EFFECTS OF PRUDENTIAL REGULATIONS ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

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DECLARATION AND RECOMMENDATION

Declaration

I the undersigned, declare that this is my original work and has not been submitted to any other university, college or institution of higher learning other than Egerton University for academic credit.

Signed……………. Date……………..

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CM11/0494/09.

Approval

This research project has been submitted for examination with my recommendation as the candidate's University supervisor.

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DEDICATION

I dedicate this research project to my entire family. Thanks a lot for your support. God Bless you.

ACKNOWLEDGEMENT

ABSTRACT

Prudential regulation forms a critical part of operations in the banking sector. The aim of the regulations is to protect investors and consumers and ensure systemic stability. Consequently, commercial banks are required to maintain adequate level of capital, liquidity, asset quality, credit risk and management efficiency. This implies that new regulations have a direct impact on financial performance of banks. In Kenya, the Central bank of Kenya implemented the prudential regulations in 2013. However, there is no consensus from existing studies whether the new regulations have a positive or negative influence on bank performance. The main objective of this study was to determine the effect of prudential regulations on the financial performance of commercial banks in Kenya. The specific objectives of the study investigated whether the prudential regulations had significant influence on the profitability of commercial banks using capital adequacy, liquidity management, asset quality, management efficiency and credit risk management as the independent variables while return on assets (ROA) was used as the indicators of profitability. The sample comprised of all 43 commercial banks operating in Kenya, with data for the period, 2013-2017 used. Data was extracted from annual financial reports of the banks and Central bank of Kenya (CBK) annual regulatory reports, which reduced the sample to 36 banks and used to compute derivative ratios. The study adopted a correlation research design and examined the relationship between the independent variables and performance. Multiple regression model was used to determine the linear relationship to examine the effect of the prudential regulations of profitability of commercial banks. The linear regression model was statistically significant (p=0.006), with positive autocorrelation in the panel variables. Liquidity management, credit risk management and management efficiency had significant effect on the financial performance of commercial banks while capital adequacy and asset quality have no significant effect on the performance of commercial banks in Kenya. Consequently, reject the second, fourth and fifth hypotheses that the variables have no significant effect on profitability. However, we fail to reject first and third hypotheses that capital adequacy and asset quality have no significant effect on bank performance. The research findings are useful to scholars and the different stakeholders, as they demonstrate the extent to which new prudential regulations influence the financial performance. The study recommends strict implementation of the regulation to improve banks financial performance and achieve banking industry stability and reduce the growing trend of insolvency among Kenyan banks.

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ACRONYMS/ABBREVIATIONS

ANOVA	-	Analysis of Variance.
AR	-	Abnormal returns.
CAR	-	Cumulative abnormal returns
CBA	-	Commercial bank of Africa
CBK	-	Central bank of Kenya
CSR	-	Corporate Social Responsibility
DTB	-	Diamond Trust Bank
EMH	-	Efficient market Hypothesis
GDP	-	Gross domestic Product
KCB	-	Kenya Commercial Bank
MFI	-	Micro finance institution
NBE	-	National Bank of Ethiopia
NSE	-	Nairobi Stock Exchange
ROA	-	Return on Assets
ROE	-	Return of Equity

CHAPTER ONE

INTRODUCTION

1.1   Background of the Study

The special role that banks play in the economic system implies that banks should be regulated and supervised not only to protect investors and depositors but also to ensure systemic stability (Sentero 2013). Regulation refers to a process of monitoring financial institutions by an authority that is established by the government in an effort to achieve macroeconomic goals through monetary policies. Regulation subjects financial institutions to certain requirements, restrictions and guidelines, aimed at maintaining stability and growth of the financial systems in a country (Eden, 2014).

