemura and Deventer, 2000). The technique cannot only minimize processing costs but also reduce subjective judgments and possible biases (Kraft, 2000; Bluhm, Overbeck and Wagner, 2003; Derban *et al.*, 2005). The rating systems if meaningful should signal changes in expected level of loan loss (Santomero, 2003). Chijoriga (2000) concluded that quantitative models make it possible to, among others, numerically establish which factors are important in explaining default risk, evaluate the relative degree of importance of the factors, improve the pricing of default risk, be more able to screen out bad loan applicants and be in a better position to calculate any reserve needed to meet expected future loan losses.

2.3.5 Clearly Established Credit Approval Process

Clearly established process for approving new credits and extending the existing credits has been observed to be very important while managing CR (Heffernan, 2002). Further, monitoring of borrowers important as current and potential exposures change with both the passage of time and the movements in the underlying variables (Donaldson, 2000; Mwisho, 2001), and are also very important in dealing with moral hazard problem (Derban *et al.*, 2005). Monitoring involves, among others, frequent contact with borrowers, creating an environment that the bank can be seen as a solver of problems and trusted adviser; develop the culture of being supportive to borrowers whenever they are recognized to be in difficulties and are striving to deal with the situation; monitoring the flow of borrower's business through the bank's account; regular review of the borrower's reports as well as an on-site visit; updating borrowers credit files and periodically reviewing the borrowers rating assigned at the time the credit was granted (Donaldson, 2000; Tummala and Burchett, 2000; Mwisho, 2001; Basel, 2004; Treacy and Carey, 2004;).

2.3.6 Credit Management Tools

Tools like covenants, collateral, credit rationing, loan securitization and loan syndication have been used by banks in developing the world in controlling credit losses (Greenbaum and Thakor, 2000; Hugh, 2001; Benveniste and Berger, 2001; Berger and Udell, 2002).

2.3.7 Credit Management Staff and Information Technology

It has also been observed that high-quality CRM staffs are critical to ensure that the depth of knowledge and judgment needed is always available, thus successfully managing the CR in the CBs (Wyman, 2002; Koford and Tschoegl, 2001).

2.4 Internal Performance Measures of Bank Lending

2.4.1 Basel II Criteria

Banks are learning to review their risk portfolios using the criteria laid down by Basel II. Greenspan has indicated that Basel's goal is to induce bankers to improve their risk management capability, including how the institutions price products, reserve for loss, and control their operations (Rehm, 2002). This research is in line with the purpose of Basel II, that is, to reduce a bank's operational risk during the lending process through a better monitoring of the employees in the lending department.

According to Basel Committee on Banking Supervision (2006), the Basel II guidelines establish capital adequacy requirements and supervisory standards for banks to be implemented by 2007. The main objective of Basel II is: to develop a framework that would further strengthen the soundness and stability of the international banking system, while maintaining sufficient consistency that capital adequacy regulation will not be a significant source of competitive inequality among internationally active banks. The Committee believes that the revised framework will promote the adoption of stronger risk management practices by the banking industry, and views this as one of its major benefits (Basel Committee on Banking Supervision, 2006).

Ferguson (2003) observed that Basel II Accord provides a roadmap for the improved regulation and supervision of global banking. Basel II will provide strong incentives for banks to continue improving their

internal risk-management capabilities as well as the tools for supervisors to focus on emerging problems and issues more rapidly than ever before. Basel II is intended to align capital adequacy assessment more closely with the key elements of banking risks and to provide incentives for banks to enhance their risk measurement (Basel Committee on Banking Supervision, 2006). Particularly, the risk adjusted backing of credit exposures with recourse equity (regulatory capital) is one of the key issues in the New Basel Capital Accord. Basel II will affect banks and customers equally. Significant changes include: (i) the introduction of ratings as the basis for risk assessment and calculation of regulatory capital; and (ii) the assessment of credit costs based on the degree of risk. The Basel II Accord proposes, among other things, more detailed criteria for the treatment of credit risk, and for the first time introduces criteria for the regulatory treatment of operational risk. Beyond merely measuring the capital requirements for the risk categories, it also puts strong emphasis on criteria for supervisory review and increased public disclosure (Rowe, Jovic and Reeves, 2004).

Lastra (2004) investigates risk-based capital requirements and their impact upon the banking industry: She concludes that Basel II has significant economic and structural consequences that cannot be underestimated. Basel II will lead to a substantial redistribution of capital requirements. She adds that capital regulation has become a prominent feature of banking regulation and a major strategic theme for bank management. However, Lastra emphasizes that banks need to pay special attention to some crucial issues. The first of these is cost: "Basel II is costly to implement, complex to understand and prescriptive in its numerous recommendations." The second issue is operational risk, introduced for the first time in Basel II: there will be a capital charge against this type of risk. The third issue is bank consolidation, where Basel II appears to see the benefit of larger and more sophisticated banks. Small or unsophisticated banks facing an increase in their capital charges could be bought by more sophisticated banks (Mignola and Ugoccioni, 2006).

Many banks around the world are assessing the potential implications of the new Basel capital adequacy framework (Basel II). Compliance with these new regulations, once translated into national legislation, is a *sine qua non* for the banking industry. To that end, each bank will have to make a choice from the Basel II menu for credit and operational risk capital requirements - following either the less sophisticated basic or standard approaches or going for the more advanced approaches based on internal risk models (Currie, 2005). It should also be borne in mind that through a more onerous and detailed supervisory review (Pillar II) the new Basel II framework requires banks to improve their risk management framework and measure all risks in a consistent and comprehensive way (Leippold and Vanini, 2003). In anticipation of the expected changes more banks are now also seeking to introduce economic capital frameworks, to implement risk-adjusted return on capital (RAROC) and to reap the benefits of risk-based business applications and streamlined credit processes.

Critical Success Factors for the banks are; (i) Risk Identification; (ii) Quantitative Risk Measurement; (iii) Risk Mitigation; (iv) Minimum Capital Allocation. But banks find compliance to Basel II norms in the above areas difficult, due to increasing number of customer base of the banks, absence of effective risk management solution and absence of system interfaces between the existing stand alone applications of the banks (Dutta and Perry, 2006). Basel II is the revised capital accord of Basel I. Basel II accord defines the minimum regulatory capital which is to be allocated by each bank based on its risk profile of assets. Banks have to maintain the capital adequacy ratio (CAR) of minimum 9 %. As per RBI, banks which are getting more than 20% of their businesses from abroad have to implement Basel II. But most of the banks are now interested to implement Basel II. Basel II uses a "three pillars" concept to promote greater stability in the financial system stability: (i) Pillar I: Minimum capital requirement; (ii) Pillar 2: Supervisory review process; and (iii) Pillar 3: Market discipline requirements (Basel Committee on Banking Supervision (2004).

The following is a brief explanation of these three pillars.

2.4.1.1 The first pillar – minimum capital requirements

The comprehensive version of the Basel II Accord provides improved risk sensitivity in the way capital requirements are calculated for three major components of risk that a bank faces; credit risk, operational risk and market risk. The capital ratio is calculated using the definition of regulatory capital and risk-weighted assets (RWA) (Basel Committee on Banking Supervision, 2006). The total capital ratio must be no lower than 8 per cent. Tier 2 capitals are limited to 100 per cent of tier 1 capital. While market risk assessment has not been changed – a standardized approach or value at risk (VaR) is retained – credit risk assessment has been changed and operational risk has been introduced for the first time. For credit risk, Basel II provides three approaches to calculate credit risk-based capital (Leippold and Vanini, 2003). The first approach is the standardized approach, which relies on external ratings. Based on this approach, banks' activities are divided into eight business lines: corporate finance, trading and sales, retail banking, commercial banking, payment and settlement, agency services, asset management, and retail brokerage. For the purpose of calculating capital for operational risk, each of these lines is a percentage of the bank's gross income from that particular line of business.

The second approach is the foundation internal ratings-based (IRB) approach which allows banks to calculate their credit risk-based capital on the basis of their internal assessment of the probability that the counterparty will default (Basel Committee on Banking Supervision, 2006). The third and most sophisticated

approach is the advanced IRB approach, which allows banks to use their own internal assessment not only of the probability of default (PD), but also the percentage loss suffered if the counterparty defaults and the quantification of the exposure to the counterparty. For the IRB there are four parameters to consider: VaR; (i) loss function, PD of a borrower; loss given default (LGD), the estimate of loss severity; (ii) exposure at default, the amount at risk in the event of default and the facility's remaining maturity (M) (Kealhofer, 2003). Calculation of these components requires advanced data collection and sophisticated risk management techniques (Allen, 2004).

2.4.1.2 The second pillar – supervisory review process

Basel II emphasizes that financial institutions should fulfill their self-responsibility for appropriately assessing and managing the various risks they face, and maintaining sufficient capital according to such risks including those not covered within the first pillar (minimum capital requirements). It also mentions that supervisors should review and evaluate risk management methods which are adopted by individual financial institutions on their own initiative, and take appropriate supervisory actions as necessary. For this Implementing Basel II purpose the Basel II Accord sets four key principles of supervisory review (Basel Committee on Banking Supervision, 2006), as follows: (i) Banks should have a process for assessing their overall capital adequacy in relation to their risk profile and a strategy for maintaining their capital levels; (ii) Supervisors should review and evaluate banks' internal capital adequacy assessments and strategies, as well as their ability to monitor and ensure their compliance with regulatory capital ratios. Supervisors should take appropriate supervisory action if they are not satisfied with the results of this process; (iii) Supervisors should expect banks to operate above the minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of the minimum; (iv) Supervisors should seek to intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank and should require rapid remedial action if capital is not maintained or restored (Dutta and Perry, 2006).

2.4.1.3 The third pillar – market discipline

The aim of this pillar is to strengthen market discipline through increased disclosure. Market discipline imposes strong incentives on banks to conduct their business in a safe, sound and efficient manner, including an incentive to maintain a strong capital base as a cushion against potential future losses arising from risk exposures (Fatemi and Glaum, 2000). The market discipline proposed greatly increases the disclosures that the bank must make. This is designed to allow the market to have a better picture of the overall risk position of the bank and to allow the counterparties of the bank to price and deal appropriately (Allen, 2004). The Basel II Accord indicates in this regard: Supervisors have an array of measures that they can use to require banks to make such disclosures. Some of these disclosures will be qualifying criteria for the use of particular methodologies or the recognition of particular instruments and transactions (Basel Committee on Banking Supervision, 2006). According to Leppard and Vanini (2003), as of now 3 types of major risks are addressed in Basel II: (i) Credit Risk: Default by the borrower to repay the borrowings; (ii) Market Risk: Volatility in the banks' portfolio due to change in market factors; (iii) Operational risk: Risk arising out of banks' inefficient internal processes, systems, people or external events like natural disasters and robbery.

Basel II is intended to align capital adequacy assessment more closely with the key elements of banking risks and to provide incentives for banks to enhance their risk measurement (Banerjee and Banipal, 2005). Particularly, the risk adjusted backing of credit exposures with recourse equity (regulatory capital) is one of the key issues in the New Basel Capital Accord. Basel II will affect banks and customers equally. Significant changes include: the introduction of ratings as the basis for risk assessment and calculation of regulatory capital; and the assessment of credit costs based on the degree of risk (Huber, 2003).

2.4.2 Impact of Basel II

It is widely recognized that Basel II is a major breakthrough in theoretical and practical world of banking industry and a dynamic framework which will be able to adapt to ongoing innovation and change. Some of the main features (see annexure) of Basel II are noteworthy:

First, while the new Accord maintains the level of capital adequacy requirements at 8% (Tier 2 capital is restricted to 100% of Tier 1 capital) consistent with Basel I, it has shifted emphasis from regulatory to economic capital framework, while giving recognition to new risk mitigation techniques (default protection) and clarifying new trading book capital questions (Banerjee and Banipal, 2005).

