An Evaluation Of The Role Of Credit Risk Management On Profitability On Commercial Banks In Kenya

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Declaration

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the dissertation itself.

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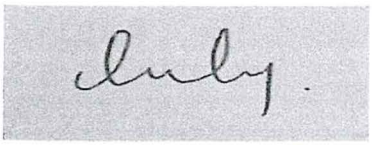
Signature  _____ *Date* :13/08/2021_____:

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DEDICATION

I dedicate this project to both my nuclear and extended families for their unwavering support throughout my academic journey all the way from childhood. The constant encouragement and inspiration that I have received from the family has given me the impetus to work harder towards completion of this research.

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ABSTRACT

The effective management of risk is an important part of an inclusive approach to management of risk and is needed to ensure longevity of any banking institution. This study sought to examine credit risk management and its effect on the profitability of commercial banks in Kenya. Specifically the study addressed the following objectives, to examine the effect of Credit risk identification, the effect of Credit Risk Monitoring on profitability of listed commercial banks and to examine Credit risk analysis and its effect on profitability of their banks. The study was guided by three main theories namely Risk Management Theory, Information Asymmetry Theory and Agency Theory. This study adopted a quantitative research design, which helps in establishing the direction and magnitude of causal relationships. Measurements are taken on each variable over two or more distinct time periods which allowed to measure changes in chosen variables over time. The study found that different commercial banks consider credit risk identification, credit analysis and assessment, credit scoring mechanism, and risk monitoring and that credit analysts use the univariate accounting-based credit scoring systems to compare key accounting ratios of specific clients versus industry ratios to show how a client's ratio differs from the industry standards or trends. At 5% level of significance and 95% level of confidence, capital adequacy ratio, loan to deposit ratio, non-performing loans ratio, management efficiency ratio and the net profit were all significant on profitability of commercial banks in Kenya. The study concluded that risk monitoring assists the banking administration to detect errors in good time and that internal auditors are greatly involved in the risk identification process where risk trigger questions are mostly used as identification methods. Statistically, there was a significant relationship between the effects of credit risk management and financial performance of commercial banks in Kenya. The study recommends that commercial banks should enhance usage of credit risk control practices in credit risk management to a very great extent.

ABBREVIATIONS

BCBS	Basel Committee for Banking Supervision
BCBS	Basel Committee on Banking Supervision
CAR	Capital Adequacy Ratio
CBK	Central Bank of Kenya
GLS	Generalized Least Squares
ICT	Information Communication Technology
LDR	Loan Deposit Ratio
NIM	Net Interest Margin
NPL	Non-Performing Loans
NPLR	Non-Performing Loan Ratio
NSE	Nairobi Securities Exchange
ROA	Return on Assets
ROE	Return on Equity

CHAPTER ONE: INTRODUCTION

1.1. Background to the study

Credit (or trade credit) management is the centre of a business entity for both short and long-term survival. Credit management both the short term and long terms financial aims (Mogga et. al. 2018). It brings together efforts concerned with payment for goods or services consumed, collection of cash from clients who have consumed products or services on credit and general liquidity management. According to Kariu and Mungai, (2018) banks must understand credit management if they intend to manage their cash flows. The author noted that credit management helps banks to project their cash flow requirements. This helps them optimise their revenues and expenditure timing and amounts. In order for banks to grow, they must address factors that lead to their failure such as cash flow problems. This can be done through better credit management practices (Mburu et. al. 2020). Banks are exposed to a myriad of risks among them; interest rate risk, foreign exchange risk, political risk, market risk, liquidity risk, operational risk and credit risk. Although trading losses such as those of Barings bank, Daiwa and Long-Term Capital Management grab headlines, credit risks have posed the most important threat to solvency to of major international banks.

Mungiria and Ondabu, (2019) stated that credit risk is the potential that a bank borrower or counterparty will not meet their obligations according to terms agreed upon. Marjit and Mallick, (2016) noted that the risk of default by debtors is the fundamental risk in banking. As the predominant risk to commercial banks, this therefore explains the strict regulations and controls placed (Mungiria and Ondabu, 2019). Credit Risk mainly arises as the external economic environment becomes worse off such as when there are economic depressions. This type of risk mainly exists in three common forms: principal loss risk where an investment declines in value below the amount invested; interest loss risk-potential for investment losses that result from a change in interest rates, and profit loss risk-concentration of the structure of an income statement and assessing risks associated with the concentrations from a net income perspective. An interest in credit risk management has escalated due to increasing comfortability of lending institutions with transacting their assets in counterparty arrangements where credit risk is shifted.

competition have pushed banks to find viable loan borrowers, causing large and stable companies to shift to open market sources of finance like bond market (Mungiria, & Ondabu, 2019).

Organizing and managing credit in a highly professional manner and doing so pro-actively can minimize whatever the degree of risk assumed losses. Banks can tap increasingly sophisticated measuring techniques in approaching risk management issues (Marjit & Mallick, 2016). The likely acceleration of change in credit risk management in banks is viewed as an inevitable response to an environment where competition in the provision of financial services is increasing, creating a need for financial institution to identify new and profitable business opportunities and properly measures the associated risks (Mogga et. al. 2018). Inevitably, as banks improve their ability to assess risk and return associated with their various activities, the nature and relative sizes of the implicit internal subsidies will become more transparent.

Credit risk management would help to improve prudential oversight of asset quality, establishment of a set of minimum standards and application of common methodology for measurement and reporting NPAs, Loan classification and provisioning (Mungiria, & Ondabu, 2019). The aforementioned methodology includes risk assessment, pricing, documentation, securities, authorization and ethics. Some studies attribute bad credit risk management as one of the factors that caused the Global Financial Crisis (Hurka, 2017). In the wake of a crisis, volume and quality of loan portfolios decreases rapidly as a result of inefficient management of credit risk. The rise in the default rate was caused due to the economic situation as well as inefficient credit risk management. Scholars are developing more interest with regards to CRM and its impact on profitability (Mungiria, & Ondabu, 2019). A positive relationship between the two, both economically and statistically, thus discrediting earlier claims that capital adequacy ratio reduced the expected return on equity that is required by shareholders. Gurov (2016) added to this body of work by sharing the benefits of better management of non-performing loans. In a healthy financial position, management can direct all their attention towards operations of the bank instead of solving financial profitability problems.

1.1.1. Firm Profitability

Profitability refers to a firm's ability to generate financial gains every year. Profitability in the banking is essential as it generates employment opportunities for people while at the same time generating revenue to the government in the form of taxes (Hurka, 2017). The existence of a bank is highly dependent on its level of profitability. The ability of a banking institution to

provide a wide variety of services is not a sufficient measure of its ability to survive and remain sustainable. Profitability among banking institutions is not only beneficial to the government and people who gain access to employment opportunities, but it also creates increased income for investors (Willison et al., 2013). In the long run, an improvement in the profitability of banks brings forth an improvement in living standards among people within a nation. It is, therefore, essential to investigate role of credit risk management on profitability of the banks.

Return on Equity (ROE) and Return on Assets (ROA) are important basic influencers of any banks performance. ROA shows how effective the bank's management is in transforming assets into income. ROA is used an indicator of how profitable a firm is relative to its total assets `s performance is better when ROA is high. ROE on the other side measures the returns on shareholders 'equity. It is the ratio between the overall equity capital and net income after tax. Total equity capitals are common stock and preferred stock, surplus, un-divided profits and capital reserves. Khan, & Ali, (2016) stated that the best way to appropriate a bank's responsibility is ROA; this is because it cannot be interrupted with by the higher equity multiplier. However, ROA is lower for financial brokers since many banks make use of financial leverages to competitively increase their ROE.

The profitability in the Kenyan banking sector has increased immensely over the years, this does not imply that profits are being made (Lukorito et. al. 2014). For instance, small and medium financial organizations which comprise approximately 57% of the sector recorded a loss of kshs.0.09 billion before tax in the tear 2009 as in comparison to their profit before tax which stood at kshs.49.01 billion (CBK,2013). NPLs stock of in Kenyan commercial hiked by 14.1% from kshs.61.6 billion by December the year 2012 to kshs.70.3 billion in March 2013 while the gross ratio of NPLs to loans gross hiked from 4.5% in December of 2012 to 5.0% in march of 2013.

The hike was attributed to by spill over effects due to increased rates of interest between 2012 and 2011. Likewise, the assets quality (measured as proportion in net of nonperforming loans) to gross loans reduced from 1.5% to 2.0% in the same duration (CBK, 2013). While under review 10 out of 11 areas recorded an increase in NPL of kshs.8.7 billion. The huge profits enjoyed by the large banks as well as small and medium size financial institutions indicates that there are favourable industrial factors influencing the profitability of the entire banking sector (Ebenezer et. al. 2019). The performance of the

banking industry has been a large topic of discussion in research (Lukorito et. al. 2014). A financial sector that is efficient decreases risks and costs of production and trade in goods and services (Bhattarai, 2016). Any failure in the financial sector has a huge impact on the economic growth of a region as a whole. As Athanasoglou, Brissimis & Delis (2015) point out stability of the financial system is dependent on the banking sector that is profitable, which applies especially during periods of negative shocks. Adefeya et al. (2015) define ROA as a measure of utilizing the bank's assets to generate profit. The bank regulatory authority argues transactions that are not included on balance sheet may cause bias of this measure.

1.2. Problem statement

According to Bessis (2005) risk management is important to bank management because banks are risk machines; they take risks, transform them and embed them into banking products and services. Despite its contribution to a bank's financial performance, it brings about credit risk. In credit markets, there is asymmetry of information with regards to debtors versus their creditors. A European study by Erdinc and Gurov (2016) focuses on overall European sector. However, it is hard to comprehend that such study can generalize these results across all areas of Europe. The analysis reveals that there existed wide variation in terms of adoption of such advanced techniques across European banks. Emerging Europe, which suffered the most from the surge in NPLs in the post-crisis period, lags significantly behind the Eurozone economies in terms of the intensity of IRB adoption rates. Dynamic generalized method of moments (GMM) estimation methods were employed in the panel regressions to investigate the effect of such regimes on the level of NPLs on a country level. Muhamet and Arbana (2016) did a study in a small European country, namely Kosovo. Time series data was extracted from the annual reports of the banks to calculate the return on equity which was used as a measure of profitability and also to calculate the nonperforming loan ratio which was used as a credit risk management measure along with the risk asset ratio. Return on equity was expressed as a function of the risk asset ratio and non-performing loan ratio and substituted into a multivariate regression model. The data was run using SPSS software. To further examine the relation a simple linear regression was carried out along with a trend analysis. The output showed a substantial relation between the variables and reflected that a higher risk asset ratio would result in a marginal decline in profitability while higher nonperforming loans had a positive and more substantial effect. Further analysis showed a predominantly negative effect, highlighting the possible inadequacy of the multivariate model. The findings of the research are mixed as the

collected data do not present many observations. Thus, each bank in the study presents different results.

Muasya's (2013) research findings indicated that a significant number of commercial banks in Kenya had not put in place credit risk management information systems to effectively measure, monitor, control and identify risk, and that majority of management of commercial banks in Kenya recognized the need for information sharing among players within the industry in order to mitigate the risk. Gatuhu, (2013) investigated factors associated with management of credit effects on finances performance on commercial banks in Kenya and discovered a strong positive correlation between credit risk control and collection, performance and client appraisal. He concluded financial performance in banks is significantly influenced by policy client appraisal, credit risk control and collection.

A study on the impact of credit risk management practices on the commercial bank's financial performance in Kenya by Mwangi (2010) showed evidence that risk management and the related practices are considered significantly important to the operations and financial performance of these financial institutions in Kenya. The study indicates that credit management practices significantly affect financial performance. Despite the significant role played by credit risk management practices on loan portfolio performance in commercial banks, most local studies done have focused on other factors that influence performance of commercial banks. The studies have not been able to address the issue of credit risk management and its effect on the profitability. This thus creates a knowledge gap that needs to be filled. This study therefore sought to fill the existing knowledge gap by determining the effect of credit risk management on the profitability of commercial banks in Kenya.

1.3. Research objectives

1.3.1. General Objective

The main objective of this study was to examine credit risk management and its effect on the profitability of commercial banks in Kenya

1.3.2. Specific objectives

i. To examine effect of credit identifications methods on profitability in commercial banks in Kenya.
ii. To determine the effect of credit risk analysis on profitability of commercial banks in Kenya.
iii. To examine effect of credit risk monitoring on profitability of their banks

1.4. Research Questions

The study was guided by the following research questions:

i. What are the effects of credit identification methods used by commercial banks in Kenya?
ii. What are the effects of credit risk monitoring on profitability of commercial banks in Kenya?
iii. What is the effect of credit risk analysis on profitability of their banks?