The global banking crises has made the need for regulatory and supervision framework in the financial sector a priority for economic stability. Regulation for the banking sector started at international level with the 1988 Capital Accord (Basel I), which was later revised in the new capital adequacy framework (Basel II) (Pasiouras *et al.,* 2009). Basel I became the first globally accepted standard, setting the minimum capital ratio to help account for risk-weighted assets and off-balances sheet exposures. Basel II upgraded on the two requirements by creating supervision by central authorities as well as establishing market discipline (Beltratti & Stulz, 2012).

Consequently, countries have continuously upgraded their bank regulation and supervision approaches to focus on financial regulations that involve liquidity management, capital adequacy, asset quality, credit risk management and management efficiency. However, there is no consensus on whether prudential regulations influence performance positively. For instance, Alemayehu and Ndungu (2012 as cited in Majakusi, 2016) argues that, poor liquidity management and capital inadequacy affects earnings and in some cases causes insolvency. However, Claessens & Horen, (2014) argue that increase in capital requirements is directly associated with tendencies to engage in risk-taking behaviors that result in increased firm volatility.

The empirical evidence on how prudential regulations influence bank performance also show inconsistencies and knowledge gaps. Some studies found positive relationship between prudential regulations and bank performance (Gudmundson, Ngoka & Odongo *et al.,* 2013; Sentero, 2013;

Majakusi, 2016; Njeule, 2013). Other studies found no significant relationship between prudential regulations and bank performance (Molefe & Muzindutsi, 2016; Eden, 2014; Mwongeli, 2016).

In Kenya, Central bank of Kenya issued prudential regulations for banks that came to effect on 1st January 2013. These regulations were aimed at protecting customer's deposits and manage systemic risks and consequently have a positive impact on the banking sector financial performance (Mabeya *et al.,* 2016). However, some recent problems in the banking sector have been attributed largely to poor liquidity, capital adequacy, asset quality, credit risk management and management efficiency. For instance, the Central Bank of Kenya placed Dubai Bank Kenya in 2015 under receivership following what it termed as serious liquidity challenges and capital deficiencies. The Chase Bank was also put under statutory management for a year in April, 2016 due to what the regulator termed as liquidity difficulties (Kipruto *et al.,* 2017).

A number of research studies in Kenya have attempted to examine the influence of the prudential regulations on bank performance but the findings are inconsistent and show knowledge gaps. Some studies show a positive effect on bank performance (Guthua, 2013; Sentero, 2013; Majakusi, 2016). However Nyanga (2012) also found a negative correlation between capital adequacies and bank financial performance.

1.1.1   Prudential Regulations

The Central Bank of Kenya (CBK) is the sole regulatory and supervisory authority for Commercial banks operating in Kenya. The Central bank of Kenya derives its authority from the Banking Act (cap 488), which allows the regulator to conduct off-site and on-site surveillance to ensure commercial banks comply with regulations and prudential guidelines. All banks licensed and operating in Kenya are expected to comply with the prudential regulation 2013 to foster liquidity, solvency thus promote sound financial systems in commercial banks. (Mwongeli, 2013).

The regulations set specific requirements, restrictions and guidelines that create transparency amongst the banking institutions, individuals and corporations that conduct business regularly, either as their financial partners or by offering intermediary financial services. Central bank of Kenya issued prudential regulations for banks that came to effect on 1st January 2013. These

regulations were aimed at stabilizing the sector by protecting customer's deposits and manage systemic risks thus win public confidence (Mabeya *et al.,* 2013). The 2013 prudential regulation covers a wide range of policies, this study adopted the following variables: capital adequacy, asset quality, management efficiency, liquidity management and credit risk management as they are the commonly used ratios in measuring bank performance.

According to Njeule (2013), proper regulation of banks results in to greater access to financing services, better performance and good returns on shareholder's investment. Regulated banks are expected to have financial stability and reduced chances of bankruptcy. Poorly regulated banks make less profits, sometimes losses and are prone to bankruptcy which can affect the economy negatively.