Second, the new Accord has depth and breadth in its architecture and it blends and integrates well, with an element of mathematical rigor, all key prudential and supervision norms; however the rules based approach allows substantive national discretion which has its pros and cons (Monfort and Mulder, 2000). Basel II at the very basic level consists of the Standardized Approach (SA) which recognizes and defines various asset buckets and assigns them risk weights in accordance with the type and nature of corporate issue and other transactions and delegating its qualitative assessment to external raters. The matrix of risk buckets and weights is considered to have added excessive complexity for less sophisticated banks. The linkage and delegation of quality assessment to external ratings, while understandable, lends excessive confidence on the objectivity and

soundness of rating agencies which, in at least developing countries has only thus far rated a small proportion corporates and issues (Huber, 2003).

Notwithstanding, the Pillar 1 offers a choice to resort to either a Standardized Approach (SA) which has pre-specified weights or to turn to Internal Rating Based (IRB) approach which involves a foundation and advanced IRB option. These approaches are differentiated on the basis of (i) the available in-house risk assessment expertise, (ii) the size and product mix of the bank, and (iii) overall financial sophistication. There is considerable national discretion for regulators to decide, within the parameters defined under Basel II, on risk weights for different types of finances, treatment of collateral and risk mitigation (Blunden, 2005).

The core pillar is bedecked by two other pillars; and all three pillars are interlinked and intertwined and mutually reinforce each other. Pillar 2 (Supervisory Review) underscores need for strengthening the financial institutions' internal capital assessment processes to capture risks which remained uncovered under Pillar 1 and thus set aside capital in line with the banks' risk profile and control environment. The supervisory review process validates the bank's internal assessments by ensuring that the whole array of risks has been taken care of. Pillar 3 (Market Discipline) complements the other two pillars by requiring disclosures and transparency in financial reporting to promote market discipline (Banerjee and Banipal, 2005).

Third, the Accord encourages banks to recognize all types of risk and take appropriate steps to mitigate these risks, while providing for adequate capital. Besides the credit risk, the Accord for the first time recognizes the operational risk, however, the degree of guidance and complexity in measurement provided within the framework for these risks varies. The Credit Risk (the risk of default by the counterparty) is dealt with most comprehensively in the Basel II in line with legacy of the first Accord as well as the banks traditional edge and competence in credit risk assessments (Leippold and Vanini, 2003). According to Banerjee and Banipal (2005), the inclusion of Operational Risk, a fundamental improvement over Basel I, captures risks associated with bank's internal control processes and systems and corporate governance policies and practices. Operational risk calculation explicitly requires capital for "the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events" risk. This definition includes legal risk, but excludes strategic and reputational risk. Three approaches underlie measurement of capital against operational risk:

(i) Basic Indicator Approach (BIA) –capital for operational risk should be equal to the average over the previous three years of a fixed percentage (denoted $\alpha=15\%$) of positive annual gross income; (ii) Standardized Approach capital charge for each business line is calculated by multiplying gross income by a factor (denoted β) assigned to that business line. β (ranging between 12-18%) serves as a proxy for the industry-wide relationship between the operational risk loss experience for a given business line and the aggregate level of gross income for that business line; and (iii) Advanced Measurement Approach - the regulatory capital requirement will equal the risk measure generated by the bank's internal operational risk measurement system using the quantitative and qualitative criteria for the AMA. Overall the approaches for operational risk assessment are not as nuanced as for credit risk, however the AMA approach does allow for more fine tuning. Once again the banks with better risk assessment would opt for the advance approaches (Leippold and Vanini, 2003).

Market Discipline pillar underscores need for transparency and disclosure of data and technicalities. The evaluation of banks' risks and its systems and capital adequacy by the market will help ensure integrity and validation of other pillars. For this pillar to work, it needs to be supported by proper accounting rules and more elaborate disclosure of bank's strategies and approaches adopted, risk profile and capital strategy through economic and credit cycle, information of the stress tests, and PD/LGD data (Currie, 2005).

Fourth, within the pillars, the Accord offers a range of options and incentives banks to move from vanilla SA which assigns high risk weights and capital standards to adopting IRB and within it further having the option to choose either the Foundation versus Advanced IRB.

Fifth, the IRB approach is being preferred by large global banks, which already competitively price credit risk. The key parameters under IRB approach are PD (probability of Default), LGD (loss given default), M (Maturity) and EAD (Exposure At default). Under the FIRB, the banks calculate PD of their portfolio, while the other parameters i.e. LGD and EAD are prescribed by the regulator. Minimum PD is 0.03% for banks and corporates; no floor has been prescribed for sovereigns. The LGD for senior exposure is 45% and the subordinated exposure attracts a lower recovery of 75%. These rates should be reexamined by the regulators taking into account the ground realities of their respective jurisdictions (Currie, 2005).

Given the objectives and scope of Basel II and its architecture, the McKinsey study highlights that there is a "Business Case for Basel II" as the accord could impact profits and generate gains from reduced capital charges which of course need to be netted from funding costs (Kevin, Buehler, D'Silva and Pritsch, 2004).

For some banks, given the risk sensitive nature of Basel II, the regulatory capital could be substantially reduced by up to 50 percent in segments such as residential mortgages, which would translate in to savings on funding costs. However, such savings would be subject to conditions: such as requirement that regulatory capital should be higher than economic capital and presence of regulations such as leverage ratios which may prevent

banks from reducing their regulatory capital significantly. The McKinsey's research identifies four important Basel II-related risk management efficiencies which could together raise pretax earnings by 3 to 6 percent. These include: (i) Reduced charge-offs through better default-prediction and collection processes; (ii) Improved pricing discipline on loans and risk selection through risk-based pricing to and reduced risk from new business opportunities; (iii) Reduced operating expenses by streamlining loans and underwriting processes; and (iv) Reduced operational loss expenses through the use of proper mitigation techniques.

2.4.3 Challenges of implementing Basel II Accord

Banking industry worldwide today faces several issues and challenges which unless effectively addressed would impact the pace of adoption and implementation of Basel II. According to Ferri, *et al* (2001) these include Good and Reliable Data and Information; Development of sound risk-management system; Asymmetry in supervision; Imperfect Markets; Pro-cyclicality; Access to finance for disadvantaged; Operational costs; Cross-border challenges; Challenges for the corporate Sector; Cost and volume of capital; and the Problem of Adverse Selection.

2.4.4 Performance measurement

As performance measurement is a subject that is often discussed but rarely defined, it may be helpful to first clarify the term. Neely, Gregory and Platts (2002) describe performance measurement as the process of quantifying action, where measurement is the process of quantification and action correlates with performance. They further propose that performance should be defined as the efficiency and effectiveness of action, which leads to the following definitions, which have been adopted in this paper (Neely *et al.*, 2002):

Performance measurement is defined as the process of quantifying the efficiency and effectiveness of action; A performance measure is defined as a metric used to quantify the efficiency and/or effectiveness of an action; and Performance measurement system (PMS) is defined as the set of metrics used to quantify the efficiency and effectiveness of action. Obviously, a very broad definition of performance is used, which, in turn, means that the term can be separated into different types of performance objectives that are desirable from both an internal and external point of view of a company. Several classifications of performance objectives can be found in literature. However, most of them are similar to the one presented by Slack *et al.* (2001), which distinguishes between five types of performance objectives: cost, flexibility, speed, dependability and quality. An example of the effect these performance objectives have on an operation is explained in the following way (Slack *et al.*, 2001):

High-quality operations do not waste time or effort having to re-do things, nor are there internal customers inconvenienced by flawed service; Fast operations reduce the level of in-process inventory between micro operations, as well as reducing administrative overhead. Products can also be delivered earlier to the customer; Dependable operations can be relied on to deliver exactly as planned. This eliminates wasteful disruption and allows the other micro operations to operate efficiently; Flexible operations adapt to changing circumstances quickly and without disrupting the rest of the operation. Flexible micro operations can also change over between tasks quickly and without wasting time and capacity; and Low cost operations allow the company to sell their products at a competitive price, and increase profitability.

With respect to performance, banks now use various measures to assess bank efficiency and related functions in the bank lending process. Traditionally, banks determined operating efficiency by using measures of bank profitability, such as return on equity, return on assets, and return on investment; also, banks used operational ratios, such as monetary output per staff member, and total operating expenses per unit of output (Golany and Storbeck, 2001). The profitability measures are discussed below.

2.4.4.1 Individual performance measures

There are many different types of performance measures. This section describes selected performance measures.

(i) Financial measures

Traditionally, the success of an organization has been evaluated by the use of financial measures. Unfortunately, there is no completely unambiguous way to know when a company is profitable, since many business opportunities involve sacrificing current and future profits (Ross, Chambers and Johnston, 2003). Although financial measures can appear in several different forms, three of the most common ones can be explained as:

Profit margins (also known as return on sales) measure how much a company earns relative to its sales. These measures determine the company's ability to withstand (Ross *et al.*, 2003). Return on assets (ROA), a measure developed by Dupont in 1919, is one of the most widely used financial models for performance measurements (Zairi, 2001). ROA determines the company's ability to utilize its assets. However, it should be noted that ROA does not tell how well a company is performing for the stockholders.

Return on equity (ROE) measures how well the company is doing for the investor (i.e. stockholders), since it tells how much income the investors are getting for their investments. Many researchers argue that there are significant limitations of financial measures, since they are based on simple cost accounting systems that were common in the early 1900s. Such systems often focus on controlling and reducing direct labour costs and can therefore not adapt to today's competitive environment. Cost accounting systems were designed for an

environment of mass production of a few standardized items, which make them more or less inadequate in a manufacturing environment that includes new philosophies, such as lean production, agile manufacturing or mass customization. However, while the climate for manufacturing companies has changed enormously, the techniques of management accounting have changed very little. This has led many to realize that the traditional approach to performance measurement using financial measures has a number of limitations:

Financial measures show a lack of relevance to the control of production and are not directly related to manufacturing strategy (Maskell, 2001). Excessive use of ROI also distorts strategy building (Hill, 2002).

Traditional criteria such as cost efficiency and utilization may pressure managers and supervisors into maximizing short-term result and, therefore, discourage improvements (Crawford and Cox, 2000).

Financial measures are clearly concerned with cost elements and try to quantify performance solely in financial terms, but many improvements are difficult to quantify directly in monetary value, such as lead-time reduction (Ghalayini *et al.*, 2003).

Financial reports are usually produced monthly and the results are the outcome of decisions that were made one or two months prior. They also have a predetermined inflexible format that is used across all departments ignoring the fact that most departments have their own unique characteristics and priorities (Maskell, 2001).

Financial measures are not applicable to the new management techniques that give shop-floor-operators responsibility and autonomy (Ghalayini *et al.*, 2003).

Financial measures do not penalize overproduction and do not adequately identify the cost of quality (Bitichi, 2002).

(ii) Activity-based costing

To cope with the demands of today's business environment, a new approach to cost accounting, known as activity-based costing (ABC), was developed by Kaplan and Johnson in the late 1980s as an attempt to resolve some of the fundamental inadequacies of traditional cost accounting (Kaplan and Cooper, 2004). ABC is concerned with the cost of activities within a company and their relationships to the manufacture of specific products rather than to a functional base (Hill, 2001). The basic technique of ABC is to analyze the indirect costs within a company and to discover the activities that cause those costs. Such activities are called cost-drivers and can be used to apply overheads to specific products. In this way, it is believed that ABC results in a more accurate identification of costs than traditional cost allocation.

According to Maskell, several practical cases indicate that ABC can be of practical value for product pricing, production decision making, overhead cost reduction, and continuous improvement (Maskell, 2001). But, on the other hand, there are also researchers who suggest that the claim that ABC provides more accurate product costs has never been proven (Neely *et al.*, 2002).

However, as it is argued that even an improved cost accounting system will not entirely solve the problem with financial measures, other measures than cost are needed to gauge adequately manufacturing performance relative to a competitive strategy (White, 2001). This is why many researchers have focused on developing more complex performance measurement systems during the last decade. These systems include both cost and non-cost performance objectives, and are argued to be more suitable for the business environment of today.

2.4.4.2 Traditional Productivity Measures

Generally speaking, the term productivity is defined as the relation of output (i.e. produced goods) to input (i.e. used resources) in the manufacturing transformation process. Numerous productivity measures can be found in the literature, but usually two traditional types of index productivity measures are distinguished:

Partial productivity measures – ratios of output to one source of input, such as labor, capital, material or energy; and Total productivity measures – ratios of total output to the sum of all input factors.