1.5. Scope

This study focused on the banking sector in Kenya. The study sought to understand the trend of profitability in relation to credit risk management in the banking sector over the past 6 years. The time period 2013 to 2020 was chosen to capture the enhancement of capital adequacy and corporate governance in 2012 as well as implementation of revised prudential and risk management guidelines set by the CBK in 2013. In addition, the research seeks to pinpoint important factors that account for disparities in the profitability of different banks, with a focus towards credit risk management. The target sample was all the 43 commercial banks.

1.6. Significance of the study

1.6.1. To commercial bank manager

This study may be significant to commercial banks through identification of the main factors that affect credit risk management hence create awareness of these factors. The study may inspire the banks to innovate ways of dealing with credit risk exposure. The study may also examine some of the mechanisms that have been implemented in order to deal with credit risk and evaluate their effectiveness. This may be of importance to the banks in that it may facilitate their knowledge of the effective from the ineffective mechanisms. By appreciating the findings of the study, the banks can then implement new or improve on the existing mechanisms to improve credit risk management.

1.6.2. To the government and Central Bank

Credit risk exposure has a negative impact on banks if it is not properly managed. The failure caused by credit risk on banks leads to stagnation and even collapse of the national economy. This study may be crucial to governments and the policymakers in that it will not only create recognition among the policymakers of the impact of credit risk management on banks, but its effects on the national economy and consequently on national stability. By familiarizing with the discussions and findings of this study, the policymakers will be able to implement effective

fiscal policies concerning credits and therefore reduce the effect of credit risk on banks in the economy.

1.6.3. To researchers

Michael et al. (2006) placed emphasis on the fact that the non-performing loans in a bank's loan portfolio have a causality effect on operational efficiency, subsequently affecting liquidity, profitability and solvency. Non-performing loans are closely related to banking crises because they directly affect a bank's survival (Kroszner 2002). This may be attributed to prudent credit risk management practice among the commercial banks. Profitability among banking institutions is not only beneficial to the government and people who gain access to employment opportunities, but it also creates increased income for investors (Willison et al., (2013). This study will investigate factors affecting profitability of commercial banks. The findings will be used by banks to improve their profitability which in the long run will improve the standards of living among people within a nation.

According to Muller (2008), banks must understand credit management if they intend to manage their cash flows. The author noted that credit management helps banks to project their cash flow requirements. This study will determine the effects of credit management risk on profitability of commercial banks. This will help them optimise their revenues and expenditure timing and amounts.

This study will also provide relevant literature for researchers who want to do studies in the credit risk and its management. Further the study will also be important in generating focus among scholars and researchers on the necessity for a conceptualization of credit risk and profitability.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

This chapter expounds on a number of theories that form the basis for the research. The theories considered for research include risk management theory, agency theory and the theory of asymmetric information. Research work that has been carried out on capital adequacy and non-performing loans has also been included as a build up to the research work being carried out. This chapter also contains the research gap and a conceptual framework, which shows the relationship among the variables.

2.2. Theoretical view

The study was guided by two main theories Information Asymmetry Theory and Agency Theory. These theories will provide the theoretical verification for the study.

2.2.1. Asymmetric information theory

Information asymmetry studies decisions in transactions, financial or otherwise, where one party has more knowledge than the other about the subject matter. This creates a power imbalance (Wilson and Ledyard, 2015). The originate-to-distribute model has been cited as a major cause of financial glut, thus leading to the global financial crisis of 2008, due to information asymmetry.

Banks rely on the use of non-verifiable soft information about customers. The ability of banks to transfer risk arising from credit through securitization may reduce the banks' need to run a background check on borrowers or to keep checking them once the loan is sold, giving rise to adverse selection and moral hazard (Gordon and Pennacchi, 1995; Morrison, 2005; Plantin & Parlour, 2015). The theory informs us that it may be difficult for banks to spot the difference between good and bad borrowers (Auronen, 2013). The theory further explains that the borrower who has more information on the transaction item is in a better position to negotiate for superior terms of contract than the lender (Auronen, 2013).

Asymmetric information alters the terms of a contract with each change in an environment, causing it to lose financial viability which in turn affects the explicit and implicit insurance contacts. This means that the principle is a victim of circumstance of the actions of the agent, which he cannot directly control. The main issue under the moral hazard problem is that the better insurance one gets against some foreseen risk, the less likely the person is to avoid the insured event because they will not bear the full consequences in case of an undesirable outcome (Stiglitz, 1983). The moral hazard can come about in the transactions between banks

and their borrowers on risk taking that is fuelled by non-risk-based deposit insurance as well as the inability of the regulatory bodies to monitor bank risk exposure (Boyd, Chang & Smith, 1998; Lucas & McDonald, 1992). A remedy to this problem would be investing in action monitoring and use information obtained in creation of a risk sharing contract because further knowledge allows better judgement in the performance of a borrower (Holmstrom, 1979). It is important to note that an institution chooses its vigour at monitoring to maximize bank's profitability given the terms of credit and not necessarily the borrower's utility (Besanko & Kanatas, 1993).

The model of Diamond (1989) suggests that a public credit registry can motivate borrowers to choose agreed projects. Further models show that information sharing can discipline borrowers into exerting high effort in projects (Vercammen 1995, Padilla and Pagano 2000) and repaying loans (Klein 1992). A recent survey by the World Bank shows that institutionalized information sharing, i.e., credit reporting through private credit bureaus or public credit registries, now exists in over 100 countries worldwide (World Bank 2006). The risk problem arises from the presence of risk, insurance and lack of perfect information (Stiglitz, 1983). According to Pagaon and Jappelli (1993), information sharing reduces adverse selection by improving information held by banks on their applicants.

The theory of asymmetric information is important to this study because accurate information on credit rationing and clients credit worthiness exchanged by the banks is essential for sound economic decisions and can lower credit repayment rates. Asymmetric information could lead to the downward economic spiral for a firm, and eventually an entire industry. A lack of equal information causes economic imbalances that result in adverse selection and moral hazards. When a market experiences an imbalance it can lead to market failure.

2.2.2. Agency theory

Agency theory was formed due to exploration of risk sharing among individuals (Arrow 1971, Wilson 1968). The risk sharing of the problem arises when parties have different approaches concerning risk. The theory expanded risk sharing literature to include that the chance to conduct "managerial impropriet" (Dalton, Certo, Hitt, 2007: 1) is present in the case that the goals of institution's benefactors and staff employed to run it (the owners' agents) diverge. Agency theory is a study that accounts for an agency relationship where the principal delegates work to an agent. The agency theory tries to describe this transaction by using a contract (Jensen & Meckling, 1976).

According to Jensen and Meckling (1976), most organizations are legal fictions which serve as a nexus for a set of contracting relationships among individuals. Thus, agency relationships are contracts and the incentives, monitoring devices, bonding and other forms of social controls undertaken to minimize agency costs form part of the contract. The assumption that the principal is in control, specifying preferences, creating incentives and making contracts that agents must follow can create problems (Heimer & Staffen 1998; Sharmer 1997). Principals seek out agents for their knowledge, in most cases the agents are repeat players, which may cause problems where they are unexpectedly given new roles with no previous experience, to have preferences and monitoring strategies (Heimer & Staffen, 1998). Therefore, the agency theory emphasizes the divergence in interests between owners and the firm's management stems from the departure of regulation and proprietorship (Arce, 2011).

Agency theory is concerned with finding solutions to problems arising from agency relationships. The first is the goal conflict between the agent and the principal; the high cost that would be incurred by the principal in verifying what the agent is doing. The second problem is that of risk sharing where the agent and the principal do not have the same approach towards risk. The principal and the agent, therefore, have different preferences towards risk mitigation (Eisenhardt, 1989). Further, the agency theory consists of three main human assumptions; self-interest, bounded rationality and risk aversion.

In information economics, agency theory has been developed along two lines; positivist and principal-agent theory. Positivist agency theory focuses on identifying environments in which the main stakeholders are likely to have different goals and then describing mechanisms that limit the agent's self-interest. Positivist research has focused mainly on owners and managers of big institutions (Berle & Means, 1932). Principal-agent research focuses on a general theory of their relationship, which can be applied to buyer-supplier, employer-employee relationships (Harris & Ravr, 1978). It involves careful assumption of specifications followed by logical deduction and mathematical proof, which is characteristic of formal theory.

Various features of credit markets have been designed to counteract the agency problem between an entrepreneur and investors. Grossman and Hat (1982) explain issuance of risky debt as a way of binding their behaviour. According to Easterbrook (1984) and Jensen (1986), corporate cash disbursement is a mechanism that controls for this agency problem by removing surplus cash that could have been used inefficiently and forcing the company to the capital market where it will have to supply information on its undertakings.

Agency theory is applicable to this study as it covers various circumstances in which one party acts on the behalf of the other. Financial institutions are given the responsibility of generating

shareholder wealth and determining impact of required capital and management incentive compensation on risk taking. The agency theory however helps us measure risk, capital and incentive compensation. However, its business practice forces it to incur risk by issuing loans, some of which are outside the comfort level of shareholders. Financial planners and portfolio managers are agents on behalf of their clients and the client's investments; this may be a problem if the managers have a greater risk affinity than their shareholders, causing them to increase credit risk exposure.

2.3. Empirical view

The empirical review done for this study was done with respect to the study points at hand and so covers Credit Risk Management and its use in commercial banks.

2.3.1. Importance of Credit Risk Management

Commercial banks, just like any other institution, battle with different types of risk on a daily basis. Van Gestel and Baesens (2008) identify three main risks of banks: operational risk, market risk and credit risk. Credit risk management is the most important area in risk management. More than 80% of all banks balance sheets relate to credit (Albertazzi et. al. 2017). The importance of Credit Risk Management has been further elaborated in many recent studies. According to BCBS (2012), sound credit risk management is created by establishing proper credit risk environment, a sound lending process, adequate credit administration, measurement, monitoring and control over credit risk, policies and strategies that summarize the scope and allocation of bank credit facilities as well as the tools employed to manage the credit portfolio (Beck et. al. 2014). The studies focused on credit risk management in general and they were not specific on effect of credit risk management on profitability. This study filled the gap by examining the effect of credit risk management on the profitability of commercial banks in Kenya.

In making lending decisions, banks consider a number of issues related relate to: personality of the loan applicant, viability of the business and the industry of operation as well as the level of preparation in planning the details of the loan. The personality of the loan applicant is the personality as perceived from the bank officer's perspective. In personality of applicant, Irwin (2012) summarizes literature that has long examined a bank's loan approval relationship with the applicant. On viability of the business, on top of perceived risks arising from information asymmetry problems inherent in dealing with borrower in general, the viability of the business and the industry in which the applicant operates in is important consideration. The level of

preparation in planning the details of the loan is critical and will determine whether the applicant has a chance of a loan being approved by a bank's lending officer. The relative importance to the success of an applicant being able to seek external financing has to do with its attention to detail in preparing a business plan and loan proposal when applying for the loan. Additionally, it was observed that an inability to determine information disclosures by the applicant can be regarded as signs that the management is weak or lacks financial discipline (Kao & Tan, 2012).

Fernandez (2012), Waweru and Kalani (2012) indicated that a large number of banking crises are directly caused by inadequate credit risk management and lack or quantitative and qualitative analytical skills by loan officers. This was further supported by Curi et. al. (2013) who concluded that banks have challenges in credit risk management. They found that the training obtained may not be satisfactory or that the number of staff did not tally with the number of borrowers to monitor and supervise. The studies focused on bank crises and bank constraints and they were not specific on effect of credit risk management on profitability. This study filled the gap by examining the effect of credit risk management on the profitability of commercial banks in Kenya.

2.3.2. Non-performing loans

Non-performing loans can be treated as undesirable outputs or costs to a loaning bank, which decrease the bank's performance (EBA, 2016). They may be seen as a result of a build up from credit boom that turns into a bust. The burden of non-performing loans has affected many economies at some point in their history of economic growth. High NPLs can result from low growth and structural imbalances in the banking sector (ECD 2017). System wide NPL problems can severely damage a country's growth prospects; they hinder banks from allocating credit through the economy (Constancio, 2015). Their profitability decreases, provisioning needs to be increased and funding costs rise as counterparties try to reduce the risk of lending to affected banks (Aiyar et al, 2015). NPLs reduce new lending contracts as banks with high ratios have reduced capability to offer new credit contracts.