The economic crisis of 2010 caused a major shock to the economy and banks were affected strongly. This called for regulation of the banking sector to protect against economic crisis and enhance stability in the banking systems. However, excessive regulation may increase the cost of running a banking institution and profitability will be reduced. Regulation may also constrain their expansion and therefore their contribution to the economic growth can be hampered (Eden, 2014). Economists globally disagree on the level of government regulation of banks as an intervention in economic and financial activities since some argue that excessive regulation is the main cause of loses in the banking sector (Eden 2014).

Central bank of Kenya uses institution-published accounts and accounting ratios that indicate liquidity, risk and management efficiency. The regulator considers capital and liquidity as critical stability indicators of a bank, with liquidity shortfalls in one bank have the ripple effect of creating a systemic crisis in the sector as the operations of banks are interconnected. Central bank of Kenya is not too keen on the other measures, but its use of financial statements and accounting ratios makes standard accounting ratios used in the banking industry for this measures (Central bank of Kenya Annual Supervision Report 2016).

1.1.2   Financial Performance

Financial performance is a measure of how well a bank is utilizing its resources to generate income. Bank's financial performance is not only important to bank management and shareholders but also to customers and creditors as they make decisions on dealing with the bank (Ndolo, 2017). Commercial banks operate with the objective of making profits. Profits ensure continuity of business taking into account the current competition within the banking industry, this goal can either be enhanced or curtailed by the prudential regulations (Gudmundson *et al.,* 2013).

There are various ratios to measure profitability of banks such as return on assets (ROA) and return on equity (ROE). Return on assets ratio indicates profitability of banks by comparing income to total assets, which is a better measure of performance as it includes even borrowed capital. Return on Equity indicate what shareholders get in return for their investment by showing how much profits a company has earned compared to the total amount of shareholders equity. The higher the ratio, the better the level of performance as it indicates effectiveness in the use of shareholder's equity while the lower the ratio, the poor the performance and indicate inefficiency in the use of shareholder's equity. The study measured performance using return on assets since it's the most commonly used performance indicator.

Bank performance can be influenced by both internal and external factors. The internal factors are the individual banks characteristics influenced by decisions made by the individual bank management and governing board. External factors are issues that are beyond control of individual banks, inflation, interest rates and political instabilities of a country. (Ongore and Kusa, 2013). In commercial banks, good performance results in increased profitability and shareholders worthiness. A profitable bank increases its shareholders worthiness thus maximization of wealth is achieved (Njeule, 2013). Commercial banks play a major role in the economy of resources allocation in Kenya, they channel funds from depositors to investors. This can only be done if the banks are profitable. Good financial performance rewards shareholders for their investment thus encourage additional funding resulting in economic growth. Poor performance by the banks can result in banking failure than can have a negative impact on the economy of a country (Ongore and Kusa, 2013).

In the past two decades, research on the performance of commercial banks have indicated that commercial banks in the sub- Saharan Africa have been more profitable than the rest of the world. This is largely attributed to the risky ventures that banks undertake. There is also a huge gap between supply and demand for banking services as there are few banks in East Africa thus less competition and high interest rates resulting in high profits. In Kenya, the financial performance of commercial banks have improved in the last decade as indicated by the placement of only two banks under statutory management by the Central Bank of Kenya compared to 37 banks that failed between 1986 to 1998 (Nzoka, 2015).

1.1.3 Commercial Banks in Kenya

A commercial bank is a financial institution that accepts deposits and offers loans. Commercial banks in Kenya are licensed and regulated pursuant to the provision of the Banking Act and prudential regulation in place. The licensing and regulation is done by the Central bank, whose mandate is to protect depositors and manage systemic risks affecting the sector thus stabilize the banking sector. The government of Kenya acknowledges that commercial banks play a key role to the economy in terms of job creation, poverty eradication and fostering economic growth (Njeule, 2013).