2.4.4.3 Partial Productivity Measures

The advantage of partial productivity measures is that they are simple to understand and to measure in reality. The needed data are usually easy to obtain and partial productivity indices are not difficult to calculate (Sumanth, 2001). It is also easy to pinpoint a specific partial productivity measure for an important smaller area, function or department in a company. This means that partial measures can detect improvements and the reasons behind them more easily than broader measures.

The most common partial productivity measure is without any doubt labor productivity, e.g. output per working hour or output per employee. However, much criticism has been aimed at this way of calculating productivity. Suh (2000), for example, argues that terms like labor productivity are becoming useless measures in modern manufacturing operations, since the total direct labor cost is becoming a smaller fraction of the total manufacturing cost (Suh, 2000).

Much focus has traditionally been on efficiency of factory workers. This has caused negative associations with the term productivity. Increased labor productivity can, in many cases, only be achieved at the expense of other resource areas, such as materials. For example, improving labor productivity can actually hurt

the overall profitability by increased costs in inventory. Nevertheless, labor productivity can be an appropriate measure if the workforce is a dominating production factor. It can also be very useful in feedback of performance to the workers, since these data are easy to understand and workers want to know how they are doing (Bernolak, 2001).

Perhaps the major objection to partial productivity is that it only considers one production factor, which, in turn, is often decided on in interplay with the use of the other production factors, e.g. capital, energy and primary products. One example of this problem is called capital-labor substitution, which means that the labor productivity can be improved at the cost of capital, resulting in decreases in the total productivity. In this way partial productivity measures tend to overstate the increase in productivity (Grossman, 2003). Partial measures do not have the ability to explain overall cost increases, and can be very misleading if they are used alone (Sumanth, 2001).

2.4.4.4 Total Productivity Measures

Total productivity measures provide a comparably good picture of the overall productivity of a process or a company. A major advantage of total productivity measures is that they take account of capital-labour substitution. The disadvantages are that they are more difficult to understand and to measure (Grossman, 2003). Due to the difficulties in calculating such measures in practice, they are not always accurate. Total productivity measures are based on a number of more or less carefully supported assumptions, and can produce different results because of the many different ways of weighting the production factors. It is also more difficult to track activities that improve productivity with total productivity measures. Another weakness lies in that the data needed to calculate the measure becomes more difficult to retrieve.

2.4.4.5 Time-Based Productivity Measures

One possible problem to overcome when measuring productivity is the definition of output and input. At company level, output can, for example, be a single product, but it is also possible (even probable) that output of a factory is varying models of a single product, or even varying models of a number of individual products. This problem is usually solved by the use of monetary values; however, such a solution results in the measures being influenced by the price recovery factor. Another approach is proposed by Arnold (2001), who suggests that the unit time can be used in the case of several products being produced:

Where a variety of products are made, it may be that a common unit does not exist. In this case the unit common to all products is time. The work content of a product is expressed as the time required making the product using a given method of manufacture. Using time study techniques, the standard time for a job can be determined. The time approach can also be applied to inputs; this has been done by, for example, Jackson and Petersson (2004). They see time as a resource and propose a completely time-based productivity measure, defined as a ratio between value-adding time and total time. Furthermore, they recommend the use of time-based measures because (Jackson and Petersson, 2002): it is easy to measure; it is easy for everyone to understand; it facilitates comparisons between workshops (independent of cost structure); it facilitates comparisons between countries (independent of currencies); and in operative manufacturing, there is approximately a linear relationship between time and cost. However, it is questionable if a completely time-based measure can be classified as a real productivity measure, since total time does not provide information about the consumed resources in the production process.

2.4.4.6 Non-cost Performance Measures

Due to the pressure of an increasingly global economy, and a business environment characterized by complexity, competition, change and uncertainty, the use of non-cost performance measures has increased. In order to give an overview of such measures, this section introduces a number of classifications. Previously, the term performance was divided into five types of performance objectives. Performance measures are often classified in the same way: cost measures, quality measures, speed measures, dependability measures and flexibility measures. White (2001) has extended the view of the five types of performance measures further into the following taxonomy (White, 2001):

Source of data – internal (data from sources within organization) or external (data from sources outside the organization); Type of data – subjective (based on perception or opinion) or objective (based on observable facts not involving opinion); Reference – benchmark (compares an organization with others) or self-referenced (does not involve any comparison with another organization); and Orientation to process – input to some process or outcome of some process.

Flapper, Fortuin and Stoop, (2001) state that classifications such as that described above may be very useful as sources for potential performance measures; however, most of them do not offer much help in reaching insight into the relationships between performance objectives. That is because the classifications do not tell much about the performance measures themselves, i.e. about their “intrinsic dimensions”, which do not depend on where and by whom the performance measures are used. A new classification of performance measures involving three intrinsic dimensions is therefore introduced (Flapper *et al.*, 2001):

Decision type – strategic/tactical/operational. This dimension focuses on the kind of decision the

measure is meant to support; Aggregation level – overall/partial. This dimension tells if the measure is of overall or partial nature; and Measurement unit – monetary/physical/dimensionless. This dimension relates to which unit the measure is expressed in.

2.4.4.7 Other Performance Measures

(i) Data Envelopment Analysis (DEA)

Banks adopted data envelopment analysis (DEA) in the 1990s as the principal method for assessing bank efficiency. DEA is a linear-programming method initially developed by Charnes, Cooper and Rhodes (1978) to measure the comparative performance of homogeneous organizations. The objective of DEA was to build an efficiency frontier of inputs and outputs, where production is maximized under fixed costs or costs are minimized under restricted production. Thanassoulis (2001) concluded that banks were increasingly using DEA as a tool for assessing, monitoring, and improving performance. The system is widely discussed in recent literature containing banking performance studies. Sherman and Gold (2000), Berg, Forsund, Hjalmarsson, Suominen (2001) and Ferrier and Lovell (2003) adopted DEA as a tool for assessing corporate banking performance. Athanassopoulos and Giokas (2000), Golany and Storbeck (2001), Thanassoulis (2001) and Zenios, Zenios, Agathocleous and Soteriou (2003) used the DEA method to assess bank branch performance. Kantor and Maital (2001) combined and integrated activity based-costing (ABC) and DEA management tools for measuring costs and performance of bank branches.

(ii) Developed Benchmarks

Grasing (2002) described the efforts of the Nolan Company to develop benchmarks for commercial banks involving many of the top performing banks. The goal of establishing the benchmarked banks was to establish drivers of high performance. The cost per each completed loan, the cost per thousand dollars of loans, the non-interest revenue from each loan per each thousand dollars, the total number of loans per employee, and the dollar amount of loans per employee were used as the performance measures for commercial banking.

(iii) Measuring Productivity of Loan Officer

As reported by Boucher (2000), measuring the productivity of a loan officer is the key to improving commercial lending performance. The productivity measure of a loan officer is quarterly loan sales. The manager can use this information to analyze the loan officers' quarterly productivity.

(iv) The Value Tree

Perro and Ruoff (2001) used the value tree to depict some of the values and risk drivers for commercial lending. The drivers of lending revenue are operating fees and interest income that are driven by new loans and existing loan volumes. The drivers of lending expenses consist of interest expense, operating expense, loss revenues and unexpected losses in commercial loans.

2.4.5 Resultant Problems

Studies of Grasing (2002), as well as those of Perro and Ruoff (2001), all of the performance measures are final measures. Using final measures as the primary tools to evaluate lending performance, however, may result in the following problems:

Final measures used to evaluate final outputs of the lending process cannot predict in advance whether a lending operation may become a problem loan. That is, the final measures cannot reduce the operational risk of lending in advance.

In general, the period of lending will be long term – a minimum of three or five years. Performance measures of the lending should concentrate on the quality rather than the quantity of the loan. Therefore, when using final measures as indicators of evaluating loan performance, quarterly or yearly measures are not incompatible with regular performance measures.

A borrower may pay in accordance with the bank's requirements for one period, but in the next period, he or she can violate or breach the agreement. The regular loan performance measure emphasizes cash flow in, but neglects the quality of each lending process, leading to a possibly biased performance measure.

2.4.6 Problem Resolving Mechanisms

In order to resolve these problems that can occur when using final measures as performance indicators, we should choose internal performance measures of bank lending activities as the main analytical core for our study for various reasons. First, the internal measures used can evaluate internal outputs of the lending process. Therefore, these measures can prevent problems loans from occurring in the future. Second, the internal measures can be compatible with a bank's regular performance quarterly or yearly measures. Third, the internal measures are based on quality not quantity, and a quality-based measure can prevent a possible bias in measuring banking loan performance (Athanassopoulos and Giokas, 2000).

3.0 METHODOLOGY

3.1 Introduction

This chapter covers a description of the study design, target population, sample design, data collection methods, research procedures and data analysis and presentation.

3.2 Research Design

According to Brown, Askew, Baker, Denvir and Millett (2003), research design provides the glue that holds the research project together. A design is used to structure the research, to show how all of the major parts of the project - the samples or groups, measures, treatments or programs, and methods of assignment - work together to try to address the central research questions.

To undertake the study, a descriptive research design was used. This is a scientific study done to describe a phenomena or an object (Brown *et al*, 2003). This kind of study involved a rigorous research planning and execution and often involves answering research questions. It involved an extensive well-focused literature review and identification of the existing knowledge gap. The method is preferred as it permits gathering of data from the respondents in natural settings. In this case, it was possible for the researcher to administer the data collection tools to the respondents in their workstations, which was relatively easy, with high likelihood of increasing the response rate. The nature of the current study requires an understanding of the CRM phenomena within a Kenyan context. The CRM as a phenomenon is a process whose understanding requires rich data in its respective context to be collected.

3.3 Population and Sampling Design

3.3.1 Population

The population of interest in this study was all the commercial banks in Kenya. According to the Central Bank of Kenya report of June 31st 2010 there were 45 commercial banks in Kenya (Appendix I). The respondent in each of the banks was the credit manager.

3.3.2 Sampling Design

3.3.2.1 Sampling Frame

The sampling frame is the list of ultimate sampling entities, which may be people, households, organizations, or other units of analysis (Yin, 2004). For purposes of the current study, the sampling frame was the commercial banks in Kenya, which according to the Central Bank report of, December 2008, stood at 45. The sampling frame was obtained from the Central Bank of Kenya.

3.3.2.2 Sampling Technique

Stratified random sampling technique was employed to select the respondent commercial banks based on Peer classification as per the Banking Survey Kenya 2008 publication, which classified the commercial banks into three categories - Tier III, Tier II and Tier I. According to Coleman and Briggs (2004) stratified sampling is used where there might be a reason to judge that some particular characteristic of the sample members is of such importance that it is necessary to impose further control over how it is distributed or represented in the sample. This procedure is considered effective as each bank had a non zero chance of being included in the study.

3.3.2.3 Sample Size

A two-stage stratified random sampling was used to select the sample. Firstly, the sampling frame, a listing of all the commercial banks in Kenya was obtained from the Central Bank of Kenya. The various commercial banks were then categorized according to the peer classification as per The Banking Survey Kenya 2008 publication, which classified the commercial banks into three categories Tier III, Tier II and Tier I. In each category, each bank was assigned a random number and 70% of the companies picked at random. Table 3.1 below presents the sample size.

Table 3.1: Sample Size

No.	Strata (Peer classification of Commercial Banks)	Population size (Number of commercial banks)	Sample size (70% of the population)
1	Tier I	14	10
2	Tier II	16	11
3	Tier III	15	11
Total		45	32

3.4 Data Collection Methods

The survey method was used to collect data. A semi-structured questionnaire consisting of two sections, Section I and section II. Section I consisted of items pertaining to profile of the respondents while section II consisted of items pertaining to the area of study. In order to meet the first objective of the study, “to determine the types of risks facing commercial banks in Kenya”, the various types of risks identified from literature review were listed and respondents asked to indicate the type of risk they faced by ticking as appropriate. Multiple answers were allowed.