Banks' non-performing loans are influenced by three major sets of economic and financial factors, that is, terms of credit, bank size induced risk preferences and macroeconomic shocks (EBA, 2016). Traditionally banks relied more on collateral than credit assessment and cash flow analysis. This made the banks to be vulnerable to excessive risk taking and a decline in

asset values during market upheavals. New loan contracts were influenced by increasing non-performing loans, loan loss provision needs, decline in collateral (asset) value and erosion of capital bases regulatory measures undertaken in recent years focused on discouraging lenders from taking on excessive credit, ensuring that they reduced their exposure levels by diversifying income streams and promoting the health of the banking system (Ovi, Perera & Colombage, 2014).

There is little empirical evidence available relating performance of an economy to the rise of non-performing loans. Arguments have been put to propose that they are as a result of a long lasting recession. Others propose the debt inflation theory of Irving Fisher (1933). However, all research on the causes of banking failure find that failing banks have a high percentage of non-performing loans just before collapse and that asset quality is an important indicator of insolvency (Erdinc and Gurov, 2016). On the surface, problem loans and cost efficiency may not seem related because operation personnel do not usually participate in screening and monitoring of loans while loan officers do not oversee operation costs. A number of studies have found an inverse relationship between cost efficiency and problem loans, even for those banks that do not fail .

Kolapo (2012) analysed the influence of credit risk on the performance of 5 banks in Nigeria from 2000-2010. Credit risk was measured using NPLR to ROA. Fixed effect model used in the study brought forth the results that NPLs and LLPs adversely affect the performance while total loans to advance plus deposit ratio had a positive significant effect on performance. This is evidenced by the fact that banking industry needs to improve on the loan administration process in order to maximize profit.

Similarly, Mohammed (2012) studied the influence of corporate governance techniques, importantly the NPLR and LDR on performance. The study was conducted on ten banks in Nigeria from2001 to 2010. According to the GLS regression results, NPLR has a significant inverse relationship with financial performance while LDR has an insignificant negative relationship with financial performance.

Another study was done by Azeem and Amara (2013) on the impact of non-performing loans ratio on the profitability of banks in Pakistan. The data was collected one business cycle of sixteen Pakistani banks from 2006-2012. The study used NPLR as the independent variable and ROE as the dependent variable for one model. From this model, the researchers found that the two have a significant inverse relationship with an increase of NPLs by a thousand units causing a decrease in profitability by 0.00527%. The studies focused on credit risk management

in general and they were not specific on effect of credit risk management on profitability. This study filled the gap by examining the effect of credit risk management on the profitability of commercial banks in Kenya.

2.3.3. CAMEL rating for banks

Regulators of the banking industry can tell when a bank's performance is decreasing or when it is approaching failure if they perform frequent checks (Erdinc and Gurov, 2016). These rating frameworks and examinations created can be expensive and time consuming. It is therefore crucial for them to develop a limited number of predictors of rating a downgrade or potential insolvency, which are highly accurate (Franklin et. al. 2017). Models that predict downgrades are more accurate as they benefit from increased predictive ability over time with new more frequent observations, in comparison to those that model bank failures since these events are highly irregular and infrequent. The downgrade predicting models are beneficial when the industry is generally healthy but should not replace the bank failure models since the variables may be seemingly different. It is important to employ a capital-adequacy-asset-quality-management-earnings-liquidity-sensitivity downgrade prohibit framework. Using these, Gilbert et al (2015) found that a set of explanatory variables in the downgrade predictive model correlate to the explanatory variables of the banking failure model. However, evidence from the proportional hazard model is contradictory in the valuation of predictors. According to Erdinc and Gurov (2016), the proportions of equity capital to aggregate assets, loan portfolio at risk to loan portfolio and total loans to total assets are only three times stable predictors of bank failures, which shows that some variables are less reliable in prediction in comparison to other moderating variables, for example asset quality and liquidity.

Academic studies have examined the extent to which private supervisory information is of use in supervisory monitoring of financial institutions. In prediction of bank failure, Franklin et al. (2017) find evidence that CAMEL ratings are useful even after controlling for a wider range of publicly available information concerning the condition and performance of banks. However, Ovi et al. (2014) find that although this rating contains useful information, the usefulness decreases quite rapidly with time. They find that a statistical model using financial information that was readily available was a better source of prediction for the period between 1988 and 1992 than a CAMEL rating that was six months old. Pal, & Mitra, (2017), in examining the usefulness of past CAMEL ratings to assess current bank conditions found that private supervisory information provided further prediction into banks current conditions. The possible routes for examination include capital adequacy, provisions and reserves for problem

assets, credit risk, liquidity risk, disclosure and transparency. The studies focused on credit risk management in general and they were not specific on effect of credit risk management on profitability. This study filled the gap by examining the effect of credit risk management on the profitability of commercial banks in Kenya.

2.3.4 Capital Adequacy

Banks that have a large capital base are assumed to be safe by depositors hence they attract large deposits (Erdinc and Gurov, 2016). They also benefit from cheap loans which leads to higher spread between lending rate and borrowing rate hence better financial performance. The main purpose of banking regulation is the prevention of a bank's failure. Regulators prefer to lay importance on capital adequacy due to the difficulty in assessing riskiness of different assets; it is one of the parameters used by regulators and stakeholders to assess a bank's stability (Olaleka & Adeyinka, 2013). In cases of banks, regulation is justified on the grounds that depositors are unable to monitor the financial soundness of banks (the agency problem) and that there is a risk of systemic crisis.

Requiring banks to increase their capital seems like a plausible regulatory response to the risk of systemic crisis in banks, which also improves the security of the banking sector. When a bank holds a large sum of equity capital, it is less likely to pursue risky ventures because it has more to lose if it fails. Sinaga (2015) studied the role of capital requirements on the banking crisis of 1998-1999 in Uganda. His study found that the set capital requirements from their regulators positively impacted banks' performance. Inadequacy of capital was touted as a leading factor of banks' failure in Uganda. This was supported by Umoru and Osemwegie (2016) who studied on the significance of capital adequacy on financial performance of banks in Nigeria. They used a GLS estimation technique on 8 banks which were perceived to be strong by surviving the 2017-2015 meltdown. The result found that capital adequacy was important for banks to remain secure and continue with their lending activities.

A study was carried out by Marjit & Mallick, (2016) on 30 Taiwanese banks from 1998-2002 on bank regulatory report filling in order to test whether risk based capital ratio and traditional capital ratio could be used to estimate a bank's size. The conclusion was that capital risk ratios are able to predict a bank's solvency rather than traditional capital ratios on the balance sheet. Additionally, Sinaga et. al. (2015) study on role of capital requirement on the banking crisis of 1998-1999 in Uganda argues that capital inadequacy played a causal effect on bank failures in Uganda. Using data from the Bank of Uganda he found that the set capital requirements by

bank of Uganda positively impacted their performance. Nzioki (2011) established that financial health and performance for listed banks at the NSE are affected by capital adequacy. Asset quality as well as asset base are also key determinants of financial performance. A large capital base is important to increase profitability. He adds a caveat, saying that increased liquidity may reduce a bank's ability to reduce liquidity risk

According to Mogga et. al. (2018), the capital decisions of a banking firm is complicated because the optimal choice of scale and leverage is influenced by the assumed financial environment and the rationale of the banking firm. Critiques of banking regulation in capital adequacy argue that capital adequacy regulation is unnecessary and unable to improve a bank's capital position more than the bank could do on its own. Both these studies agree that the best reason for capital adequacy regulation is that it might help counter effects of other factors such as moral hazard created by the regulatory authority. Analysts have resorted to market pressure arguments to account for this observation citing that bank experience opportunity costs and may face reduced profit if they increase capital adequacy ratios (Erdinc and Gurov, 2016). The studies focused on credit risk management in general and they were not specific on effect of credit risk management on profitability. This study filled the gap by examining the effect of credit risk management on the profitability of commercial banks in Kenya.Petria, Capraru & Ihnatov (2015) also argued on specific bank aspects which significantly affect capital strength and size of the banks.

2.3.4.1 Cost per loan

Cost per loan has been used mostly as an indicator of the efficiency with which management distributes its loans to borrowers. Kolapo, Ayeni &Oke (2012) find significance of using this ratio (CLA) as a CRM proxy as it highlights how efficient the banks are in loan distribution to customers. More importantly, Mogga et. al. (2018) discuss that although there are various costs when it comes to banks, only type of costs- operating expenses, are a true indicator of management's actions. It will be calculated as a ratio of operating expenses divided by total amount of loans and its expected sign is negative. Capital strength, as one of the aforementioned factors, is already included in the regression under capital adequacy ratio.

2.3.4.2Bank size

The capital outlay predisposes a bank to a certain level of accessibility and infrastructure (Arasa & Ottichilo, 2015). This influences the level of complexity of investment in resources, thus the capacity to manage credit risk exposure within a bank's tier group (Oniala, 2013). Bank size limits the undue influence from high profile clients because of established systems. A risk

based approach helps the institution to design a framework that will invariably suit it. A shift from the regulators to the bank through self-monitoring allows for dynamism but needs the institution to be sensitive to the risk exposures that affect the sector as a whole and itself in particular. Risk misinterpretation may be deemed as non-compliance. KPMG (2015) studied that large banks were able to meet the capital requirements. Small banks have limited resources and costs of a risk based approach that requires full understanding of this phenomenon may be devastating. Most studies use a logarithm of bank's total assets. As the relationship has proven to be significant across several articles, the log of total assets will be included as a control variable. Based on other research papers, the expected relationship of bank size with performance measures is positive. The studies focused on credit risk management in general and they were not specific on effect of credit risk management on profitability. The study however failed to establish whether there was significant influence of credit risk management practices on loan portfolio performance in commercial banks. This study filled the gap by examining the effect of credit risk management on the profitability of commercial banks in Kenya.

2.4. Summary of Literature review and research gap

The reviewed literature has shown that proper credit risk management is an integral in influencing profitability of commercial banks. The theories reviewed; Risk Management Theory, Asymmetric Information Theory and Agency Theory have indicated need for incorporating various credit risk management practices in commercial banks and the theorized outcomes to be anticipated. The difference in the findings obtained by the studies could be due to differences in methodologies, variables under study, time frame of the studies and contexts. The studies conducted have also focused generally on the non-performing loans aspect and not necessarily on the capital adequacy. The local studies analysed are biased towards the various tools and techniques of credit risk management used by various institutions. The studies conducted have also focused generally on individual components of credit risk management practices and effects on the performance of the commercial banks without investigating the general impact of credit risk management's impact on profitability. Most studies done had only one moderating variable (bank size) if any at all. Most of the literature has been conducted mainly inthe developed nations, with insufficient literature in the Kenyan context. It is based on these identified gaps that this study seeks to satisfy the gaps created by conducting a study on the effect of credit risk management on profitability of commercial banks in Kenya.

Table 2.1: Research Gaps

Table 2.1: Summary of Literature Review and Research Gap

Authors	Title	Methodology	Major Findings	Gaps Identified	Gaps Filled
Parrenas (2015)	Effects of credit risk on performance of commercial banks	Descriptive analysis was used.	Financial institutions demands financial information as their right to evaluate risk management efficiency levels.	Only descriptive analysis was used, correlation and regression analysis was not presented.	Descriptive, inferential analysis and explanatory research design was used.
AlMazrooei (2014)	Risk control and monitoring between foreign banks and the local banks in UAE	Descriptive analysis was used.	Reported a significant differences in risk control and monitoring between foreign banks and the local banks in UAE	Cross country analysis was used	Local bank analysis was used in the current study.
Muasya (2013)	Assessed the relationship between loan losses and credit risk management	descriptive research design was used	Majority of the commercial banks in Kenya utilized to a great extent the risk management practices method of measuring, monitoring, identifying and control.	The conceptual gap identified was that the study concentrated on loan losses and credit risk	The current study filled the gap (conceptual gap) as it focused on performance of loan portfolio in commercial banks Kenya.
Chilukuri and Rao (2015)	Appraisal and credit approval effectiveness and loan review in Banks	Crosssectional analysis was used	Credit risk is the greatest risk faced by many commercial banks	Cross country analysis was used and the findings may not be applicable in Kenyan banks	This study focused on local analysis hence the results was Kenyan specific
Iqbal and Mirakhor (2017)	Institutions policy on investment	Descriptive analysis	All the institutions studied had a policy on investment	The study dependent variable was investment	The current dependent variable of the study was loan portfolio

Githinji (2010)	Relationship between credit scoring practices by commercial banks and access to credit by small and medium enterprises	Descriptive and inferential analysis was used	There was significant relationship between variables	The study context was on access of loan by small and medium enterprises	This study focused on loan portfolio performance
Haron and Hin Hock (2014)	Risk identification effect on risk management	Descriptive was used	Risk identifications influences risk management practices positively and significant	Only Descriptive was used	Descriptive and inferential analysis were used
Haneef (2012)	Risk management on profitability and loan performance of commercial banks in Pakistan.	Descriptive was used	Risk management is complex decision and there is no better way to manage risk	The study was done in Pakistan	The current study was done in Kenya
Gakure (2012)	Effect of credit risk management practices on unsecured loans performance by commercial banks in Kenya	Descriptive and inferential analysis	The findings indicated that performance of the non-secured loans are moderately affected by risk identification.	The study concentrated on unsecured loans as the independent variable	The current study concentrated on loan portfolio performance
Sundarar ajan (2017)	Risk assessment and measurement in Commercial	Crosssectional research design	Risk mitigating methods and measurement methods maybe applicable	A cross sectional research design was used	Descriptive and inferential research designs will be used
	banks		differently in different environments and the activities matters from time to time.		