Kenya's financial sector has grown significantly in size and complexity as it continues to support the overall economy and contribution to overall Gross Domestic Product (GDP) Banks have diversified their products and services such as, loans, debit and credit cards, electronic banking, mobile banking, agency banking and automated teller machines due to the stiff competition within and outside the sector (Masinde, 2017).The banking industry's overall capital adequacy ratio averaged 19 per cent against a statutory minimum of 14.5 per cent with average liquidity ratio of 38.3 per cent as at end December 2015. Liquidity was, however, skewed in favour of large tier banks. However, the banking subsector faced liquidity risks coupled with skewed distribution and corporate governance issues (Mwega, 2014).

As of 2013, there were forty three licensed commercial banks operating in Kenya that are licensed and regulated by the Banking Act and Prudential regulation issued under by the Central bank of Kenya. They are the dominant players in the Kenyan Banking system and closer attention is paid

to them while conducting off-site and on-site surveillance to ensure that they are in compliance with the laws and regulations. Most of the Commercial banks are located in Kenya's major towns and have branches across the country (Ali, 2015).

Out of the forty three commercial banks, forty are privately owned while the Kenya Government holds controlling stakes in the remaining three commercial banks. Of these banks, twenty five of the forty privately owned banks are locally owned while fifteen are foreign owned eleven commercial banks are listed in the Nairobi stock exchange (Ali, 2015). Commercial banks have had challenges in the recent past. The challenges were majorly caused by liquidity problems, inadequate capital, high level of non-performing loans, inefficient management operations and credit risks. This resulted in Chase Bank being placed under receivership in 2016 while Dubai was placed under receivership in 2015 (Kipruto *et al.,* 2017).

The banking sector has undergone many regulatory reforms in the past decade. The reforms have brought about a lot of changes in the way banks operate and have significantly strengthened the sector. Commercial banks dominate the financial sector in Kenya as they bridge the gap between the supply and demand for money in the economy. The central bank of Kenya has classified commercial banks depending on their asset base. Tier I banks are the large banks whose asset base is above fifteen billion shillings. Tier II are the medium banks whose asset base is above five billion shillings while the tier III banks are the small banks whose asset base is below five billion shillings (Nzoka, 2015).

1.2   Statement of the Problem

The special role that banks play in fostering economic growth implies that banks should be regulated and supervised not only to protect investors but also to ensure systemic stability. Consequently, prudential regulations require banks to maintain adequate levels of capital, liquidity, credit risk, asset quality, and management efficiency requirements. However, the challenges facing the banking industry to date are associated with liquidity management, capital inadequacy, non-performing loans, credit risk management and management efficiency which have led to liquidation and collapse of some banks. The Central bank of Kenya issued prudential regulations for banks that came to effect on 1st January 2013 aimed at protecting customer's deposits, investments and manage systemic risks.

The impact of prudential regulation as on bank performance is widely studied in Kenya. However, the existing empirical studies depict inconsistencies and knowledge gaps. Some studies show that prudential regulations have a positive impact on bank performance (Guthua, 2013; Odongo, 2013; Sentero, 2013; Majakusi, 2016). However, Nyanga, (2012) found a negative impact of prudential regulations on bank's financial performance. Karemera (2013), Vianney (2013) and Eden (2014), research studies were conducted outside Kenya hereby limiting the applicability to the research findings in the Kenya situation. This study was also different from others as existing studies are based on older prudential regulation (Odongo, 2013; Nzioki, 2011; Njuele, 2013). This study is based on the latest prudential regulation, 2013. The study addressed the knowledge gaps by examining how prudential regulations affect the performance of banks in Kenya.

1.3   Objectives of the Study
The study was guided by general and specific objectives.

1.3.1   General Objective
The general objective of the study was to determine the effect of prudential regulations on the financial performance of commercial banks in Kenya.