In order to meet the second objective of the study, “to establish the extent to which commercial banks in Kenya use credit risk management practices and techniques in dealing with different types of risk”, a listing credit management practices were listed and the respondents asked to indicate the extent to which they have

adopted each of the practices by ticking as appropriate along a five-point scale. In order to meet the third objective of the study, “to determine the factors that influence effectiveness of Credit Risk Management practices used by commercial banks in Kenya”, factors identified from literature review were listed and respondents asked to indicate the extent to which they agree or disagree along a five point scale, in relation to their specific organizations.

In order to meet the fourth objective of the study, “to establish the internal performance measures of bank lending used by commercial banks in Kenya”, the possible internal performance measures were listed and respondents asked to indicate the extent to which their respective organizations used each along a five-point scale.

3.5 Research Procedures

The questionnaires were pilot tested on ten randomly selected respondents before they are administered. The purpose of the pilot testing was to ensure that the questionnaires are understood in their correct perspective, in order to meet the research objectives. The procedure that was used in collecting data was through distribution of the questionnaires that is, dropping and picking questionnaires from respondents at their most convenient time that was agreeable to both parties. A letter of introduction, stating the purpose of the study, was attached to each questionnaire. In addition, the researcher made telephone calls to the respective respondents to make follow up on the questionnaires that had been delivered to the respondents. Once completed, the researcher personally collected the questionnaires. This gave her the opportunity to clarify certain issues arising from the various responses.

3.6 Data analysis and Presentation

The collected data from the questionnaire and other secondary sources were systematically organized in a manner to facilitate analysis. For purposes of the current study, the data pertaining to the profile of respondents was analyzed by employing content analysis. Data pertaining to the objectives of the study was analyzed by employing descriptive statistics. Correlations, the statistical technique that can show whether and how strongly pairs of variables are related, was used to ascertain the relationships between factors influencing effectiveness of CRM and the internal performance measures. Statistical Package for Social Sciences (SPSS) was used as an aid in the analysis. The SPSS was used to generate percentages, frequencies and mean scores. Computation of frequencies in tables, charts and bar graphs was used in data presentation. In addition, the researcher used mean scores to present information pertaining to the study objectives. The information was presented and discussed as per the objectives and research questions of the study.

4.0 FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter includes data analysis, presentation and interpretation. The study aimed at examining the credit risk management systems of commercial banks in Kenya. The study was guided by the following specific objectives:

- (i) to establish the extent to which commercial banks use credit risk management practices and techniques in dealing with different types of risk;
- (ii) to determine the factors that influence effectiveness of Credit Risk Management practices used by commercial banks; and
- (iii) to establish the internal performance measures of bank lending used by commercial banks.

The data used was obtained from the questionnaires distributed to the persons responsible for credit management of selected commercial banks in Kenya. The main types of statistics used to achieve this objective were mainly descriptive in nature. The total number of questionnaires that were sent out was 32 out of which 27 were completed and returned representing an 82 per cent return rate.

4.2 Demographic Data

4.2.1 Period of Operation in Kenya

The respondents were asked to indicate the time period that their respective banks had been in operation in Kenya. The longer a bank operated in a given environment, the more experience it had in as far as environmental forces are concerned and the higher the ability to respond appropriately. The responses are summarized and presented in figure 4.1 below.

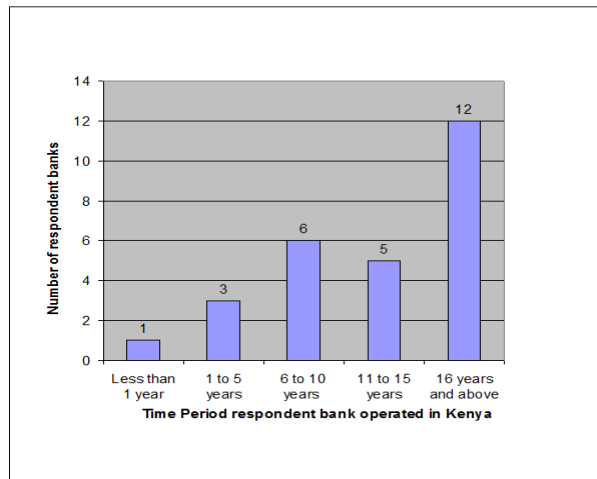


Figure 4.1: Period of Operation in Kenya

The findings indicate that out of the 27 banks that participated in the study, only 1 of them had been in operation in Kenya for less than 1 year. While 3 of the banks had been in operation in Kenya for a period of between 1 and 5 years, 6 of the banks had been in operation in Kenya for between 6 and 10 years, 5 banks had been in operation in Kenya for between 11 and 15 years and 12 of the banks had been in operation in Kenya for a period of 16 years and above. The findings show that majority of the respondent banks (23 out of 27) had been in operation in Kenya for a period exceeding 6 years. Further probing revealed that some of the banks recorded to have operated in Kenya for between 1 and 10 years had actually been in operation for longer periods of time but had changed names as a result of mergers and acquisitions. It can thus be concluded that the respondent banks had been in operation in Kenya for a long period of time and as such, their responses would be objective.

4.2.2 Number of Full Time Employees

The study sought to determine the size of the banks by establishing the number of full time employees. The higher the number, considering that all commercial banks are now automated, the more the operations and hence the bigger the size of the bank. The responses are summarized and presented in figure 4.1 below.

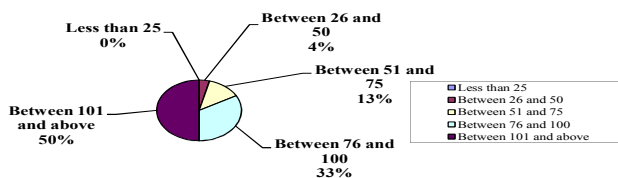


Figure 4.2: Number of Full Time Employees

The findings in figure 4.2 show that none of the respondent banks had less than 25 full time employees in their establishments. The findings also show that 4% of the respondent banks had between 26 and 50 employees, 13% of the banks had between 51 and 75 employees, 33% had been 76 and 100 employees and 50% of the banks had more than 100 full time employees. The findings show that majority of the commercial banks are relatively large in size, employing more than 75 people (88%).

4.2.1.4 Period Respondent Worked in Current Organization

The respondents were asked to indicate the period of time they had worked in their current organizations. The longer one worked in an organization, the more conversant they became with the strategies and operations of the organization, hence the more objective the responses were expected to be. The responses are summarized and presented in figure 4.3 below.

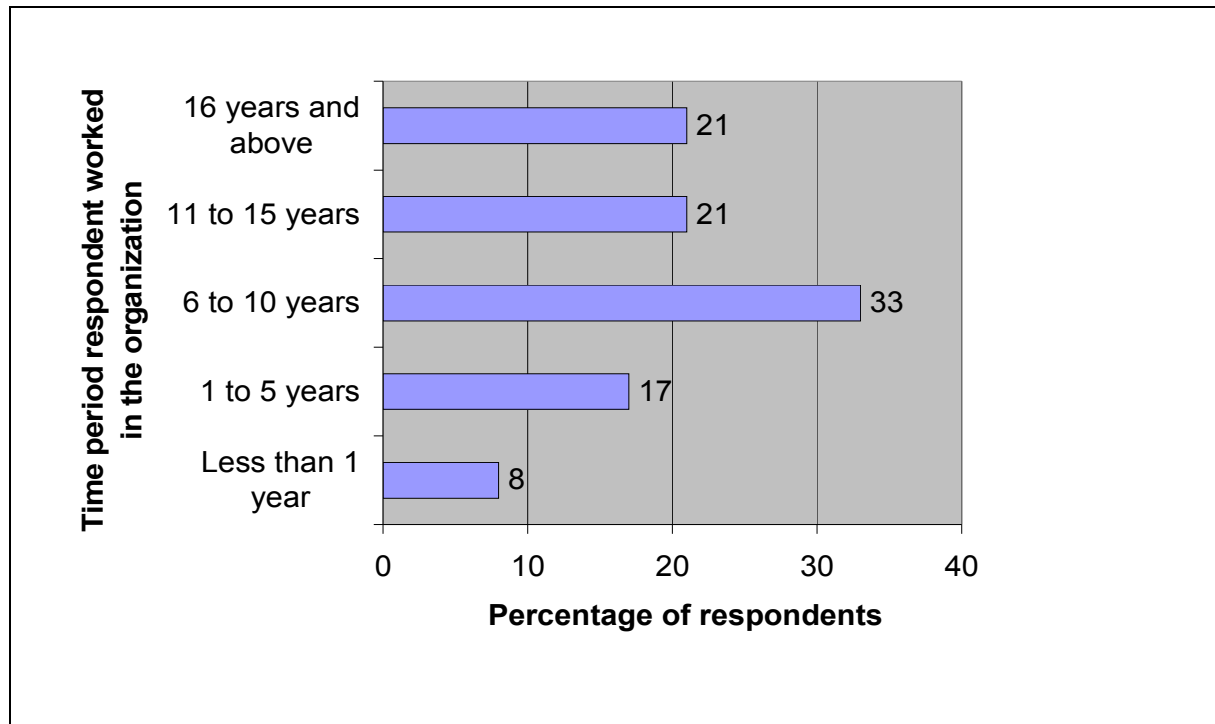


Figure 4.3: Period Respondent worked in Current Organization

The findings in figure 4.3 show that while 8% of the respondents had worked in their current organizations for less than 1 year, 17% had worked for between 1 and 5 years, 33% had worked for between 6 and 10 years, 21% had worked for between 11 and 15 years and 21% had worked for more than 16 years. The majority of the respondents, 75% had worked in their current organizations for a period exceeding 6 years. It can be concluded that the respondents had worked in their respective banks for a period long enough to understand operations of the banks. Their responses would thus be objective.

4.2.6 Number of branches

The number of branches a bank has is a pointer to the size of the bank and area of coverage in the country. The wider the branch network, the wider the area of coverage. The responses are summarized and presented in terms of numbers and percentages in figure 4.4 below.

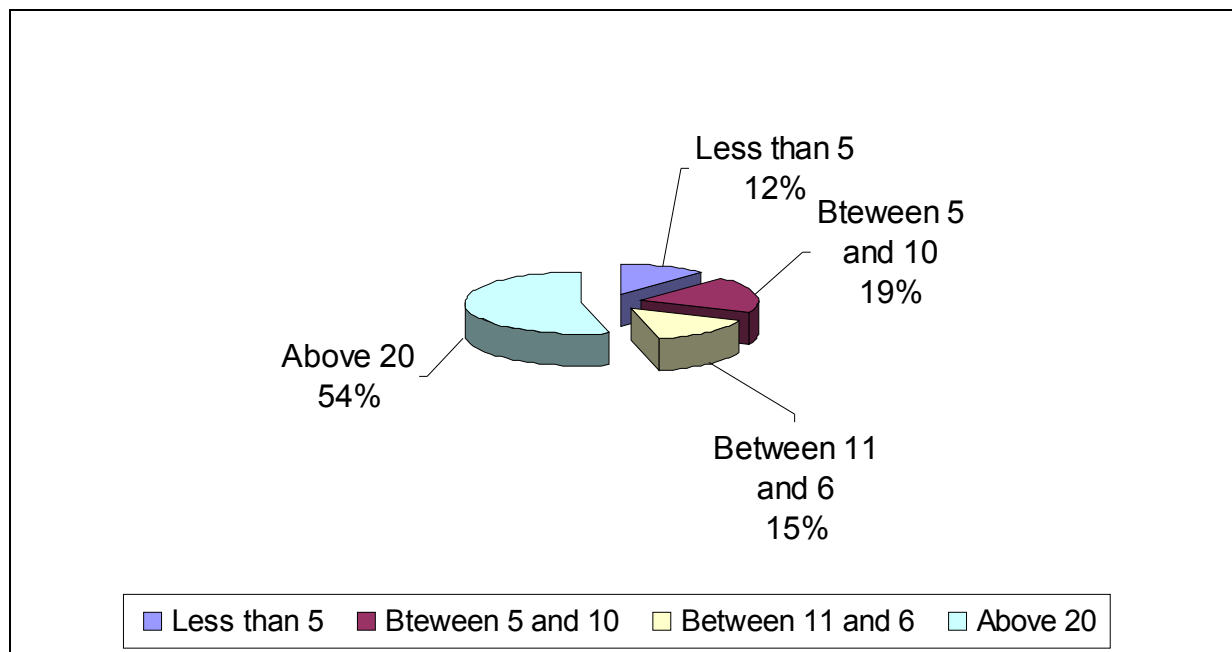


Figure 4.4: Number of branches

Findings of the study show that while 12% of the respondent banks had less than 5 branches, 19% of the banks had between 5 and 10 branches, 15% of the banks had between 11 and 16 branches and 54% of the respondent banks had 20 branches and above. The findings indicate that majority of the banks (69%) had 11 branches or more countrywide while 31% had at least 11 branches.