Mwithi (2010)	Relationship between the risk management practices on nonperforming loans of the microfinance institutions in Nyeri County, Kenya.	Descriptive research design	Indicated that credit risk assessment level and management of risk was high in the microfinance institutions	The study utilized only descriptive methods	Both descriptive and inferential statistics was used
Ntiamoah, Egyiri, Fiaklou and Kwameg a (2014)	Relationship between credit management practices and performance of loans in Ghana	Descriptive Research design	The relationship between loan portfolio performances and credit risk management was significant.	The study was done in Ghana	The findings related to Kenyan Banks

Source: Researcher's Literature Review (2019)

2.5. Conceptual framework

A conceptual framework gives a representation of the relationship between the dependent and independent variable.

According to Mogga et. al. (2018), the capital decisions of a banking firm is complicated because the optimal choice of scale and leverage is influenced by the assumed financial environment and the rationale of the banking firm. Critiques of banking regulation in capital adequacy argue that capital adequacy regulation is unnecessary and unable to improve a bank's capital position more than the bank could do on its own. Both these studies agree that the best reason for capital adequacy regulation is that it might help counter effects of other factors such as moral hazard created by the regulatory authority. Analysts have resorted to market pressure arguments to account for this observation citing that banks experience opportunity costs and may face reduced profit if they increase capital adequacy ratios (Erdinc and Gurov, 2016). The studies focused on credit risk management in general and they were not specific on effect of credit risk management on profitability. This study filled the gap by examining the effect of credit risk management on the profitability of commercial banks in Kenya. In this analysis, it is expected that a number of elements will affect the information obtained on credit risk management by the financial institution. Researchers may use a variety of independent variables to measure credit risk. The most accurate measure and also most widely used across

articles has been NPLR (non-performing loans ratio) because it provides a direct incorporation of loan losses. It also indicates how effective the management is in managing credit risk in banks because it determines the ratio of loans that have defaulted or are close to being default to the total loans. In addition, Noman, Pervin and Chowdhury (2015) emphasize that lower NPL ratio is the evidence of lower amount of loans being doubtful which in turn means a lower credit risk. This signifies the importance of NPLR as a CRM proxy.

Another measure frequently used in many research papers is Capital Adequacy Ratio (CAR). Noman, Pervin and Chowdhury (2015) motivate its use as a credit risk indicator because a higher CAR indicates higher asset quality which in turn means lower credit risk for a bank. Another reason CAR is used as a proxy for credit risk management is Bhavani and Bhanumurthy (2012) define it as one of the two measures (along with NPLR) to determine the soundness of the banking system. Capital adequacy ratio (CAR) puts regulations on capital requirement and it is a ratio of capital to the percentage of risk-weighted assets (RWA).

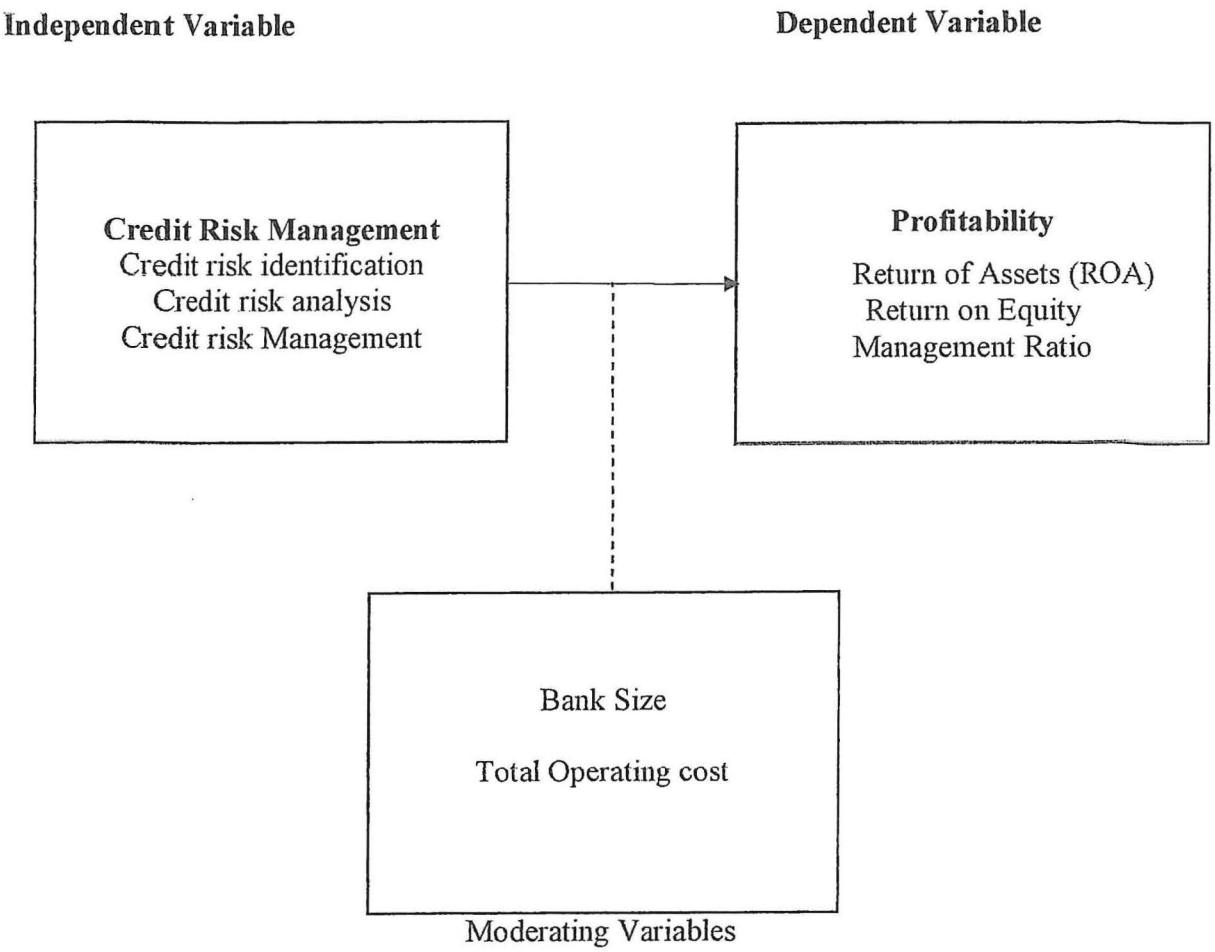


Figure 2.1: Conceptual Framework

2.6. Operationalization of Variables

Operationalization of variables defines the used variables into measurable factors which allows them to be measured empirically and quantitatively.

Type of Variable	Sources for the Variables		Measurement scale	Tools of data Analysis	Type of Analysis
Capital Adequacy Ratio	Bateni *et. al.*, (2014)		Interval (Tier one+tier two capitals)/risk weighed assets	Frequency, percentage, mean and standard deviation	Descriptive statistics and inferential statistics
Loan to Deposit Ratio	Van den End, (2016)		Interval (total loan /total exposure)	Frequency, percentage, mean and standard deviation	Descriptive statistics and inferential statistics
Non-performing Loans Ratio	Makri *et. al.*, (2014)		Interval (nonperforming loans/total loans)	Frequency, percentage, mean and standard deviation	Descriptive statistics and inferential statistics
Management Efficiency Ratio	Gill, & Biger, (2013)		Interval (noninterest expenses/net income)	Frequency, percentage, mean and standard deviation	Descriptive statistics and inferential statistics
Net Profit	Heikal *et. al.*, (2014)		Interval (net income/total sales)	Frequency, percentage, mean and standard deviation	Descriptive statistics and inferential statistics
Profitability	Ball *et. al.*, (2015)		Interval (net profits/ mean assets+liabilities)	Frequency, percentage, mean and standard deviation	Descriptive statistics and inferential statistics

CHAPTER THREE:

RESEARCH METHODOLOGY

3.1. Introduction

The study sought to explore the extent to which credit risk management measures employed by commercial banks in Kenya have affected the profitability of banks in the Kenyan economy. The study also sought to establish alternative policies and procedures which would effectively be implemented so as to make it easier for banks to identify their customers and their transactions, while making it less cumbersome for customers to open accounts and transaction.

3.2. Research Philosophy

Research philosophy relates to the development of knowledge and the nature of that knowledge (Saunders, et al., 2009). There are two major ways of thinking about research philosophy: epistemology and ontology.

Ontology is focused with the nature of social entity (Saunders, et, al, 2009). It questions assumptions about the way the world operates and the commitment held to particular views.

This research supposes that profitability is something that the bank "has" and it is something that independently exists in the world, can be observed, categorized and measured. Therefore, we intend to measure how it could be determined by credit risk management but not the point that how it is inherited from social factors' interaction (Saundes, et, al, 2009). This study chooses subjectivism as its ontological standing point. The subjectivism approach was inappropriate for this research since it assumed that, social phenomena and their meanings are continually being accomplished by social actors. It implies that social phenomena and categories are not only produced through social interaction but that they are in a constant state of revision (Aliyu et. al. 2015). This thus, implies that the commercial bank profitability and credit risk management of commercial banks are not independent of social actors, and this renders it unsuitable.

The epistemological position used is positivistic. Positivism focuses on the explanation of social reality whilst the other alternative, interpretivism, concentrates on the understanding of the subjective meaning of social actions (Tekin, & Kotaman, 2013). Taking cognisance of the primary research objective, the main aim of this research was on finding the relationship between the credit risk management and profitability of commercial banks rather than how the relationship is (Wahyuni, 2012). Hence, the process of generating hypotheses, testing through statistical programs and generating the explanation of laws matches the concept of the

positivism position. Furthermore, this study was undertaken through objective financial ratio valuation and statistical test and from this perspective, the positivistic epistemological position is more appropriate than interpretivism (Hasan, 2016).

3.2. Research Design

According to Kerlinger (1986) research design is the plan and structure of investigation so conceived so as to obtain answers to research questions. The plan is the overall program of the research and includes an outline of what the investigator did from writing of the hypothesis and their operational implications for the final analysis of data. Research design is the pattern that the researcher intends to follow. It is the plan, framework, or strategy for conducting the research (Oso & Onen, 2009). This particular study applied descriptive research design. The design was appropriate since in addition to helping the researcher to describe a phenomenon in terms of attitude, values and characteristics, it determines and reports the way things are done (Mugenda and Mugenda, 1999). In addition, the research design was appropriate and relevant for this study in that it will contribute to accuracy of events, situations and data. The design helped the researcher to have an in-depth analysis of the study variables as well as providing more room for collection of large amounts of data.

3.3. Research Population

Population is the assembly of elements that are the focus of a scientific study (Cooper and Schindler, 2003). Kothari et. al., (2010) defines research population as a well-defined collection of individuals or objects known to have similar characteristics. The research population consisted of all the 43 commercial banks licensed by the Central bank of Kenya to carry out business in Kenya as of December, 2018. The respondents were the financial managers of the respective banks. The financial managers were chosen as they had ample information in relation to credit risk management and they are the ones who deal with financial issues within the bank.

3.4. Sample Size and Sampling Technique

A sample is the segment of the population with common observable characteristics, which is selected for research (Jupp, 2006). Sampling refers to the process through which a sample is selected from a target population with the aim of predicting the outcome in relation to the phenomena under investigation. The sample population should have similar characteristics with the original population (Kumar, 2005). The study used the census method, which applies statistical enumeration where all respondents (43) of the population are used in the study. Thus one questionnaire per bank was used to obtain the data. Census was used because the number

is manageable within the constraints of the study and the method provides a true measure of the population and also has the highest degree of accuracy.