1.3.2   Specific Objectives
The specific objectives from the general study included:
i).   Capital adequacy regulation has a significant effect on the financial performance of commercial banks in Kenya.
ii).   Liquidity management regulation has a significant effect on the financial performance of commercial banks in Kenya.
iii).   Asset quality regulation has a significant effect on the financial performance of commercial banks in Kenya.
iv).   Credit risk management regulation has a significant effect on the financial performance of commercial banks in Kenya.
v).   Management efficiency regulation has a significant effect on the financial performance of commercial banks in Kenya.

1.4   Research Hypotheses

The following hypotheses were tested;

i). H_{01} Capital adequacy regulation has no significant effect on financial performance of commercial banks.

ii). H_{02}: Liquidity management regulation has no significant effect on financial performance of commercial banks.

iii). H_{03}: Asset quality regulation has no significant effect on financial performance of commercial banks.

iv). H_{04}: Credit risk management regulation has no significant effect on financial performance of commercial banks.

v). H_{05}: Management efficiency regulation has no significant effect on financial performance of commercial banks.

1.5   Significance of Study

This study is useful to the Central bank of Kenya, as it demonstrates the extent to which new prudential regulations influence the financial performance. This will enable the formulation of policies and strategies that will help in running the operations of commercial banks. Variables contributing positively to financial performance should be strengthened while those influencing performance negatively should be reviewed.

The investment advisors and analysts in the security markets will find the results useful as they can make use of performance indicators to advise their clients on the future prospects and sustainability of investments in commercial banks. Through the findings of this study, investors will understand changes in profitability in relation to regulation thus speculate on short term and long-term investments when new regulations are created for assets within their portfolios. The study is important to scholars as it provides the most updated literature on the influence of prudential regulations on financial performance of commercial in Kenya.

1.6   Scope of the Study

The study is confined to all the forty three commercial banks that operated in Kenya for the period 2013-2017 to ensure uniformity of reporting systems and comparable financial data. Although the firms have different financial reporting dates, this study compared the banks on annual financial performance. The study made its observations based on the financial information provided by the bank in its annual reports and Central bank of Kenya annual supervisory report, which are publicly available to investors.

1.7   Limitations

A number of limitations were encountered during the research; getting the accuracy of the financial changes due to the applied regulations. It was difficult to predict the reaction of performance on the new regulation since there could other factors could have happened at the same time that affects performance. There may have been caused by the different reporting periods, with some banks closing the financial year in December while others closing in June or September. There could also issues on the inaccuracy of information being extracted from financial statement as each bank would to give reports that would impress shareholders. The researcher however addressed the above limitations by having a critical analysis of the market trends to determine the changes that occur due to the introduction of the new regulations.

1.8   Operational Definition of Terms

Asset quality is a measure of nonperforming loans to total loans.

Capital adequacy refers to a relative measure that establishes the maximum level of leverage that financial institutions are allowed to reach on its operations.

Credit risk management refers to as a set of financial activities that maximizes the performance of a bank by reducing costs associated with the cash flow volatility.

Liquidity refers to the ability of an institution to fund increase in assets and meet obligations as they fall due without incurring unacceptable losses or risking damage to the banks reputation

Management efficiency ratio is a measure of total operating expenses to total Revenue. Management is deemed to be efficient operationally and in terms of income generation when operating profits are higher than revenue.

Prudential regulation is a set specific requirements, restrictions and guidelines issued by the Central bank of Kenya that create transparency amongst the banking institutions, individuals and corporations that conduct business with banks.

Regulation-Regulation refers to a process of monitoring financial institutions by a body that is directed by the government in an effort to achieve macroeconomic goals through monetary policies.

Return on Asset (ROA) is an indicator of how profitable a company is relative to its total assets. It gives an idea as to how efficient management is at using its assets to generate earnings. It's calculated by dividing earnings by its total assets.

Risk weighted assets: represents an aggregated measure of different risk factors affecting the evaluation of financial products. All the risk components are considered together to "correct" the nominal value of financial assets. In this way, a proper measure of the extent to which the underlying risk is increasing or decreasing the accounting value of financial assets is generated. This assessment attributes a high weight-coefficient to high-risk financial assets, and a low-weight coefficient to low-risk ones.