Table 4.1: Partial Correlation Coefficients - 1 Tailed
 Controlling for period of operation of the Commercial Banks

	Full time employees	Period worked by respondents	Number of branches
Number of full time employees	1.0000 (0) P=.	.1437 (24) P= .242	-.1861 (24) P= .181
Period Worked by respondents	.1437 (24) P= .242	1.0000 (0) P=.	.0883 (24) P= .334
Number of branches	-.1861 (24) P= .181	.0883 (24) P= .334	1.0000 (0) P=.

(Coefficient / (D.F.) / 1-tailed Significance). “. “is printed if a coefficient cannot be computed

Table 4.2: Bivariate Correlation

		Period of Operation of the bank	Full time employees	Period worked by respondents	Number of branches
Period of Operation of the bank	Pearson Correlation	1.000	.624	.915	.931
	Sig. (2-tailed)	.	.001	.000	.000
	N	27	27	27	27
Full time employees	Pearson Correlation	.624	1.000	.616	.528
	Sig. (2-tailed)	.001	.	.001	.005
	N	27	27	27	27
Period worked by respondents	Pearson Correlation	.915	.616	1.000	.865
	Sig. (2-tailed)	.000	.001	.	.000
	N	27	27	27	27
Number of branches	Pearson Correlation	.931	.528	.865	1.000
	Sig. (2-tailed)	.000	.005	.000	.
	N	27	27	27	27

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

The findings show that there is a direct correlation between the duration the bank has been in operation and the number of full time employees. There also exist a direct correlation between the number of branches and the number of full time employees. The study did not establish any significant relationship between the other variables.

4.3 Credit Risk Management Practices of Commercial Banks in Kenya

4.3.1 Extent to which commercial banks in Kenya have adopted credit risk management practices

The respondents were asked to indicate whether their respective organizations had a well-documented Credit Risk Management Policy that elaborates the products offered and all activities that have to be performed to manage the Credit. All the respondents indicated that their respective organizations had a Credit Risk Management Policy in place. The respondents were further asked to indicate whether their respective organizations had a credit manual that documents and elaborates the strategies for managing credit and they are formulated in compliance with the bank credit policy. The responses are summarized and presented below.

Table 4.3: Availability of a Credit Manual that Documents and Elaborates the Strategies for Managing Credit

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	25	92.6	92.6	92.6
	No	2	7.4	7.4	100.0
	Total	27	100.0	100.0	

Findings in table 4.3 show that at least 93% of the respondents indicated that their respective organizations had a credit manual that documents and elaborates the strategies for managing credit. The respondents were also asked to indicate whether their respective organizations had strategies for granting credits focus on who, how and what should be done at the branch and corporate division levels while assessing borrowers. The responses are summarized and presented in table 4.5 below.

Table 4.4: Availability of Strategies for Granting Credits

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	23	85.2	85.2	85.2
	No	4	14.8	14.8	100.0
	Total	27	100.0	100.0	

The findings in table 4.4 show that at least 85% of the respondents had in place strategies for granting credits focus on who, how and what should be done at the branch and corporate division levels while assessing borrowers.

Table 4.5: Correlations

		Availability of Credit Risk Management Policy	Availability of a Credit Manual	Availability of Strategies for Granting Credit
Availability of Credit Risk Management Policy	Pearson Correlation	a.	a.	a.
	Sig. (2-tailed)	-	-	-
	N	27	27	27
Availability of a Credit Manual	Pearson Correlation	a.	1.000	-.118
	Sig. (2-tailed)	-	-	.558
	N	27	27	27
Availability of Strategies for Granting Credit	Pearson Correlation	a.	-.118	1.000
	Sig. (2-tailed)	.	.558	.
	N	27	27	27

a - Cannot be computed because at least one of the variables is constant.

The findings show that there is a positive correlation between availability of a credit manual and strategies for granting credit. There is no significant relationship between the other variables. In order to meet the first objective of the study, “to establish the extent to which commercial banks in Kenya have adopted credit risk management systems” various questions were asked. Firstly, the respondents were asked to indicate the factors considered important in loan appraisal and subsequent approval. The responses are summarized and presented in table 4.7 below.

Table 4.6: Factors considered important in loan appraisal and subsequent approval

Factors considered important in loan appraisal and subsequent approval (the five Cs)	Responses					Mean score
	Not at all	Neutral	Somehow	Much	Very Much	
Borrower's capacity	4	4	15	18	59	3.09
Borrower's character	0	0	18	23	59	3.22
Borrower's condition	1	4	18	59	18	3.17
Borrower's credit history	5	0	18	18	59	3.17
Borrower's collateral	0	0	1	81	18	4.76
N=27						

The findings show that 4% of the respondents did not think the borrowers' capacity was important at all, 4% were neutral, 15% thought it was somehow important, 18% thought the borrowers' capacity was of much importance and 59% thought borrowers' capacity was very much important. The findings also show that 18% of

the respondents thought the borrowers' character was somehow important, 23% thought the borrowers' character was of much importance and 59% thought borrowers' character was very much important. The findings show that 1% of the respondents did not think the borrowers' condition was important at all, 4% were neutral, 18% thought it was somehow important, 59% thought the borrowers' condition was of much importance and 18% thought borrowers' condition was very much important.

The findings also show that 5% of the respondents did not think the borrowers' credit history was important at all, 18% thought it was somehow important, 18% thought the borrowers' credit history was of much importance and 59% thought borrowers' credit history was very much important. The findings show that 1% of the respondents thought the borrowers' collateral was somehow important, 81% thought the borrowers' collateral was of much importance and 18% thought borrowers' collateral was very much important. The findings also show that the most important factor considered in loan appraisal and subsequent approval was borrower's capacity, as indicated by a mean score of 3.07. Secondly, the respondents were asked to indicate the extent to which their respective organizations used various listed tools for controlling losses. The responses are summarized and presented in table 4.7 below

Table 4.7 Tools for controlling credit losses

Tools for controlling credit losses	Responses					Mean score
	Not at all	Neutral	Somehow	Much	Very Much	
Covenants	4	41	18	19	18	1.78
Collateral	0	4	60	18	18	3.17
Credit rationing	0	59	20	17	4	3.17
Loan securitization	5	15	18	17	45	1.44
Loan syndication	7	19	38	22	14	1.44
N=27						

The findings show that 4% of the respondents do not use covenants as a tool for controlling credit losses, 41% were neutral, 18% somehow used covenants, 19% used covenants much and 18% used covenants very much. The findings also show that 4% of then respondents were neutral on the use of collateral as a tool for controlling credit losses, 60% somehow used collateral, 18% used collateral much and 18% used collateral very much. The findings show that 59% of the respondents were neutral on the use of credit rationing as a tool for controlling credit losses, 20% somehow used credit rationing, 17% used credit rationing much and 4% used credit rationing very much. The findings also indicate that 5% of the respondents do not use loan securitization as a tool for controlling credit losses, 15% were neutral, 18% somehow used loan securitization, 17% used loan securitization much and 45% used loan securitization very much. The findings show that 7% of the respondents do not use loan syndication as a tool for controlling credit losses, 19% were neutral, 38% somehow used loan syndication, 22% used loan syndication much and 14% used loan syndication very much. Thirdly, the respondents were asked to indicate the extent to which their respective organizations undertook activities with respect to monitoring of borrowers. The responses are summarized and presented below.

Table 4.8: Activities involved in monitoring of borrowers

Activities involved in monitoring of borrowers	Responses					Mean score
	Not at all	Neutral	Somehow	Much	Very Much	
Frequent contact with borrowers	0	0	63	18	19	3.47
Creating an environment that the bank can be seen as a solver of problems and trusted advisor	7	18	40	19	16	1.44
Development of the culture of being supportive to borrowers wherever they are recognized to be in difficulties and are striving to deal with the situation	0	24	42	16	18	1.95
Monitoring the flow of borrower's business through the bank's account	0	4	0	59	37	3.63
Regular review of borrowers reports as well as an on-site visit	7	0	12	41	40	2.28
Updating borrowers credit files and periodically reviewing the borrowers rating assigned at the time the credit was granted	0	4	22	37	37	2.38
N=27						

The findings show that 63% of the respondents somehow use frequent contact with borrowers as a way to monitoring them, 18% use frequent contact much and 19% use frequent contact very much. The findings also show that 7% of the respondents do not create an environment that the bank can be seen as a solver of problems

and trusted advisor as a way to monitoring borrowers, 18% were neutral, 40% somehow created an environment that the bank can be seen as a solver of problems and trusted advisor as a way to monitoring borrowers, 19% created that environment much and 16% created that environment very much.

The findings show that 24% of the respondents were neutral about being supportive to borrowers wherever they are recognized to be in difficulties and are striving to deal with the situation as a way to monitoring borrowers, 42% somehow developed of the culture of being supportive to borrowers wherever they are recognized to be in difficulties and are striving to deal with the situation as a way to monitoring borrowers, 16% were supportive to borrowers wherever they are recognized to be in difficulties and are striving to deal with the situation as a way to monitoring borrowers much and 18% were supportive to borrowers wherever they are recognized to be in difficulties and are striving to deal with the situation as a way to monitoring borrowers very much.

The findings show that 4% of the respondents were neutral about monitoring the flow of borrower's business through the bank's account, 59% monitored the flow of borrower's business through the bank's account much and 37% monitored the flow of borrower's business through the bank's account very much. The findings also indicate that 7% of the respondents do not regularly review borrowers' reports as well as an on-site visit, 12% somehow review borrowers' reports as well as an on-site visit, 41% reviewed borrowers' reports as well as an on-site visit much and 40% reviewed borrowers' reports as well as an on-site visit very much.

The findings show that 4% of the respondents were neutral about updating borrowers credit files and periodically reviewing the borrowers rating assigned at the time the credit was granted, 22% somehow updated borrowers credit files and periodically reviewing the borrowers rating assigned at the time the credit was granted, 37% updated borrowers credit files and periodically reviewing the borrowers rating assigned at the time the credit was granted much and 37% updated borrowers credit files and periodically reviewing the borrowers rating assigned at the time the credit was granted very much. Based on the mean scores, the findings show that the most important activity in monitoring of the borrowers is the creation of an environment that the bank can be seen as a solver of problems and trusted advisor.

Below is a regression analysis of the variables above.

Table 4.9: Regression Analysis

Model	Variables Entered - a	Variables Removed	Method
1	Frequent Contact with borrowers, Creating an environment that the bank can be seen as a solver of problems and trusted advisor, Development of the culture of being supportive to borrowers, Monitoring the flow of borrower's business, Regular review of borrowers reports, Updating borrowers credit files	b.	Enter

a All requested variables entered.

b Dependent Variable: Availability of a Credit Manual

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.323	.104	-.164	.29

a Predictors: (Constant), Frequent Contact with borrowers, Creating an environment that the bank can be seen as a solver of problems and trusted advisor, Development of the culture of being supportive to borrowers, Monitoring the flow of borrower's business, Regular review of borrowers reports, Updating borrowers credit files

ANOVA – b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.193	6	3.220E-02	.388	.878
	Residual	1.659	20	8.293E-02		
	Total	1.852	26			

a Predictors: (Constant), Frequent Contact with borrowers, Creating an environment that the bank can be seen as a solver of problems and trusted advisor, Development of the culture of being supportive to borrowers, Monitoring the flow of borrower's business, Regular review of borrowers reports, Updating borrowers credit files

b Dependent Variable: Credit Manual that documents and elaborates the strategies for managing credit

Coefficients

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	1.102	.292		3.779	.001
	Frequent Contact with borrowers	5.064E-02	.044	.280	1.148	.264
	Creating an environment that the bank can be seen as a solver of problems and trusted advisor	3.486E-02	.154	.148	.226	.824
	Development of the culture of being supportive to borrowers	-.152	.179	-.657	-.850	.405
	Monitoring the flow of borrower's business	-2.880E-02	.131	-.099	-.220	.828
	Regular review of borrowers reports	-5.307E-02	.119	-.230	-.447	.660
	Updating borrowers credit files	.136	.130	.537	1.047	.307

a Dependent Variable: Credit Manual that documents and elaborates the strategies for managing credit

4.3.2 Factors that influence effectiveness of Credit Risk Management Systems used by commercial banks in Kenya

In order to meet the second objective of the study, "to determine the factors that influence effectiveness of Credit Risk Management Systems used by commercial banks in Kenya" the respondents were asked to indicate the extent to which they agreed or disagreed that listed factors influenced effectiveness of credit risk management systems used by commercial banks in Kenya by ticking as appropriate along a five point scale. The responses are summarized and presented in table 4.11 below.