3.5. Data Collection

Data collection is the process of assembling and quantifying information from variables in a systematic format, to enable one to answer questions and evaluate results in o rder to draw a conclusion (Lescroel et al, 2015). A data collection instrument is used to collect needed data in an unbiased and a systemic manner to facilitate the research (Orodho, 2009). The study utilized both primary and secondary data. The study utilized a questionnaire as the instrument of data collection. The questionnaire contained both open and close-ended items. The close-ended items were used in order to save time and improve consistency while the open-ended questions will be used to allow the respondents the opportunity to give more information including feelings, attitudes and understanding of the subject without being held back or limited. In order to enhance the response rate, the respondents were assured of confidentiality of the information they provide.. Proper introduction to the respondents about the researcher and the purpose of research is crucial to guarantee conducive settings before administering the research instrument. This was achieved by the use of an introductory letter, which served as the blue print of the researcher's intentions.

In order to win the cooperation of the respondents, the researcher endeavored to establish a close rapport with them. 'Drop and pick later' technique was used to administer the questionnaires which likely resulted in higher completion rates thus reducing potential problems associated with non-response bias. The researcher ensured personal delivery of the research instruments to guarantee high response rate, which was achieved by the researcher having two research assistants to help in the distribution of the research instruments. The respondents were given a duration of two weeks to fill in the information in the questionnaire. The researcher collected the questionnaires after the lapse of the two-week duration.

3.6. Diagnostic Tests

This study carried out a test on multicollinearity, normality, test for homogeneity and test of independence of observations (serial correlation). The Durbin Watson statistic was used to tests for serial correlation or autocorrelation while the variance inflation factors and tolerance levels was used to test for multicollinearity. Finally, normality was tested using measures of Shapiro Wilk Test while the homogeneity test was carried out using a residual plot.

3.7. Data Analysis

In order to bring order, structure and interpretation to the collected data, the researcher systematically organized the data by coding it into categories and constructing matrixes. After classifying the data, the researcher compared and contrasted it to the information retrieved from the literature review. To conduct the quantitative data analysis, the Statistical Package for Social Sciences computer software package (SPSS statistics version 22) was used. The Quantitative data generated was subjected to the descriptive statistics feature in SPSS to generate mean, and standard deviation which was presented using tables, frequencies and percentages, while Qualitative data consist of words and observations, not numbers. Inferential analysis including Correlation and Regression analysis will be used to determine the relationship between the dependent and independent variables. The results were then presented in tables and figures from which the interpretations were drawn. The data collected was tested and subjected to diagnostic and specification tests. The implications of model misspecification in regression analysis can be severe in terms of effects on the sampling properties of both estimators and tests (DeBenedictis & Giles, 1996). Accordingly, the econometrics literature places a good deal of emphasis on procedures for interrogating the quality of a model's specification. These procedures address the assumptions that may have been made about the distribution of the model's error term, and they also focus on the structural specification of the model and possible measurement errors. Assuming a linear relationship between the dependent and independent variables, the following multiple regression equation will be used:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon)$$

Where:

Y = Dependent variable

X_1 = Capital Adequacy Ratio

X_2 = Loan to Deposit Ratio

X_3 = Non-performing Loans Ratio

X_4 = Management Efficiency Ratio

X_5 = Net Profit

$ß_0$ = Constant

$ß_1$ - $ß_5$ = Regression coefficient of the independent variable

e = Error term

3.8. Ethical considerations

This study used secondary data. There have been concerns about secondary data that mostly revolve around potential harm to individual subjects and issue of return for consent. Secondary data vary in terms of the amount of identifying information in it. If the data has no identifying information or is completely devoid of such information or is appropriately coded so that the researcher does not have access to the codes, then it does not require a full review by the ethical board. Further, if the information is freely available online, in books or in other public glossaries, permission for further use and analysis is implied but the ownership of the original data must be acknowledged.

CHAPTER FOUR:

PRESENTATION OF RESEARCH FINDINGS

4.1. Introduction

This chapter presents findings on credit risk management and its effect on the profitability of commercial banks in Kenya. The study was premised on the following objectives: to examine effect of credit identifications methods on profitability in commercial banks in Kenya, to determine the effect of credit risk analysis on profitability of commercial banks in Kenya, and to examine effect of credit risk management on profitability of their banks. Towards the achievement of these, the chapter presents the quantitative findings and qualitative findings and discussion of research findings. Both primary and secondary data was utilized in the study. Data obtained from all the 43 commercial banks for the period 2013 to 2020 was used. Secondary data analysis was done using panel data. Primary data from the questionnaires contained information on credit risk management practices such as credit risk identification, credit analysis and assessment, credit scoring mechanism, risk monitoring, loan/ credit repayment, and approaches the bank use in credit risk analysis. Secondary data obtained information on capital adequacy ratio, loan to deposit ratio, non-performing loans ratio, management efficiency ratio and the net profit.

4.2. Questionnaire Response Rate

This section presents the information on the response rate in relation to the questionnaires that were returned and not returned from the field. A total of 43 questionairres was issued each to the head of each bank and 37 were filled while 6 were unreturned. Findings on filled in questionnaires and unreturned questionnaires are presented in Table 4.1.

Table 4.1: Response Rate

Response	Frequency (n)	Percentage (%)
Filled in questionnaires	37	86.0
Un returned questionnaires	6	14.0
Total Response Rate	**43**	**100**

Source: Research Data (2020)

From Table 4.1 out of the sampled population, 37 questionnaires were returned duly filled in making a response rate of 86.0%. The response rate was representative and a multicollinearity

test conducted and was adequately used to answer the research question. Kothari (2009) stated that a response rate which is above 50% is appropriate for data analysis as well as reporting. In addition, he stated that a response rate of 60% is good and that of 70% is excellent.

4.3. Credit Risk Management

The first objective of the study was to examine effect of credit identifications methods on profitability in commercial banks in Kenya. Both primary and secondary data is analyzed. The findings of this objective are presented in the following subsections:

4.3.1. Credit Risk Identification

The respondents were requested to indicate the extent to which the bank considers credit risk identification.

From the findings (shown in figure 4.1) majority (64.8%) of the respondents indicated to a very great extent that the bank considers credit risk identification, 24.3% indicated to a great extent, 8.2% indicated to a moderate extent, while 2.7% indicated to a little extent. This depicts that the bank considers credit risk identification.

4.3.2. Credit Analysis and Assessment

The respondents were requested to indicate the extent to which the bank considers credit analysis and assessment.

From the findings (shown in figure 4.1) majority (56.2%) of the respondents indicated to a great extent that the bank considers consider credit analysis and assessment, 28.4% indicated to a very great extent, 13.2% indicated to a moderate extent, while 2.2% indicated to a little extent. This depicts that the bank considers consider credit analysis and assessment.

4.3.3. Credit Scoring Mechanism

The respondents were requested to indicate the extent to which the bank considers Credit Scoring Mechanism.

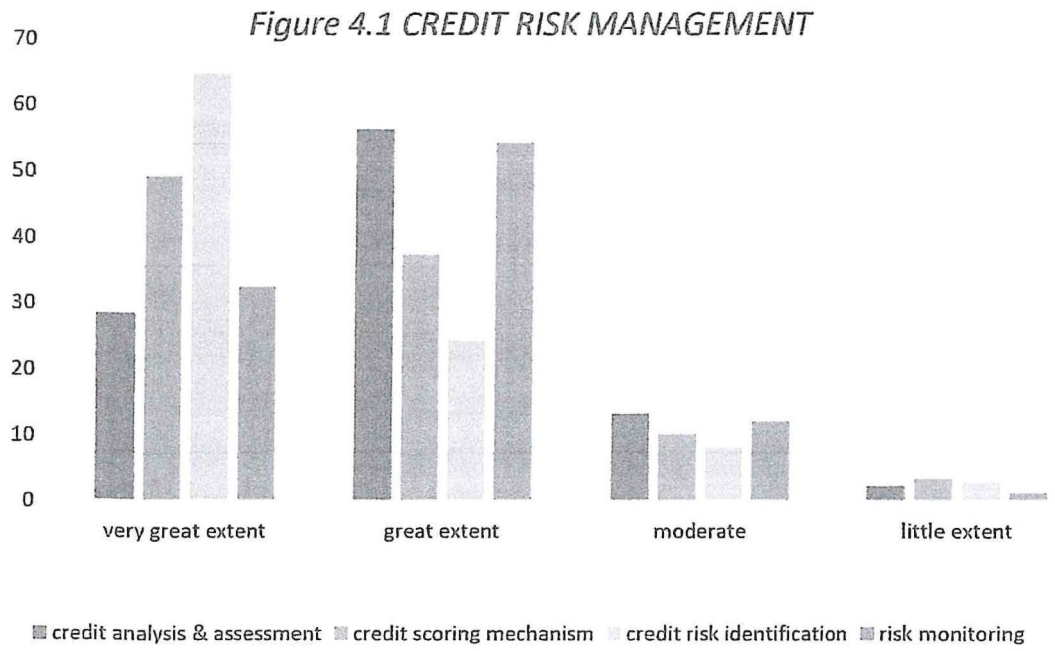
From the findings (shown in figure 4.1) most (49.2%) of the respondents indicated to a very great extent that the bank considers credit scoring mechanism, 37.4% indicated to a great extent, 10.1% indicated to a moderate extent, while 3.3% indicated to a little extent. This depicts that the bank considers credit scoring mechanism.

4.3.4. Risk Monitoring

The respondents were requested to indicate the extent to which the bank considers Risk monitoring

From the findings (shown in figure 4.1) majority (54.3%) of the respondents indicated to a great extent that the bank considers risk monitoring, 32.4% indicated to a very great extent, 12.1% indicated to a moderate extent, while 1.2% indicated to a little extent. This depicts that the bank considers risk monitoring.

Figure 4.2:credit risk management



Source: Research data 2020

4.3.5. Loan/ Credit Repayment

The respondents were requested to indicate when their bank decides that a client has defaulted on loan / credit repayment. The findings are shown in figure 4.5

Figure 4.3. Loan/ Credit Repayment

Source: Research Data (2020)

From the findings majority (67%) of the respondents indicated that their bank decide that a client has defaulted on loan/ credit repayment when it exceeds more than 12 months of payments, 29% indicated one-month late payment, while 4% indicated using supervision on one to one basis. This depicts that the bank decide that a client has defaulted on loan/ credit repayment when it exceeds more than 12 months of payments.

4.3.6. Approaches the Bank Use in Credit Risk Analysis

The respondents were requested to indicate the approach(s) the bank use in credit risk analysis before awarding credit to the customer. According to the respondent credit analysis approaches are based on qualitative credit scoring systems. In such an approach, credit analysts use the univariate accounting-based credit scoring systems to compare key accounting ratios of specific clients versus industry ratios to show how a client's ratio differs from the industry standards or trends. According to the respondents Credit scoring systems assign scores to several aspects associated with the creditworthiness of a borrower. The scores can range from 300 to 850, with the latter being the highest credit rating that a borrower can get. The key aspects of a borrower that determine their credit score include payment history, current debt, length of debt, type of debt, and the payment interest. A bank can establish its own credit scoring system or use third party services such as FICO.

In conclusion on effect of credit identifications methods on profitability in commercial banks in Kenya, the findings showed that the bank considers credit risk identification. The findings also indicated that the bank considers consider credit analysis and assessment. In addition, the findings indicated that the bank considers credit scoring mechanism. The findings also indicated that the bank considers risk monitoring, and that the bank decide that a client has defaulted on loan/ credit repayment when it exceeds more than 12 months of payments

4.4. Effect of Credit Risk Analysis on Profitability of Commercial Banks

The second objective of the study was to determine the effect of credit risk analysis on profitability of commercial banks in Kenya. Both primary and secondary data is analyzed. The findings of this objective are presented on the following subsections.

4.4.1. Extent of Agreement on Statements about Risk Monitoring in Credit Risk Management

The respondents were requested to indicate the extent of agreement on statements about risk monitoring in credit risk management. The responses were placed on a five Likert scale where 1=strongly disagree, 2-disagree, 3-moderate, 4=agree, while 5=strongly agree. The findings are shown in table 4.2

Table 4.2. Extent of Agreement on Statements about Risk Monitoring in Credit Risk Management

Statement	Mean	Std. Dev
Risk monitoring can be used to make sure that risk management practices are in line with proper risk monitoring	4.30	0.1384
Risk monitoring helps the management to discover mistakes at an early stage	4.32	0.1529
The director's report on risk monitoring enables the shareholders to assess the status of the corporation knowledgeably and thoroughly	3.78	0.1723

Source: Research Data (2020)

From the findings the respondents agreed that risk monitoring assists the administration to detect errors in good time (mean= 4.32), followed by risk monitoring can be used to ensure that risk management procedures work together with appropriate risk monitoring (mean= 4.30), and that the director's report on risk monitoring enables the shareholders to evaluate the position of the company skillfully and meticulously (mean= 3.78). This depicts that risk monitoring assists the institution's administration to detect errors in good time.