CHAPTER TWO

LITERATURE REVIEW

2.1   Introduction

This chapter reviews theoretical and empirical literature to provide a deeper understanding of the theories and concepts used in the study. Section 2.2 identifies and discusses theories applicable to this study. Section 2.3 is a review of empirical literature related to this study on prudential regulations and firm profitability. The review is undertaken to eliminate duplication of what has been done by other scholars and to provide a clear understanding of the existing knowledge base in the problem area. A summary of the theoretical literature is included at the end of the section.

2.2   Theories underlying the Study

The section will describes and discusses different theories that are related to the study, and predict the expected relationship between prudential regulations and performance of commercial banks. The theories reviewed include; liquidity management preference theory, the capital buffer theory and agency theory.

2.2.1   Liquidity Management Preference Theory

The theory was put forward by John M. Keynes (1939). The theory asserts that institution hold funds to meet obligations as they fall due without incurring unacceptable losses. Liquidity preference refers to the amount of money the public is willing to hold given the prevailing interest rate. Liquidity refers to the ability of an institution to fund increase in assets and meet obligations as they fall due without incurring unacceptable losses or risking damage to the banks reputation (Guthua, 2013). Liquidity risk emerges when market players are unable to convert their stocks into cash when required. This may be due to infrastructure inefficiencies and general market tightness (The Kenya Financial Sector Stability Report, 2014). Keynes argued that there are three reasons for holding liquid assets; for transactions purposes, precaution against a contingency and for speculative purposes.

Commercial banks face various risks that may affect their performance; liquidity risk is the risk that a bank will encounter difficulty in meeting obligations from its financial liabilities. The aim of managing liquidity is to ensure, that banks have sufficient liquidity to meet its liabilities

when due, banks are required to maintains a portfolio of short-term liquid assets, largely made up of short-term liquid investment securities, loans and advances to banks and other inter-bank facilities, to ensure that sufficient liquidity is maintained thus increase its performance (Njeule, 2013). The theory therefore is applied in the study to determine the effects of liquidity management on financial performance of commercial banks in Kenya.

2.2.2 The Capital Buffer Theory

The capital buffer theory was advanced by Marcus (1984). The theory asserts that banks may prefer to hold a buffer of excess capital to reduce the probability of falling under the legal capital requirements. Capital buffer is the excess capital a bank holds above the minimum capital required. The theory explains that banks with low capital buffers attempt to rebuild an appropriate capital buffer by raising capital and banks with high capital buffers attempt to maintain their capital buffer. A breach of the capital requirements is considered a major infringement of banking legislation and is not tolerated by the Central Bank. Banks remaining undercapitalized for prolonged periods are closed (Kipruto *et al.,* 2017).

The capital buffer theory contends that ability of banks to mobilize enough deposits prevents the capital base from being eroded. According to theory, more capital tends to absorb adverse shocks and thus reduces the likelihood of failure and therefore increases its performance (Calem & Rob, 1996). In line with the capital buffer theory, banks aim at holding more capital above the regulatory minimum as insurance against breach of the regulatory minimum capital requirement. Consequently capital adequacy regulations are assumed to be positively related to bank financial performance (Sentero, 2013). The theory therefore is applied in the study to determine the effects of capital adequacy regulation on financial performance of commercial banks in Kenya.

2.2.3 Agency Theory

The theory by Jensen & Meckling (1976) explains the relationship between principals and agents in business. It is concerned with resolving problems that can come up in an agency relationship due to difference in goals or desires between principal and agent. The most common agency relationship in finance occurs between shareholders (principal) and company executives (agents).

This situation may occur because the principal may not be aware of the actions of the agent or is prohibited by resources from acquiring the information.