Table 4.10: Factors that influence the effectiveness of a credit risk management system

	Responses					Mean score
	Strongly disagree	Disagree	Somehow agree	Agree	Strongly agree	
Establishment of an appropriate credit environment through policy and strategies(guidelines) that clearly outline the scope and allocation of bank credit facilities	4	4	18	37	37	2.38
Maintenance of an appropriate credit administration that involves monitoring process as well as adequate controls over credit.	0	7	37	18	38	2.10
Top management support is required to ensure that there are proper and clear guidelines in managing credit	0	0	9	39	52	3.63
All credit risk management guidelines should be properly communicated throughout the organization for all to understand them.	1	4	3	52	40	3.89
Reliable information from prospective borrowers is critical in accomplishing effective screening	0	12	4	36	48	3.17
Highly quality staff are critical to ensure that the depth of knowledge and judgment needed is always available	4	18	26	11	41	3.17
Monitoring of borrowers is very important as current and potential exposures change with both the passage of time and the movements in the underlying variables and in moral hazard problem	2	0	28	38	32	2.28
Supportive technologies and equipment such as computers are useful in credit analysis, monitoring and control, as they make it easy to keep track on trend of credits within the portfolio	4	15	19	17	45	3.17
N=27						

With respect to the establishment of an appropriate credit environment through policy and strategies (guidelines) that clearly outline the scope and allocation of bank credit facilities 4% of the respondents strongly disagreed that that influences the effectiveness of a credit risk management system, 4% disagreed, 18% somehow agreed, 37% agreed and 37% strongly agreed. With regards to the maintenance of an appropriate credit administration that involves monitoring process as well as adequate controls over credit. The findings also show that 7% of the respondents disagreed that that influences the effectiveness of a credit risk management system,

37% somehow agreed, 18% agreed and 38% strongly agreed.

The findings show that with respect to the top management support required to ensure that there are proper and clear guidelines in managing credit 9% of the respondents somehow agreed that that influences the effectiveness of a credit risk management system, 39% agreed and 52% strongly agreed. With respect to all credit risk management guidelines being properly communicated throughout the organization and everybody involved in credit risk management should understand them 1% of the respondents strongly disagreed that that influences the effectiveness of a credit risk management system, 4% disagreed, 3% somehow agreed, 52% agreed and 40% strongly agreed.

With respect to the collection of reliable information collected from prospective borrowers being critical in accomplishing effective screening 12% of the respondents disagreed that that influences the effectiveness of a credit risk management system, 4% somehow agreed, 36% agreed and 48% strongly agreed. With regards to highly quality staff being critical to ensure that the depth of knowledge and judgment needed always being available 4% of the respondents strongly disagreed that that influences the effectiveness of a credit risk management system, 18% disagreed, 26% somehow agreed, 11% agreed and 41% strongly agreed.

The findings also show that with respect to monitoring of borrowers being very important as current and potential exposures change with both the passage of time and the movements in the underlying variables and also very important in dealing with moral hazard problem 2% of the respondents strongly disagreed that that influences the effectiveness of a credit risk management system, 28% somehow agreed, 38% agreed and 32% strongly agreed. With regards to supportive technologies and equipment such as computers being useful in credit analysis, monitoring and control, as they make it easy to keep track on trend of credits within the portfolio 4% of the respondents strongly disagreed that that influences the effectiveness of a credit risk management system, 15% disagreed, 19% somehow agreed, 17% agreed and 45% strongly agreed.

4.3.3 Internal Performance Measures of Bank Lending used by Commercial Banks in Kenya

In order to meet the third objective of the study, “to identify the Internal Performance Measures of Bank Lending used by commercial banks in Kenya”, the respondents were asked to indicate the extent to which their respective organizations used internal performance measures of bank lending. The responses are summarized and presented below.

Table 4.11: Basel II Criteria

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	1	3.7	3.7	3.7
	Neutral	3	11.1	11.1	14.8
	Somehow	5	18.5	18.5	33.3
	Much	5	18.5	18.5	51.9
	Very Much	12	44.4	44.4	96.3
	None Response	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

Basel II Accord’s goal is to introduce bankers to improve their risk management capability, including how the institutions price products, reserve for loss and control their operations so as to reduce a bank’s operational risk during the lending process. The findings show that with respect to Basel’s goal is to introduce bankers to improve their risk management capability, including how the institutions price products, reserve for loss and control their operations so as to reduce a bank’s operational risk during the lending process, 4% of the respondents did not use that criteria at all, 11% were neutral, 19% somehow used the criteria, 19% used the criteria much and 44% used it very much.

Table 4.12: Use of Return on Equity by Commercial Banks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	1	3.7	3.7	3.7
	Neutral	10	37.0	37.0	40.7
	Somehow	1	3.7	3.7	44.4
	Much	10	37.0	37.0	81.5
	Very Much	5	18.5	18.5	100.0
	Total	27	100.0	100.0	

The findings show that with respect to return on equity, 4% of the respondents did not use that profitability measure at all, 37% were neutral, 4% somehow used that profitability measure, 37% used that profitability measure much and 19% used it very much.

Table 4.13: Use of Return on Assets by Commercial Banks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	1	3.7	3.7	3.7
	Somehow	5	18.5	18.5	22.2
	Much	15	55.6	55.6	77.8
	Very Much	5	18.5	18.5	96.3
	Neutral	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

The findings also show that with respect to return on assets, 4% of the respondents did not use it at all, 4% of the respondents were neutral, somehow, 19% somehow used that profitability measure, 56% used that profitability measure much and 19% used it very much.

Table 4.14: Use of Return on Investment by Commercial Banks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somehow	5	18.5	18.5	18.5
	Much	11	40.7	40.7	59.3
	Very Much	9	33.3	33.3	92.6
	Neutral	2	7.4	7.4	100.0
	Total	27	100.0	100.0	

The findings show that with regards to return on investment, 19% of the respondents somehow used that profitability measure, 41% used that profitability measure much, 33% used it very much and 7% were neutral

Table 4.15: Use of Cost per Each Completed Loan by Commercial Banks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	2	7.4	7.4	7.4
	Neutral	5	18.5	18.5	25.9
	Somehow	5	18.5	18.5	44.4
	Much	10	37.0	37.0	81.5
	Very Much	5	18.5	18.5	100.0
	Total	27	100.0	100.0	

The findings show that with respect to the cost per each completed loan, 7% of the respondents did not use that benchmark at all, 19% were neutral, 19% somehow used the benchmark, 37% used the benchmark much and 19% used it very much.

Table 4.16: Use of Cost per Thousand Shillings

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	5	18.5	18.5	18.5
	Neutral	3	11.1	11.1	29.6
	Somehow	7	25.9	25.9	55.6
	Much	1	3.7	3.7	59.3
	Very Much	10	37.0	37.0	96.3
	Non-Response	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

The findings show that with respect to the cost per thousand dollars of loans, 19% of the respondents did not use that benchmark at all, 17% were neutral, 23% somehow used the benchmark, 4% used the benchmark much and 37% used it very much.

Table 4.17: Use of Non-Interest Revenue by Commercial Banks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	5	18.5	18.5	18.5
	Neutral	3	11.1	11.1	29.6
	Somehow	7	25.9	25.9	55.6
	Much	1	3.7	3.7	59.3
	Very Much	10	37.0	37.0	96.3
	Non-Response	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

With respect to the non-interest revenue from each loan per each thousand dollars, 19% of the respondents indicated “not at all”, 11% were neutral, 26% indicated “somehow”, 4% indicated by “much” and 37% indicated “very much”.

Table 4.18: Use of Total Number of Loans per Employee

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	5	18.5	18.5	18.5
	Somehow	19	70.4	70.4	88.9
	Non-Response	3	11.1	11.1	100.0
	Total	27	100.0	100.0	

The findings show that with respect to the total number of loans per employee 19% of the respondents were neutral and 70% somehow used the benchmark.

Table 4.19: Use of Shilling of Loans per Employee

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	5	18.5	18.5	18.5
	Neutral	6	22.2	22.2	40.7
	Somehow	13	48.1	48.1	88.9
	Non-Response	3	11.1	11.1	100.0
	Total	27	100.0	100.0	

With respect to the dollar amount of loans per employee was used a the performance measures for commercial banking 19% of the respondents did not use that benchmark at all, 22% were neutral and 48% somehow used the benchmark.

Table 4.20: The Use of Measurement of Productivity of Loan Officer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	1	3.7	3.7	3.7
	Neutral	5	18.5	18.5	22.2
	Somehow	10	37.0	37.0	59.3
	Much	10	37.0	37.0	96.3
	Very Much	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

The findings show that with respect to the productivity measure of a loan officer includes quarterly loan sales, 4% of the respondents did not use that criterion at all, 19% were neutral, 37% somehow used the criteria, 37% used the criteria much and 4% used it very much.

Table 4.21: Use of the Drivers of Lending Revenue by Commercial Banks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Much	11	40.7	40.7	40.7
	Very Much	13	48.1	48.1	88.9
	Non-Response	3	11.1	11.1	100.0
	Total	27	100.0	100.0	

With respect to the use of drivers of lending revenue are operating fees and interest income that are driven by new loans and existing loan volumes, 41% of the respondents used that criteria much and 48% used it very much.

Table 4.22: Use of Drivers of Lending Expenses

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Much	11	40.7	40.7	40.7
	Very Much	13	48.1	48.1	88.9
	Non-Response	3	11.1	11.1	100.0
	Total	27	100.0	100.0	

Findings in table 4.25 show that with respect to the drivers of lending expenses consist of interest expense, operating expense, loss revenues and unexpected losses in commercial loans 41% of the respondents used that criteria much and 48% used it very much.

5.0 DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of important elements of the study, including the purpose of the study, specific objectives, methodology and major findings of the study. The chapter also presents the discussion and conclusions drawn from the research findings. The chapter further presents recommendations for practice and for further studies.

5.2 Summary

The general objective of the study was to examine the credit risk management systems of commercial banks in Kenya: to establish the extent to which commercial banks have adopted credit risk management systems; to determine the factors that influence effectiveness of Credit Risk Management Systems used by commercial banks; and to identify the Internal Performance Measures of Bank Lending used by commercial banks.

The population of interest in this study was all the commercial banks in Kenya. According to the Central Bank of Kenya report of June 31st there were 45 commercial banks in Kenya. The respondent in each of the banks was the credit manager. A semi-structured questionnaire was used to collect data. The administration of the questionnaires was by hand delivery. The data was analyzed by employing descriptive statistics such as percentages. The findings pertaining to the three objectives of the study were presented in form of percentages, frequency tables, charts and bar graphs.

Findings of the study show that factors considered important in loan appraisal and subsequent approval include borrower's capacity, borrower's character, borrower's condition, borrower's credit history and borrower's collateral. The credit risk control tools used by the commercial banks include covenants, collateral, credit rationing, loan securitization and loan syndication. With respect to monitoring of borrowers, the following activities were undertaken: frequent contact with borrowers; creating an environment that the bank can be seen as a solver of problems and trusted advisor; development of the culture of being supportive to borrowers wherever they are recognized to be in difficulties and are striving to deal with the situation; monitoring the flow of borrower's business through the bank's account; regular review of borrowers reports as well as an on-site visit; and updating borrowers credit files and periodically reviewing the borrowers rating assigned at the time the credit was granted.