4.4.2. Parties Involved in Risk Identification Process

The respondents were requested to indicate the extent to which the bank involves the various parties in the risk identification process. The findings are shown in table 4.3

Table 4.3. Parties Involved in Risk Identification Process

Statement	Mean	Std. Dev
Internal auditors	4.11	0.5314
External auditors	3.86	0.5219
Middle and lower level employees	3.76	0.5021
Senior employees	3.62	0.5992

Source: Research Data (2020)

From the findings the respondents indicated to a great extent that internal auditors were involved to a great extent in in the risk identification process (mean=4.11), followed by external auditors (mean=3.86), middle and lower level employees (mean=3.76), and senior employees (mean=3.62). This depicts that to a great extent that internal auditors were involved to a great extent in in the risk identification process.

4.4.3. Extent of Use of Credit Risk Identification Methods

The respondents were requested to indicate the extent to which the bank uses the following risk identification methods. The findings are shown in table 4.4

Table 4.4. Extent of Use of Credit Risk Identification Methods

Statement	Mean	Std. Dev
Risk trigger questions	4.51	0.1834
Documented data	4.43	0.1324
Interviews	4.36	0.1853
Risk Lists	3.86	0.2310

Source: Research Data (2020)

From the findings the respondents indicated to a very great extent that risk trigger questions are the most used risk identification methods (mean=4.51), followed by documented data (mean=4.43), interviews (mean=4.36), and risk lists (mean=3.86). This depict that to a very great extent that risk trigger questions are the most used risk identification methods.

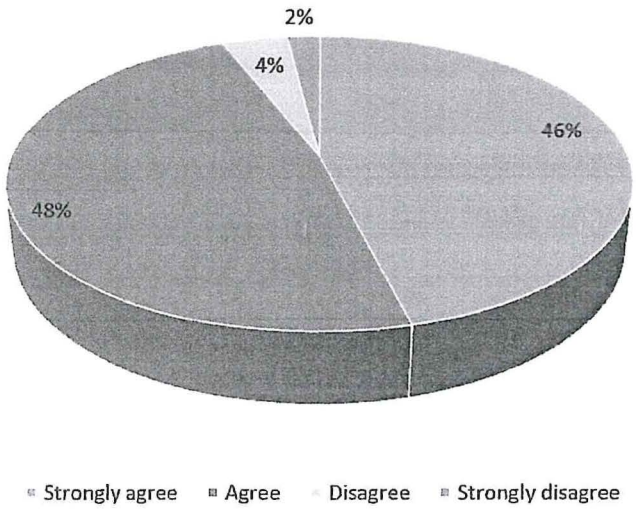
In conclusion on effect of credit risk analysis on profitability of commercial banks in Kenya, the findings indicated that risk monitoring assists the bank's administration to detect errors in good time. The findings also indicated that to a great extent internal auditors were involved in the risk identification process. Further the findings found that to a very great extent that risk trigger questions are the most used risk identification methods.

4.5 Bank Size

4.5.1. Extent of Bank Size influence on the financial performance

The respondents were asked to indicate the extent to which bank size influence the financial performance in their bank. Findings of the study are as shown in Figure 4.6 below

Figure 4.4. Extent of Bank Size influence on the financial performance



The study revealed that most of the (48%) of the respondents agreed that bank size influence the financial performance in their bank, 46% strongly agreed, 4% disagreed and the remaining 2% strongly disagreed as shown in figure 4.6 above. This implies that bank size influence the financial performance in bank. In addition, respondents were kindly requested to indicate specifically how it does affect the financial performance. The study established that large bank size enhances economies of scale and increases profitability in the banks.

4.5.2. Influence of Bank Size on the financial performance

The study sought to establish the extent to which bank size qualities influence the financial performance in the banks. The respondents were asked to indicate the extent to which they agreed with statements in relation to this. The responses were placed on the five Likert scale where 1= strongly disagree, 2= disagree, 3= neutral, 4= agree and 5 is strongly agree. The results are as presented in Table 4.5 below.

Table 4.5. Influence of Bank Size on the financial performance

Influence of Bank Size on the financial performance	Mean	Standard deviation
There is a significant and positive relationship between the bank's size and its financial performance.	4.2364	.1244
An increase in the bank's size has a positive influence on the financial performance of that bank due to the fact that the cost of seeking capital for that bank is reduced significantly	4.1234	.2381
An increase in the size of the bank through increased assets provide economies of scale to commercial banks	3.8894	.4143
The bigger the bank size the higher the profitability	4.0123	.3167
The bigger the size of the bank the lower the cost of raising capital for that bank and thus the higher the profitability ratios	3.7412	.8763

Based on the findings in Table 4.5 Above, most of the respondents strongly agreed that there is a significant and positive relationship between the bank's size and its financial performance (Mean=4.2364), An increase in the bank's size has a positive influence on the financial performance of that bank due to the fact that the cost of seeking capital for that bank is reduced significantly (Mean=4.1234), and that the bigger the bank size the higher the profitability (Mean=4.0123). Further, respondents agreed that an increase in the size of the bank through increased assets provide economies of scale to commercial banks (Mean=3.8894), and that the bigger the size of the bank the lower the cost of raising capital for that bank and thus the higher the profitability ratios (Mean=3.7412). This indicates that there is a significant and positive relationship between the bank's size and its financial performance and an increase in the bank's size has a positive influence on the financial performance of that bank due to the fact that the cost of seeking capital for that bank is reduced significantly.

4.5.3. Opinions on how Bank Size affects the financial performance

Respondents were kindly asked to indicate their opinion on how bank size affects the financial performance in their bank. The study revealed that bank size lowers the cost of raising capital, increases profitability and enhances the operation efficiency in the banks. This is associated with the fact that the bigger the size of the bank the lower the cost of raising capital for that bank and thus the higher the profitability ratios.

4.6. Cost of Loans

4.6.1 Respondents opinion on the extent to which cost influence Performance

The respondents were asked to indicate the extent to which they agreed with statements concerning the extent to which cost of loan influence performance. The responses were placed on a five Likert scale where 1 =very small extent, 2=small extent 3= moderate 4=great extent and 5=very great extent. A mean of above 3 is regarded to measure satisfaction on the test variables. Standard deviation was used to indicate the variation or "dispersion" from the "average" (mean). A low standard deviation indicates that the data points tend to be very close to the mean, whereas high standard deviation indicates that the data is spread out over a large range of values. The results are as in the table 4.6 below

Table 4.6. Respondents' opinion on the extent to which cost of loan influence Performance.

Cost of loan	Mean	Std Dev
Interest payments are often remitted or loans are written off for political reasons and may create a culture of default in the organization	2.96	0.029
Uncertainty in the domestic economy discourages lending to small borrowers	3.41	0.208
Commercial banks under government control may be under government pressure to expand their network in the rural area and expand credit to priority sectors without paying sufficient attention to loan recovery	3.72	0.252
Unprofitable special programs are often imposed on banks owned by the government	3.87	0.111
Restricting interest rates discourages savings and lending to small borrowers	3.96	0.367
Government interventions could reduce the autonomy of commercial banking institutions since they have to comply with the government's policy	3.99	0.036
Prevailing inflation rates discourages lending to small borrowers	4.03	0.196
Government's restrictions on interest rates restrict the levels and types of participation by the organization in financial markets	4.10	0.241

As per the findings in table 4.8 above, the respondents strongly agreed that; Government's restrictions on interest rates restrict the levels and types of participation by the organization in financial markets (mean=4.10) and Prevailing inflation rates discourages lending to small borrowers (mean=4.03). They also agreed that Government interventions could reduce the autonomy of institutions since they have to comply with the government's policy (mean=3.99), Restricting interest rates discourages savings and lending to small borrowers (mean=3.96), Unprofitable special programs are often imposed on those facilities that are owned by the government (mean=3.87), banks under government control may be under government pressure to expand their network in the rural area and expand credit to priority sectors without paying sufficient attention to loan recovery (mean=3.72) and that uncertainty in the domestic economy discourages lending to small borrowers (mean=3.41). However, they disagreed that interest payments are often remitted or loans are written off for political reasons and may create a culture of default in the organization (mean=2.96). This implies that Government's restrictions on interest rates restrict the levels and types of participation by the organization in financial markets.

4.7. Effect of Credit Risk Management on Profitability of the Banks

The third objective of the study was to examine effect of credit risk management on profitability of the banks. Both primary and secondary data is analyzed. The findings of this objective are presented on the following subsections.

4.7.1. Relationship between Credit Risk Management and Profitability

Profitability was measured in ratio of net profits to total assets and liabilities.
The test of degree of association among the variables was ascertained by use of correlation analysis. Credit risk management among other variables was correlated against profitability and the results presented in summarized table below

Table 4.7. Correlation Analysis

		Capital adequacy Ratio of banks	Loan-to-Deposit ratio of banks	Management Efficiency	Non-performing loans ratio of banks
Capital adequacy Ratio of banks	Pearson Correlation	1	-.616	-.468	.744
	Sig. (2-tailed)		.268	.427	.150
		5	5	5	5

Loan-to-Deposit ratio of banks	N	-.616	1	.943*	.024
	Pearson Correlation	.268		.016	.970
	Sig. (2-tailed)				
Management Efficiency	N	5	5	5	5
	Pearson Correlation	-.468	.943*	1	.242
	Sig. (2-tailed)	.427	.016		.695
Nonperforming loans ratio of banks	N	5	5	5	5
	Pearson Correlation	.744	.024	.242	1
	Sig. (2-tailed)	.150	.970	.695	
	N	5	5	5	5

Findings in the table 4.7 above show that there is a strong negative correlation between the capital adequacy ratio and loan to loan deposit ratio. This implies that an increase in capital adequacy ratio leads to a proportional decrease on loan to loan deposit ratio. Management efficiency and capital adequacy ratio have a weak negative correlation. This means that an increase in management efficiency results to a proportionate decrease in capital adequacy ratio. Nonperforming loans ratio and capital adequacy ratio have a strong positive correlation meaning that an increase in nonperforming loans ratio leads to a proportionate increase in capital adequacy ratio. Findings also shows that there is a significant strong positive correlation between management efficiency and loan to deposit ratio implying an increase in management ratio leads to a proportionate increase in loan to deposit ratio. This implies that there is a very strong association between credit risk management practices and financial performance of commercial banks.

4.7.2. Financial Performance of Commercial banks

Respondents were requested to indicate the commercial banks' profitability levels. The findings were as presented on table 4.8.

Table 4.8. Profitability Level of Organization

Amount	Frequency	Percentage(%)
11-20m	5	13.5
21-30m	6	16.2
31-40m	10	27.0
41m and above	16	43.2
Total	**37**	**100.0**

Source: Research Data (2020)

Our study found that no commercial bank profitability level was below 11M and that the range of the profitability levels from highest to lowest amongst the banks ranged a difference of less than 10m concurrently.

From the finding most (43.2%) of the respondents indicated that the commercial banks realized a profit of 41 million shillings and above, 27% of the respondents indicated a profit of between 13 million shillings and 40 million shillings, 16.2% of the respondents indicated a profit of between 21 million shillings and 30 million shillings, while 13.5% of the respondents indicated a profit of 11 million shillings and 20 million shillings. This depicts that the commercial banks realized a profit of 41 million shillings and above. This may be attributed to prudent credit risk management practice among the commercial banks.

4.8 Multicollinearity test

A multicollinearity test was conducted according to the response rate to test variables. We test our model for multicollinearity (where explanatory variables are nearly linear dependent (Jurezyck, 2011)) before performing regression analysis

	CAR	NPLR	LNTA	ROE	ROA
CAR	1.00				
NPLR	-0.074	1.00			
LNTA	0.027	-0.051	1.00		
ROE	-0.065	-0.307	-0.050	1.00	
ROA	-0.027	-0.222	-0.181		1.00

The results showed the highest absolute value 0.307 being less than absolute value 0.8 which is more preferred to be enough to cause multicollinearity (Studenmund, 2011) thus concluding that there is no problem of multicollinearity amongst our variables.

4.8. Regression Analysis

The relationship between the variables (both the dependent and independent) was established by applying regression analysis. The model was applied to determine the relationship between (independent variables) capital adequacy ratio, loan to deposit ratio, nonperforming loans ratio, management efficiency ratio and the net profit. Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (net profit ratio) that is explained by all the four independent variables. The analysis used the Social Science Statistical Package (SPSS V21.0) to code enter and compute the measurements of the multiple regressions.

4.8.1. Model Summary

The model summary in Table 4.9 shows the relationship between the predictor variable and profitability of commercial banks in Kenya.

$$Y = \alpha + \beta_1 X_{1+} \beta_2 X_2 + \beta_3 X_3$$

X1= credit risk identification

X2= credit risk analysis

X3=credit risk monitoring

Adjusted r2 was used to determine the extent to which independent variables affect the dependent variables.

The results are as indicated in Table 4.9

Table 4.9. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	P-value
1	.942[a]	.887	.548	.02424855	2.244	.001

a. Predictors: (Constant), capital adequacy ratio, loan to deposit ratio, non-performing loans ratio, management efficiency ratio and the net profit

b. Dependent Variable: Profitability of Commercial Banks in Kenya

From the findings the R^2 was found to be 0.887 which is 88.7% difference in profitability of commercial banks in Kenya. The difference is explained by the independent variables in the model. In addition, from the table the unexplained difference of 11.3% is a result of other factors not in the model. From the results in the table it can be depicted that the model is good and can be utilized for the purposes of estimation (sig value is less than 0.05).

4.8.2 ANOVA Results

Table 4.10 presents the findings on ANOVA results of the relationship between the predictor variables and profitability of commercial banks in Kenya. The findings are as shown in Table 4.10

Table 4.10: ANOVA of the Regression

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.725	5	0.545	4.618	.0420[a]
	Residual	3.658	31	.118		
	Total	**6.383**	**36**			

a. Predictors: (Constant), capital adequacy ratio, loan to deposit ratio, non-performing loans ratio, management efficiency ratio and the net profit

b. Dependent Variable: Profitability of Commercial Banks in Kenya

From the findings it was found that the significant value was 0.0420 which is way below 0.005 thus showing the model was statistically significant. This depicted that the model would be used in predicting the relationship between the predictor variables and profitability of commercial banks in Kenya. From the model it was further found that the F critical was less that the F calculated (value = 4.618) and thus the model was statistically significant.

4.8.3 Coefficient of Determination

The coefficient of determination is a measurement used to explain how much variability of one factor can be caused by its relationship to another related factor.

Table 4.11 provides the coefficient of determination (R^2) on the relationship or proportion of variation between the predictor variable and the Profitability of Commercial Banks in Kenya.

$$R^2 = 1 - (\frac{\sum e^2}{\sum (y - \bar{y})^2}$$

The findings are as shown in Table 4.11

Table 4.11: Coefficient of Determination

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
Model 1(Constant)	0.349	0.573		0.610	0.546
Capital Adequacy Ratio	2.955	0.146	0.747	6.558	0.004
Loan to Deposit Ratio	2.582	0.626	3.272	2.527	0.0240
Non-performing Loans Ratio	-2.463	0.523	3.214	3.145	0.0312
Management Efficiency Ratio	2.345	0.457	3.337	2.755	.05001
Net Profit	2.214	0.398	3.156	3.157	0.0432

a. **Dependent Variable:** Profitability of Commercial Banks in Kenya

Simple regression analysis was conducted as to determine the influence of capital adequacy ratio, loan to deposit ratio, non-performing loans ratio, management efficiency ratio and the net profit on profitability of commercial banks in Kenya. According to the SPSS the following equation was generated:

$(Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon)$

Becomes:

$(Y = 0.349 + 2.955 + 2.582 + 2.463 + 2.345 + 2.214 + \varepsilon)$

From the regression taking the independent variable at constant (capital adequacy ratio, loan to deposit ratio, non-performing loans ratio, management efficiency ratio and the net profit) constant at zero, profitability of commercial banks in Kenya was 0.349. The data findings also indicated that holding other independent variables at constant zero, a unit increase in capital adequacy ratio will lead to a 2.955 increase in profitability of commercial banks in Kenya, a unit increase in loan to deposit ratio will lead to a 2.582 increase in profitability of commercial banks in Kenya, a unit increase in non-performing loans ratio will lead to a 2.463 decrease in profitability of commercial banks in Kenya, a unit increase in management efficiency ratio will lead to a 2.345 increase in profitability of commercial banks in Kenya, and a unit increase in net profit will lead to a 2.214 increase in profitability of commercial banks in Kenya. At 5% level of significance and 95% level of confidence, capital adequacy ratio, loan to deposit ratio, non-performing loans ratio, management efficiency ratio and the net profit were all significant on profitability of commercial banks in Kenya.

The study found the bank considers credit risk identification, credit analysis and assessment, credit scoring mechanism, and risk monitoring. Marjit & Mallick, (2004) noted that the risk of default by debtors is the fundamental risk in banking. As the predominant risk to commercial banks, this therefore explains the strict regulations and controls placed (Perasan, Schuermann, Treutler &Weiner, 2006). The findings agree with a study by Irwin (2012) who summarizes literature that has long examined a bank's loan approval relationship with the applicant. On viability of the business, on top of perceived risks arising from information asymmetry problems inherent in dealing with borrower in general, the viability of the business and the industry in which the applicant operates in is important consideration.

The study found that there was statistically significant relationship between the effects of credit risk management on financial performance of commercial banks in Kenya. According to Muller (2008), banks must understand credit management if they intend to manage their cash flows. The study found that at 5% level of significance and 95% level of confidence, capital adequacy ratio, loan to deposit ratio, non-performing loans ratio, management efficiency ratio and the net profit were all significant on profitability of commercial banks in Kenya. According to Devinaga (2010), the profitability of any business is measured in using the ratios reported in the annual financial. The study found that large bank size enhances economies of scale and increases profitability in the banks. In line with this, Bikker and Hu (2012) argued that the rationale behind bank size thinking is because large banks are more likely to benefit from economies of scale. In this study it is assumed the bigger the bank size the higher the profitability.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

In this chapter, a summary of the key outcomes of the study and conclusions drawn from the outcomes and the recommendation's thereof is discussed. The conclusions and recommendations were aligned to the objective of the study which was to assess the effect of credit risk management procedures on financial performance of commercial banks.

5.1.1 Effect of Credit Risk Identification on Financial Performance of Commercial Banks

Firstly, the study aimed at investigating the effect of credit risk identification on the financial performance of commercial banks. The study found the bank considers credit risk identification, credit analysis and assessment, credit scoring mechanism, and risk monitoring. Marjit & Mallick, (2004) noted that the risk of default by debtors is the fundamental risk in banking. As the predominant risk to commercial banks, this therefore explains the strict regulations and controls placed (Perasan, Schuermann, Treutler &Weiner, 2006).

According to Muller (2008), banks must understand credit management if they intend to manage their cash flows. The author noted that credit management helps banks to project their cash flow requirements. This helps them optimise their revenues and expenditure timing and amounts. Further, Yaqub & Husain (2010) noted that in order for banks to grow, they must address factors that lead to their failure such as cash flow problems. This can be done through better credit management practices. The study also found that the bank decide that a client has defaulted on loan/ credit repayment when it exceeds more than 12 months of payments. The study also found that credit analysts use the univariate accounting-based credit scoring systems to compare key accounting ratios of specific clients versus industry ratios to show how a client's ratio differs from the industry standards or trends.

The findings agree with a study by Irwin (2012) who summarizes literature that has long examined a bank's loan approval relationship with the applicant. On viability of the business, on top of perceived risks arising from information asymmetry problems inherent in dealing with borrower in general, the viability of the business and the industry in which the applicant

operates in is important consideration. The level of preparation in planning the details of the loan is critical and will determine whether the applicant has a chance of a loan being approved by a bank's lending officer. The relative importance to the success of an applicant being able to seek external financing has to do with its attention to detail in preparing a business plan and loan proposal when applying for the loan. Additionally, it was observed that an inability to determine information disclosures by the applicant can be regarded as signs that the management is weak or lacks financial discipline (Kao & Tan, 2012).

5.1.2 Effect of Credit Risk Analysis on Financial Performance of Commercial Banks

Secondly, the study aimed at finding out the effect of credit risk analysis on the financial performance of commercial banks. The study found that that risk monitoring assists the administration to detect errors in good time. The study found that to a great extent that internal auditors were involved to a great extent in in the risk identification process. Irwin (2012) summarizes literature that has long examined a bank's loan approval relationship with the applicant. On viability of the business, on top of perceived risks arising from information asymmetry problems inherent in dealing with borrower in general, the viability of the business and the industry in which the applicant operates in is important consideration. The level of preparation in planning the details of the loan is critical and will determine whether the applicant has a chance of a loan being approved by a bank's lending officer.

The study also found that to a very great extent that risk trigger questions are the most used risk identification methods. The study found that there was statistically significant relationship between the effects of credit risk management on financial performance of commercial banks in Kenya. According to Muller (2008), banks must understand credit management if they intend to manage their cash flows. The author noted that credit management helps banks to project their cash flow requirements. This helps them optimise their revenues and expenditure timing and amounts. Further, Yaqub & Husain (2010) noted that in order for banks to grow, they must address factors that lead to their failure such as cash flow problems. This can be done through better credit management practices.

According to BCBS (2012), sound credit risk management is created by establishing proper credit risk environment, a sound lending process, adequate credit administration, measurement, monitoring and control over credit risk, policies and strategies that summarize the scope and allocation of bank credit facilities as well as the tools employed to manage the credit portfolio.

5.1.3. Effect of Credit Risk monitoring on profitability of Commercial Banks

Thirdly, the study aimed at establishing the effect of credit risk monitoring on profitability of commercial banks. The study found that the commercial banks realized a profit of 41 million shillings and above. Levine (2008) stated that the best way to appropriate a bank's responsibility is ROA; this is because it cannot be interrupted with by the higher equity multiplier. However, ROA is lower for financial brokers since many banks make use of financial leverages to competitively increase their ROE

Michael et al. (2006) placed emphasis on the fact that the non-performing loans in a bank's loan portfolio have a causality effect on operational efficiency, subsequently affecting liquidity, profitability and solvency. Non-performing loans are closely related to banking crises because they directly affect a bank's survival (Kroszner 2002). This may be attributed to prudent credit risk monitoringpractice among the commercial banks. Profitability among banking institutions is not only beneficial to the government and people who gain access to employment opportunities, but it also creates increased income for investors (Willison et al., (2013). In the long run, an improvement in the profitability of banks brings forth an improvement in living standards among people within a nation. It is, therefore, essential to investigate factors influencing profitability among banks

The study found that at 5% level of significance and 95% level of confidence, capital adequacy ratio, loan to deposit ratio, non-performing loans ratio, management efficiency ratio and the net profit were all significant on profitability of commercial banks in Kenya. According to Devinaga (2010), the profitability of any business is measured in using the ratios reported in the annual financial. The use of these ratios is unaffected by price levels but because it considers a number of analyses over time. Therefore, the real value of a business 'profit is not necessarily affected by the inflation rates since inflation increases price of services but effectively decrease number of services you can get in a certain financial period . This is because, inflation affects economies in various positive and negative ways. The negative effects of inflation include an increase in the opportunity cost of holding money, uncertainty over future inflation which may discourage investment and savings.

5.1.4. Bank Size and Financial Performance

The study found that bank size influences the financial performance in bank. The study found that large bank size enhances economies of scale and increases profitability in the banks. In line with this, Bikker and Hu (2012) argued that the rationale behind bank size thinking is because large banks are more likely to benefit from economies of scale. In this study it is

assumed the bigger the bank size the higher the profitability. The study found that there is a significant and positive relationship between the bank's size and its financial performance and an increase in the bank's size has a positive influence on the financial performance of that bank due to the fact that the cost of seeking capital for that bank is reduced significantly. Similarly, Smirlock (1985) carried out a study that showed that there is a significant and positive relationship between the bank's size and its financial performance. This is associated with the fact that the bigger the size of the bank the lower the cost of raising capital for that bank and thus the higher the profitability ratios. Other studies by Bikker & Hu (2002) and Goddard et al. (2004) agree with the previous study and they note that an increase in the bank's size has a positive influence on the financial performance of that bank due to the fact that the cost of seeking capital for that bank is reduced significantly.

It is however important to note that researchers have had no consensus on whether an increase in the size of the bank through increased assets provides economies of scale to commercial banks which eventually leads to the improved financial performance. Therefore, this issue needs to be evaluated further through more studies. The study found that bank size lowers the cost of raising capital, increases profitability and enhances the operation efficiency in the banks. Similar to the findings are the Smirlock (1985) finding who carried out a study that showed that there is a significant and positive relationship between the bank's size and its financial performance. This is associated with the fact that the bigger the size of the bank the lower the cost of raising capital for that bank and thus the higher the profitability ratios.