The following are the factors that influence effectiveness of credit risk management systems used by commercial banks in Kenya: establishment of an appropriate credit environment through policy and strategies(guidelines) that clearly outline the scope and allocation of bank credit facilities; maintenance of an appropriate credit administration that involves monitoring process as well as adequate controls over credit; top management support is required to ensure that there are proper and clear guidelines in managing credit; all credit risk management guidelines should be properly communicated throughout the organization and everybody involved in credit risk management should understand them; collection of reliable information collected from prospective borrowers is critical in accomplishing effective screening; highly quality staff are critical to ensure that the depth of knowledge and judgment needed is always available; monitoring of borrowers is very important as current and potential exposures change with both the passage of time and the movements in the underlying variables and also very important in dealing with moral hazard problem; and Supportive technologies and equipment such as computers are useful in credit analysis, monitoring and control, as they make it easy to keep track on trend of credits within the portfolio.

Further, the findings show that internal performance measures of bank lending used by commercial banks in Kenya include the Basel II criteria; bank profitability; operational ratios; developed benchmarks; and measuring productivity of loan officers.

5.3 Discussion

This section presents discussion of the key findings of the study.

5.3.1 Extent to which commercial banks in Kenya have adopted credit risk management systems

Findings of the study show that the factors considered important in loan appraisal and subsequent approval include borrower's capacity, borrower's character, borrower's condition, credit history and borrower's collateral as being important.

Findings of the study also show that the respondent banks used various tools for controlling credit losses. The included covenants, collateral, credit rationing, loan securitization, and loan syndication, Tools like covenants, collateral, credit rationing, loan securitization and loan syndication have been used by banks in developing the world in controlling credit losses (Benveniste and Berger, 2001; Greenbaum and Thakor, 2000; Berger and Udell, 2002; Hugh, 2001).

The findings also show that the respondent commercial banks undertook various activities with respect to monitoring borrowers. These included the following: Frequent contact with borrowers, creating an environment that the bank can be seen as a solver of problems and trusted advisor, development of the culture of

being supportive to borrowers wherever they are recognized to be in difficulties and are striving to deal with the situation, monitoring the flow of borrower's business through the bank's account, regular review of borrowers reports as well as an on-site visit, and updating borrowers credit files and periodically reviewing the borrowers rating assigned at the time the credit was granted.

5.3.2 Factors that influence effectiveness of Credit Risk Management Systems used by commercial banks in Kenya

Findings of the study show that the following are the factors that influence effectiveness of credit risk management systems used by commercial banks in Kenya: establishment of an appropriate credit environment through policy and strategies(guidelines) that clearly outline the scope and allocation of bank credit facilities, and maintenance of an appropriate credit administration that involves monitoring process as well as adequate controls over credit. Effective CRM involves establishing an appropriate CR environment; operating under a sound credit granting process; maintaining an appropriate credit administration that involves monitoring process as well as adequate controls over CR (Basel, 2002; Greuning and Bratanovic, 2003; IAIS, 2003).

Top management support is required to ensure that there are proper and clear guidelines in managing credit; all credit risk management guidelines should be properly communicated throughout the organization and everybody involved in credit risk management should understand them; collection of reliable information collected from prospective borrowers is critical in accomplishing effective screening; highly quality staff are critical to ensure that the depth of knowledge and judgment needed is always available; monitoring of borrowers is very important as current and potential exposures change with both the passage of time and the movements in the underlying variables and also very important in dealing with moral hazard problem; and supportive technologies and equipment such as computers are useful in credit analysis, monitoring and control, as they make it easy to keep track on trend of credits within the portfolio. Considerations that form the basis for sound CRM system include: policy and strategies (guidelines) that clearly outline the scope and allocation of a bank credit facilities and the manner in which a credit portfolio is managed, i.e. how loans are originated, appraised, supervised and collected (2002; PriceWaterhouse, 2001; Greuning and Bratanovic, 2003).

5.3.3 Internal Performance Measures of Bank Lending used by commercial banks in Kenya

The following were identified as being the internal performance measures of bank lending used by commercial banks in Kenya include Basel II criteria and bank profitability. Greenspan has indicated that Basel's goal is to induce bankers to improve their risk management capability, including how the institutions price products, reserve for loss, and control their operations (Rehm, 2002). The findings show that return on equity was used by various commercial banks. The other measures used include return on assets, operational ratios, monitoring output per staff members and total operating expenses per unit of output. In addition, Data Envelopment Analysis (DEA) was used.

Thanassoulis (2001) concluded that banks were increasingly using DEA as a tool for assessing, monitoring, and improving performance. The system is widely discussed in recent literature containing banking performance studies. Sherman and Gold (2000), Berg *et al.* (1993) and Ferrier and Lovell (1990) adopted DEA as a tool for assessing corporate banking performance. Athanassopoulos and Giokas (2000), Golany and Storbeck (2001), Thanassoulis (1999) and Zenios *et al.* (2003) used the DEA method to assess bank branch performance. Kantor and Maital (2001) combined and integrated activity based-costing (ABC) and DEA management tools for measuring costs and performance of bank branches.

With respect to developed benchmarks, the performance measures used by commercial banks included cost per each completed loan; cost per thousand dollars of loans; non-interest revenue from each loan per each thousand dollars; the total number of loans per employee; and the dollar amount of loans per employee was used as the performance measures for commercial banking. Grasing (2002) described the efforts of the Nolan Company to develop benchmarks for commercial banks involving many of the top performing banks. The goal of establishing the benchmarked banks was to establish drivers of high performance.

In addition, the commercial banks used Measuring Productivity of Loan Officer, which include productivity measure of a loan officer includes quarterly loan sales. As reported by Boucher (2000), measuring the productivity of a loan officer is the key to improving commercial lending performance. The productivity measure of a loan officer is quarterly loan sales. The manager can use this information to analyze the loan officers' quarterly productivity. With respect to value tree, all the respondents indicated that they used the drivers of lending revenue are operating fees and interest income that are driven by new loans and existing loan volumes; and the drivers of lending expenses consist of interest expense, operating expense, loss revenues and unexpected losses in commercial loans were used by all the respondents. Perro and Ruoff (2001) used the value tree to depict some of the values and risk drivers for commercial lending. The drivers of lending revenue are operating fees and interest income that are driven by new loans and existing loan volumes.

5.4 Conclusions

This section presents the conclusions to the findings of the study.

5.4.1 Extent to which commercial banks in Kenya have adopted credit risk management systems

The lending function is considered by the commercial banks as the most important function for the utilization of funds. Since, banks earn their highest gross profits from loans; the administration of loan portfolios seriously affects the profitability of banks. Effective CRM involves establishing an appropriate CR environment; operating under a sound credit granting process; maintaining an appropriate credit administration that involves monitoring process as well as adequate controls over CR.

The commercial banks in Kenya have adopted various risk management systems. The banks considered the following factors as being important in loan appraisal and subsequent approval: borrower's capacity, character, condition, credit history and collateral. The banks also adopted various tools for controlling credit losses. These included the following: covenants, collateral, credit rationing, loan securitization, and loan syndication. With respect to monitoring of the borrowers, the following activities were undertaken by the commercial banks: frequent contact with borrowers, as indicated by all the respondents; creating an environment that the bank can be seen as a solver of problems and trusted advisor, development of the culture of being supportive to borrowers wherever they are recognized to be in difficulties and are striving to deal with the situation, monitoring the flow of borrower's business through the bank's account, regular review of borrowers reports as well as an on-site visit, and updating borrowers credit files and periodically reviewing the borrowers rating assigned at the time the credit was granted.

5.4.2 Factors that influence effectiveness of Credit Risk Management Systems used by commercial banks in Kenya

There are factors that have to be addressed in order to achieve effectiveness in credit risk management systems by commercial banks. These include the establishment of an appropriate credit environment through policy and strategies(guidelines) that clearly outline the scope and allocation of bank credit facilities; maintenance of an appropriate credit administration that involves monitoring process as well as adequate controls over credit; establishing an appropriate CR environment; operating under a sound credit granting process; top management support is required to ensure that there are proper and clear guidelines in managing credit, as indicated by all the respondents; all credit risk management guidelines should be properly communicated throughout the organization and everybody involved in credit risk management should understand them; collection of reliable information collected from prospective borrowers is critical in accomplishing effective screening; highly quality staff are critical to ensure that the depth of knowledge and judgment needed is always available; monitoring of borrowers is very important as current and potential exposures change with both the passage of time and the movements in the underlying variables and also very important in dealing with moral hazard problem; and supportive technologies and equipment such as computers are useful in credit analysis, monitoring and control.

5.4.3 Internal Performance Measures of Bank Lending used by commercial banks in Kenya

The commercial banks in Kenya use various measures to assess bank efficiency and related functions in the bank lending process. Some of the internal performance measures of bank lending used by commercial banks in Kenya include Basel II criteria, bank profitability, including return on equity, return on assets and return on investment. The operational ratios used include monitoring output per staff members and total operating expenses per unit of output. In addition, commercial banks use developed benchmarks. that include cost per each completed loan, cost per thousand dollars of loans, non-interest revenue from each loan per each thousand dollars, the total number of loans per employee, and used the dollar amount of loans per employee.

5.5 Recommendations

5.5.1 Recommendation for Improvement

5.5.1.1 Extent to which commercial banks in Kenya have adopted credit risk management systems

The commercial banks in Kenya should consider using the following techniques in risk management: establishing standards, credit score, credit worthiness analysis, risk rating and collateral.

The commercial banks could avoid credit risks by by simplifying business practices and minimizing activities that inflict risk. Activities with which the financial institution is committed to proceed can be adeptly managed or transferred. Certain risks which are inevitable or transferred must be engulfed by the bank. Inevitable risks are those too complex to separate from assets. The subsequent risk is accepted by the bank as being crucial to its business; banks are specialized in dealing with this sort of risk, and reap the benefits.

In order to effectively manage credit risks, the commercial banks should follow the following eight steps in processing credits application, credit analysis, decision, document preparation, closing, recording, servicing and administration, and collection. After analyzing these lending activities, a value chain of lending activities should be identified, and the rationale for determining how values are created can be determined.

The commercial banks should put emphasis on the internal measures before lending; character, capacity, capital, collateral, conditions and control, which are also important reference indexes for banks when making a credit analysis to decide whether or not a borrower is worthy of a loan.

5.5.1.2 Factors that influence effectiveness of Credit Risk Management Systems used by commercial banks in Kenya

Effective CRM involves establishing an appropriate CR environment; operating under a sound credit granting process; maintaining an appropriate credit administration that involves monitoring process as well as adequate controls over CR. It requires top management to ensure that there are proper and clear guidelines in managing CR, that is, all guidelines are properly communicated throughout the organization; and that everybody involved in CRM understand them.

Considerations that form the basis for sound CRM system should include: policy and strategies (guidelines) that clearly outline the scope and allocation of a bank credit facilities and the manner in which a credit portfolio is managed, that is, how loans are originated, appraised, supervised and collected

Screening borrowers is highly recommended in the form of credit assessment. A collection of reliable information from prospective borrowers becomes critical in accomplishing effective screening.

The assessment of borrowers should be performed through the use of qualitative as well as quantitative techniques. Borrowers attribute assessed through qualitative models can be assigned numbers with the sum of the values compared to a threshold.

Clear established process for approving new credits and extending the existing credits is very important while managing CR. Further, monitoring of borrowers is very important as current and potential exposures change with both the passage of time and the movements in the underlying variables, and also very important in dealing with moral hazard problem. Monitoring should involve among others, frequent contact with borrowers, creating an environment that the bank can be seen as a solver of problems and trusted adviser; develop the culture of being supportive to borrowers whenever they are recognized to be in difficulties and are striving to deal with the situation; monitoring the flow of borrower's business through the bank's account; regular review of the borrower's reports as well as an on-site visit; updating borrowers credit files and periodically reviewing the borrowers rating assigned at the time the credit was granted

Such tools as covenants, collateral, credit rationing, loan securitization and loan syndication should be used by banks in developing the world in controlling credit losses.