5.2. Conclusions

The study concluded that the bank considers credit risk identification, credit analysis and assessment, credit scoring mechanism, and risk monitoring. The study also concluded that the bank decide that a client has defaulted on loan/ credit repayment when it exceeds more than 12 months of payments. The study also concluded that credit analysts use the univariate accounting-based credit scoring systems to compare key accounting ratios of specific clients versus industry ratios to show how a client's ratio differs from the industry standards or trends. The study concluded that risk monitoring assists the bank's administration to detect errors in good time. The study concluded that to a great extent internal auditors were involved in the risk identification process. The study also concluded that to a very great extent that risk trigger questions are the most used risk identification methods. The study concluded that there was statistically significant relationship between the effects of credit risk management on financial performance of commercial banks in Kenya.

The study concluded that commercial banks realized a profit of 41 million shillings and above. This may be attributed to prudent credit risk management practice among the commercial banks. The study concluded that at 5% level of significance and 95% level of confidence, capital adequacy ratio, loan to deposit ratio, non-performing loans ratio, management efficiency ratio and the net profit were all significant on profitability of commercial banks in Kenya therefore is a positive relationship between credit risk management and profitability of commercial banks. That is to say, the better the credit risk management is, the higher the profitability of commercial bank is.

5.3. Limitations

The main limitation of study was inability to include more financial institutions. This study concentrated only on commercial banks. The study would have covered more financial institutions across financial sectors so as to provide a more broad based analysis. However, resource constraints placed this limitation. The study also faced challenge of time resource, limiting the study from collecting information for the study particularly where the respondents delayed in filling the questionnaire and travelling for collection of the filled questionnaire.

The study also faced limitation where the management were failing to reveal the credit risk management practices of the banks and sometime delayed in filling of the questionnaire. The researcher did follow up to ensure data was collected without further delays. The study also faced a limitation, whereby the respondents were found to be uncooperative because of the sensitivity of the information required for the study. The researcher explained to the respondents that the information they provided was to be held confidential and was only for academic purpose only.

5.4 Recommendations

From the study findings the following recommendations were made:

5.4.1 Recommendations for practice

The study recommends that commercial banks should uses credit risk identification practices in risk management to a very great extent. This is due to its impact on reduction of level of non-performing Loans. The bank should therefore assess long term plans of loan applicants to identify future risks of the business and assesses whether the clients are professionals, assessing the prevailing inflation and political conditions facing the client's business, analyses clients' track record of bank loan repayment which reduce default rates among bank clients lowering level of non-performing loans.

The study recommends that commercial banks should enhance usage of credit risk control practices in credit risk management to a very great extent. This is because, through engaging in loan securitization, carrying out external and internal audit of the business activities to determine how to respond to bank risks, vetting clients before approving loan facility, use of guarantors and adopts legal department checks mechanisms such as in signing of a binding contract and imposes penalties would minimize occurrence of non-performing loans.

It is also imperative that the banks start thinking of more future oriented methods of risk management other than the traditional detection and action method. The banks should thus start using prediction and advance preventive measures methods. This calls for effective strategic management and projections. This is from the fact that the risks are coming so fast and wide thus catching up with them is becoming more difficult. The banks should thus run ahead of the risks.

5.4.2 Recommendations for policy

The study calls for a revision to specifically determine whether the banks have very effective default identification and response systems and whether debts by defaulting clients are recovered from collateral very fast. This is because these two areas are constantly neutral in a number of studies

It is recommended that further research on the topic should be conducted so that effective strategies for management of other risks and achieving profitability can be identified for banks. The success and further progress of these banks depend on the smooth implementation of risk management strategies and activities, which have been shown to have a very significant positive impact on the ability of the banks of Kenya to control credit risk.

The study recommend that commercial banks should ensure loan portfolio are insured, pricing of loan is made depending on the level of risk of the clients' business and diversifies its credit facilities to various clients in different sector, assess purpose of the loan applied by the clients as well as the use of the loan to ensure bank funds a less risky and evaluates the credit quality of a client loan portfolio often and takes measure to curb risks as a mitigation measure against non-performing loan to a great extent reduce loan default rate

5.5. Suggestions for Further Research

This study examined credit risk management and its effect on the profitability of commercial banks in Kenya. The study recommends that a further study should be carried out to determine the relationship between credit risk management and profitability in deposit taking micro finance institutions and other financial institution such as Deposit taking SACCOs.

The study may be replicated by adding more dimensions of the credit risk management and to further test the impact of studied variables on the performance of loan to add to the current findings. It is further suggested that the secondary data may also be incorporated in such studies to better explore the influence of credit management on profitability from in that specific dimension.

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APPENDICES

Appendix I: Letter of Introduction

Strathmore UNIVERSITY

26th February 2021

Ms Gachini, Emmy
emmy.gachini@strathmore.edu

Dear Ms Gachini,

RE: The Effect of Credit Risk Management on The Financial Performance of Commercial Banks in Kenya

This is to inform you that SU-IERC has reviewed and **approved** your above **masters** research proposal. Your application reference number is **SU-IERC0704/20.** The approval period is **26th February 2021 to 25th February 2022.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-IERC.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-IERC within 48 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-IERC within 48 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to SU-IERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke/ and also obtain other clearances needed.

Yours sincerely,

for: Dr Virginia Gichuru,
Secretary; SU-IERC

26 Feb 2021

Cc: Prof Fred Were,
Chairperson; SU-IERC

Ole Sangale Rd, Madaraka Estate, PO Box 59857-00200, Nairobi, Kenya. Tel +254 (0)703 034000
Email admissions@strathmore.edu www.strathmore.edu

Appendix II: Questionnaire

This questionnaire seeks to collect data to be used in a study of "THE EFFECT OF CREDIT RISK MANAGEMENT ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA". You are kindly requested to provide answers to these questions as honestly and precisely as possible.

The information you will provide will be treated as confidential and will be used only for the purpose of this study. Please tick [ ] where appropriate and fill the required information in these spaces provided.

Part A: Credit risk Management

Please indicate by a tick [ ] to show your answer to the stated questions.

1. To what extent does your Bank consider Credit Risk Identification? In a scale of 1-5 Where: 5=Very high extent 4=High extent 3=Moderate extent 2=Low extent 1=Very low extent

To a very great extent	[ ]	To a little extent	[ ]
To a great extent	[ ]	Not at all	[ ]
To a moderate extent	[ ]		

2. To what extent does your Bank consider Credit Analysis and Assessment?

To a very great extent	[ ]	To a little extent	[ ]
To a great extent	[ ]	Not at all	[ ]
To a moderate extent	[ ]		

3. To what extent does your Bank consider Credit Scoring Mechanism?

To a very great extent	[ ]	To a little extent	[ ]
To a great extent	[ ]	Not at all	[ ]
To a moderate extent	[ ]		

4. To what extent does your Bank consider Risk monitoring?

To a very great extent	[ ]	To a little extent	[ ]
To a great extent	[ ]	Not at all	[ ]
To a moderate extent	[ ]		

5. When does your Bank decide that a client has defaulted on Loan/ Credit repayment?

Period	Not at all	Rarely	Least	Moderate	Most used
One month late payment					
More than 12 months payments					
Using supervision on one to one basis					

6. Which approach(s) does your Bank use in Credit Risk analysis before awarding Credit to the Customer?

Part B: effect of credit management practices on financial performance

7. To what extent do you agree with the following statement about risk monitoring in credit risk management? Rate using a scale of 1 to 5 where 1=strongly disagree, 2-disagree, 3-moderate, 4=agree, while 5=strongly agree.

Risk monitoring in credit risk management	Strongly agree 5	Agree 4	Not sure 3	Disagree 2	Strongly disagree 1
Risk monitoring can be used to make sure that risk management practices are in line with proper risk monitoring					
Risk monitoring helps management to discover mistakes at an early stage					
The director's report on risk monitoring enables the shareholders to assess the status of the corporation knowledgeably and thoroughly					

8. Please indicate the extent to which your institution involves the following parties in the risk identification process Where: 5=Very high extent 4=High extent 3=Moderate extent 2=Low extent 1=Very low extent

Parties involved in risk identification	Very high extent 5	High extent 4	Moderate extent 3	Low extent 2	Very low extent 1
Internal auditors					
External auditors					
Senior employees					
Middle and lower level employees					

9. By placing a tick in the appropriate box, please indicate the extent to which your department uses the following risk identification methods Where: 5=Very great extent 4=Great extent 3=Moderate extent 2=Little extent 1=No extent

Risk identification methods	Very great extent 5	Great extent 4	Moderate extent 3	Little extent 2	No extent 1
Interviews					
Documented data					
Risk Lists					
Risk Trigger questions					

Section C: Bank Size

10. On a scale of 1-4, does bank size influences the financial performance in your bank? Where 1=Strongly Disagree, 2=Disagree, 3=Agree, and 4=Strongly Agree

Kindly state how it affects the financial performance in your bank

.....

.....

11. Do you agree with the following statements on the influence of bank size on financial performance in your bank? Kindly indicate your level of agreement

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not Applicable

There is a significant and positive relationship between the bank's size and its financial performance.					
An increase in the bank's size has a positive influence on the financial performance of that bank due to the fact that the cost of seeking capital for that bank is reduced significantly					
An increase in the size of the bank through increased assets provide economies of scale to commercial banks					
The bigger the bank size the higher the profitability					
The bigger the size of the bank the lower the cost of raising capital for that bank and thus the higher the profitability ratios					

12. In your own view, explain how Bank Size affects the financial performance in your bank?

.....

.....

Section D: Cost of Loan

13. Please indicate your level of agreement with the following statement concerning the extent to which cost of loan influence performance. Where 1=strongly disagree, 2= disagree, 3= Neutral, 4= agree, and 5= strongly agree.

Macroeconomic variables	**1**	**2**	**3**	**4**	**5**
Government's restrictions on interest rates restrict the levels and types of participation by the organization in financial markets					
Restricting interest rates discourages savings and lending to small borrowers					
Prevailing inflation rates discourages lending to small borrowers					
Uncertainty in the domestic economy discourages lending to small borrowers					
Unprofitable special programs are often imposed on banks owned by the government					

Interest payments are often remitted or loans are written off for political reasons and may create a culture of default in the organization					
Banks under government control may be under government pressure to expand their network in the rural area and expand					
Government interventions could reduce the autonomy of banking institutions since they have to comply with the government's policy					

Section E: Financial Performance

14. Please indicate the level of profitability of your organization.

Profitability

(Kshs)

1M – 10M ( )
11M – 20M ( )
21M – 30M ( )
31M – 40M ( )
41M and above ( )

APPENDIX III: List of commercial banks in Kenya

1. ABC Bank (Kenya)
2. Bank of Africa
3. Bank of Baroda
4. Bank of India
5. Barclays Bank
6. CFC Stanbic Bank
7. Chase Bank (Kenya)
8. Citibank
9. Commercial Bank of Africa
10. Consolidated Bank of Kenya
11. Cooperative Bank of Kenya
12. Credit Bank
13. Development Bank of Kenya
14. Diamond Trust Bank
15. Dubai Bank Kenya
16. Ecobank
17. Equatorial Commercial Bank
18. Equity Bank
19. Family Bank
20. Fidelity Commercial Bank Limited
21. Fina Bank
22. First Community Bank
23. Giro Commercial Bank
24. Guardian Bank
25. Gulf African Bank
26. Habib Bank
27. Habib Bank AG Zurich
28. I&M Bank
29. Imperial Bank Kenya
30. Jamii Bora Bank
31. Kenya Commercial Bank
32. K-Rep Bank

33. Middle East Bank Kenya
34. National Bank of Kenya
35. NIC Bank
36. Oriental Commercial Bank
37. Paramount Universal Bank
38. Prime Bank (Kenya)
39. Standard Chartered Kenya
40. Trans National Bank Kenya
41. Victoria Commercial Bank
42. HDFC Bank Limited
43. FirstRand Bank

Source: CBK, (2018)

APPENDIX 4: Whit tests for heteroscedasticity

Exhibit 4.1: Test for heteroscedasticity for return on assets (ROA)

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Exhibit 4.2: Test for heteroscedasticity for return on equity (ROE)

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Appendix IV: Nacosti Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR
SCIENCE,TECHNOLOGY & INNOVATION

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Date of Issue: 18/March/2021

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Emmy Nyambura Gachini 101873

Masters of Commerce

2021