High-quality CRM staffs are critical to ensure that the depth of knowledge and judgment needed is always available, thus successfully managing the CR in the commercial banks.

5.5.1.3 Internal Performance Measures of Bank Lending used by commercial banks in Kenya

The lending function is considered by the banking industry as the most important function for the utilization of funds. The commercial banks are striving to improve their risk management capability, including how the institutions price products, reserve for loss, and control their operations.

With respect to performance, banks should consider using various measures to assess bank efficiency and related functions in the bank lending process. The banks should determine operating efficiency by using measures of bank profitability, such as return on equity, return on assets, and return on investment; also, banks used operational ratios, such as monetary output per staff member, and total operating expenses per unit of output.

Measuring the productivity of a loan officer in terms of quarterly loans is the key to improving commercial lending performance. The management of commercial banks should use this information to analyze the loan officers' quarterly productivity.

The value tree should be used to depict some of the values and risk drivers for commercial lending. The drivers of lending revenue are operating fees and interest income that are driven by new loans and existing loan volumes. The drivers of lending expenses should consist of interest expense, operating expense, loss revenues and unexpected losses in commercial loans.

5.5.2 Recommended Areas of Further Research

The findings of this study, it is hoped, will contribute to the existing body of knowledge and form basis for future researchers. The following areas of further researcher are thus suggested:

- (i) Whereas the current study focused on responses from the management of the commercial banks, future studies should focus on responses from the customers. This will shed light on the perception of customers on the type of credit management systems they would like institutionalized in commercial banks, and
- (ii) Findings of the study should be replicated to other financial services sectors, including mortgage companies.

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**APPENDIX I: LIST OF COMMERCIAL BANKS AS LISTED IN THE CENTRAL BANK OF KENYA
COMMERCIAL BANKS DIRECTORY**

(Peer classification is as per The Banking Survey Kenya 2008 publication)

No.	Name of Commercial Bank	Peer Ranking
1.	African Banking Corporation Limited	tier 11
2.	Bank of Africa Kenya Ltd	11
3.	Bank of Baroda (K) Ltd	11
4.	Bank of India	11
5.	CFC Bank Ltd	1
6.	Chase Bank	11
7.	Citibank N.A. Kenya	1
8.	Charterhouse Bank	
9.	City Finance Bank Ltd	111
10.	Co-operative Bank of Kenya Ltd	1
11.	Commercial Bank of Africa Ltd	1
12.	Consolidate Bank of Kenya	111
13.	Credit Bank	111
14.	Development Bank of Kenya	111
15.	Diamond Trust Bank Ltd	1
16.	Dubai Bank Kenya Ltd	111
17.	EABS Bank Ltd	11
18.	Equatorial Commercial Bank Ltd	111
19.	Equity Bank	1
20.	Family Bank Ltd	11
21.	Fidelity Commercial Bank Ltd	111
22.	Fina Bank Ltd	11
23.	Giro Commercial Bank Ltd	11
24.	Guardian Bank Ltd	11
25.	Habib Bank A.G. Zurich	11
26.	Habib Bank Ltd	111
27.	Housing Finance Ltd	11
28.	Imperial Bank Ltd	11
29.	Investment & Mortgages Bank Ltd	1
30.	K-Rep Bank Ltd	11
31.	Kenya Commercial Bank Limited	1
32.	Middle East Bank (K) Ltd	111
33.	Barclays Bank of Kenya Ltd	1
34.	National Bank of Kenya Ltd	1
35.	NIC Bank Ltd	1
36.	Oriental Commercial Bank Ltd	111
37.	Paramount Universal Bank Ltd	111
38.	Prime Bank Ltd	11
39.	Prime Capital and Credit Finance Ltd	111
40.	Savings and Loan (K) Ltd	
41.	Southern Credit Banking Corporation Ltd	11
42.	Stanbic Bank Kenya Ltd	1
43.	Standard Chartered Bank (K) Ltd	1
44.	Transnational Bank Ltd	111
45.	Victoria Commercial Bank Ltd	111

Source: Central Bank of Kenya (CBK) (December 2008)

APPENDIX II: LETTER OF INTRODUCTION

October 2008

Dear Respondent

REF: REQUEST FOR RESEARCH DATA

I am a Master of Business Administration (M.B.A.) student at the United States International University, Nairobi. I am required to submit as part of my course work assessment, a research project report on “**A SURVEY OF CREDIT RISK MANAGEMENT PRACTICES OF COMMERCIAL BANKS IN KENYA**”

To achieve this, your organization is one of those selected for the study. I kindly request you to fill the attached questionnaire to generate data required for this study. This information will be used purely for academic purpose and your name will not be mentioned in the report. Findings of the study, shall upon request, be availed to you. Your assistance and cooperation will be highly appreciated.

Thank you in advance.

OKOLO WENDY AKINYI
MBA STUDENT -RESEARCHER

SUPERVISOR

APPENDIX III: QUESTIONNAIRE

This questionnaire has been designed to collect information from selected staff of commercial banks in Kenya and is meant for academic purposes only. The questionnaire is divided into two sections. Please complete each section as instructed. Do not write your name or any other form of identification on the questionnaire. All the information in this questionnaire will be treated in confidence.

SECTION A: BACKGROUND INFORMATION

1. Name of organization (Optional) _____

2. For how long has this bank been in operation in Kenya? (Tick as appropriate)
 - (a). Less than 1 year
 - (b). 1 to 5 years
 - (c). 6 to 10 years
 - (d). 16 years and above

3. How many full time employees does the organization have (Pleas tick as appropriate)?
 - (a). Less than 25
 - (b). 26 to 50
 - (c). 51 to 75
 - (d). 76 to 100
 - (e). 101 years and above

4. For how long have you worked in the organization? (Tick as appropriate)
 - (a). Less than 1 year
 - (b). Between 1 and 5 years
 - (c). Between 6 and 10 years
 - (d). Between 11 and 15 years
 - (e). 16 years and above

5. Using the categories below, please indicate the number of branches you have in Kenya
 - (a). Less than 5
 - (b). Between 5-10
 - (c). Between 11-20
 - (d). Above 20

SECTION B: CREDIT RISK MANAGEMENT PRACTICES

6.) Does your organization have a well-documented Credit Risk Management policy that elaborates the products offered and all activities that have to be performed to manage the Credit? (Tick as appropriate)

(a) Yes (b) No

7.) Does your organization have a credit manual that documents and elaborates the strategies for managing Credit and they are formulated in compliance with the bank credit policy? (Tick as appropriate)

(a) Yes (b) No

8. Does your organization have strategies for granting credits focus on who, how and what should be done at the branch and corporate division levels while assessing borrowers? (Tick as appropriate)

(a) Yes (b) No

9.) Briefly explain the lending process of your organization (Steps involved, undertaken by who and how)

10.) With respect to your organization, please indicate the extent to which each of the following factors are considered important in loan appraisal and subsequent approval (Tick as appropriate)

Factors considered important in loan appraisal and subsequent approval (the five Cs)	Not at all (1)	Neutral (2)	Somehow (3)	Much (4)	Very Much (5)
Borrower's capacity					
Borrower's character					
Borrower's condition					
Borrower's credit history					
Borrower's collateral					
Other (Specify)					

11.) Please indicate the extent to which your organization uses each of the listed tools in controlling credit losses (Tick as appropriate)

Tools for controlling credit losses	Not at all (1)	Neutral (2)	Somehow (3)	Much (4)	Very Much (5)
Covenants					
Collateral					
Credit rationing					
Loan securitization					
Loan syndication					
Others (specify)					

12.) Please indicate the extent to which your organization undertakes each of the listed activities with regards to monitoring of borrowers (Tick as appropriate)

Activities involved in monitoring of borrowers	Not at all (1)	Neutral (2)	Somehow (3)	Much (4)	Very Much (5)
Frequent contact with borrowers					
Creating an environment that the bank can be seen as a solver of problems and trusted advisor					
Development of the culture of being supportive to borrowers wherever they are recognized to be in difficulties and are striving to deal with the situation					
Monitoring the flow of borrower's business through the bank's account					
Regular review of borrowers reports as well as an on-site visit					
Updating borrowers credit files and periodically reviewing the borrowers rating assigned at the time the credit was granted					

13.) An effective credit risk management system that ensures repayment of loans by borrowers is critical in dealing with asymmetric information problems and in reducing the level of loan losses. Listed below are some of the factors that influence effectiveness of a credit risk management system. With respect to your organization, please indicate the extent to which you agree/disagree that indeed the factors are considered important in influencing the effectiveness of a credit risk management system (Tick as appropriate)

Factors that influence the effectiveness of a credit risk management system	Strongly disagree (1)	Disagree (2)	Somehow agree (3)	Agree (4)	Strongly agree (5)
Establishment of an appropriate credit environment through policy and strategies (guidelines) that clearly outline the scope and allocation of bank credit facilities					
Maintenance of an appropriate credit administration that involves monitoring process as well as adequate control over credit					
Top management support is required to ensure that there are proper and clear guidelines in managing credit					
All credit risk management guidelines should be properly communicated throughout the organization and everybody involved in credit risk management should understand them					
Collection of reliable information from prospective borrowers is critical in accomplishing effective screening)					
High quality staff are critical to ensure that the depth of knowledge and judgment needed is always available					
Monitoring of borrowers is very important as current and potential exposures change with both the passage of time and the movements in the underlying variables, and also very important in dealing with moral hazard problem					
Supportive technologies and equipment such as computers are useful in credit analysis, monitoring and control, as they make it easy to keep track on trend of credits within the portfolio					

14.) With respect to performance, banks use various measures to assess bank efficiency and related functions in the bank lending process. Indicate the extent to which your organization uses each of the following measures in determining the operating efficiency in lending (Tick as appropriate)

Internal performance measures of bank lending used by commercial banks in Kenya.	Not at all (1)	Neutral (2)	Somehow (3)	Much (4)	Very Much (5)
Basel II Criteria Basel's goal is to induce bankers to improve their risk management capability, including how the institutions price products, reserve for loss, and control their operations so as to reduce a bank's operational risk during the lending process					
Bank profitability Return on Equity					
Return on Equity					
Return on Assets					
Return on Investment					
Operational Ratios Monitoring output per staff member					
Total operating expenses per unit of output					
Data Envelopment Analysis (DEA):- (Linear – programming method developed to measure the comparative performance of homogeneous organizations)					
Developed Benchmarks The cost per each completed loan					
The cost per thousand dollars of loans,					
The non-interest revenue from each loan per each thousand dollars					
The total number of loans per employee,					
The dollar amount of loans per employee was used as the performance measures for commercial banking.					
Measuring Productivity of Loan Officer:- The productivity measure of a loan officer includes quarterly loan sales.					
The Value Tree The drivers of lending revenue are operating fees and interest income that are driven by new loans and existing loan volumes.					
The drivers of lending expenses consist of interest expense, operating expense, loss revenues and unexpected losses in commercial loans.					

APPENDIX IV: TIME PLAN AND SCHEDULE

ACTIVITY	TIMELINE											
	DECEMBER 2008				JANURAY 2009				FEBRUARY 2009			
	1	2	3	4	5	6	7	8	9	10	11	12
TIME IN WEEKS												
Literature Review	■	■	■									
Data Collection				■	■	■						
Data Analysis							■	■	■	■		
Preparation of Study Report									■	■	■	■
Report Submitted												■

APPENDIX V: BUDGET

NO.	Items description	Sub total	Total
1.	Proposal Writing Desk Research – from various libraries Stationary, computer, photocopy, printing and binding	2, 500.00 2,000.00	4,500.00
2.	Research Instruments Questionnaire (typing & Copies) Discussion guide	2,000.00 100.00	2,100.00
3.	Data Collection Hiring of 4 research assistants @ 2,000.00	8,000.00	8,000.00
4.	Data Analysis (SPSS) Data analysis fee	10,000.00	10,000.00
5.	Final draft Printing and binding Typing, photocopy, Binding	4,500.00 500.00	5,000.00
6.	Transport /Miscellaneous Transport Telephone Stationery Computer service/ internet services	4,000.00 1,000.00 500.00 1,000.00	6,500.00
Grand Total			36,100.00

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