In commercial banks, shareholders are the principals while the bank management are the agents. Shareholders delegate the day to day operations of the bank to the bank management but expects them to achieve the goal of wealth maximization. (Ndolo, 2017). Agency theory deals with problems in agency relationship. The first is the agency problem that arises when the goals of the principal and the agent are conflicting and when it is difficult for the principal to verify what the agent is doing. (Karemera, 2013).

Bank management carries out operations of the bank on day to day basis thus they have more information concerning firm's performance compared to the shareholders. Shareholders lack enough information on how to run the business as well as deep understanding of their business leading to having management team in their business. Bank regulations exist to manage asymmetric information which may be exposing the shareholders to certain risk not aware of but managers have all the information. (Ndolo, 2017). The theory therefore is applied in the study to determine the effects of prudential regulation on financial performance of commercial banks in Kenya.

2.3   Prudential Regulation
This section discusses the independent variables used in the study.

2.3.1   Capital Adequacy Regulation
Capital adequacy refers to a relative measure that establishes the maximum level of leverage that financial institutions are allowed to reach on its operations (Jansen, 1997). This prudential regulation is issued under section 18 of the Banking Act, which empowers central bank to prescribe the minimum ratios being maintained by banks between their core capital and total capital. The regulation aims at ensuring that banks maintain capital level that is adequate to protect depositors and creditors, commensurate with the risks associated with activities and profile of the bank thus promote public confidence.

Capital adequacy protects a bank against credit, market and operational risks so that it can absorb any losses that may arise and protect debtors (Kipruto *et al.,* 2017). The capital adequacy ratio shows the internal strength of a bank to withstand losses during crisis. Bank's capital management is also aimed at supporting its business and to maximize shareholders' value and enhance profitability (Ongore and Kusa, 2013). The adequacy of capital is judged based on capital adequacy ratios. This is measured by the ratio of bank's capital expressed as a percentage of risk weighted assets (Sentero, 2013; Dang 2011).

2.3.2   Liquidity Management Regulation

Liquidity refers to the ability of an institution to fund increase in assets and meet obligations as they fall due without incurring unacceptable losses or risking damage to the banks reputation. (Guthua, 2013). Banks maintains a portfolio of short-term liquid assets, largely made up of short-term liquid investment securities, loans and advances to banks and other inter-bank facilities, to ensure that sufficient liquidity is maintained. The level of liquidity of a bank is measured by the ratio of total loans to customer deposits or customer deposits to assets ratio (Mwongeli, 2013). This study measured liquidity by using customer deposits to assets ratio since it's the most used ratio by banks.

2.3.3   Asset Quality Regulation

The asset quality of a bank is defined by its credit portfolio, fixed and current assets and other investments (Athanasoglou *et al.,* 2005). Loans are a major asset that generates the major share of banks income. The quality of a loan portfolio determines the profitability of banks as losses from non-performing loans pose a big risk to banks. The objective of asset quality is to ensure that nonperforming loans in banks is as low as possible thus reduce chances of bank losses. Asset quality is a ratio of nonperforming loans to total loans (Ongore & Kusa, 2013). It is also measured by the ratio of gross loans to net assets. This study measured asset quality using nonperforming loans to total loans ratio because it's the commonly used ratio by the banks.

2.3.4   Credit Risk Management

Credit risk management refers to as a set of financial activities that maximizes the performance of a bank by reducing costs associated with the cash flow volatility. A bank's behavior toward risk

affects the choice of risk management activities. A bank's robust risk management framework can help reduce exposure to risks, and enhance their performance (Wanjohi *et al.,* 2014). Financial risk management is one of the most important functions in banking industry as commercial banks are faced with risks such as credit risk, liquidity risk, foreign exchange risk, market risk and interest rate risk, among others. Central bank of Kenya assesses the risk exposed to each bank and suggests effective procedures to identify, measure, monitor and control of the risk (Anguka, 2012). The study analyzed credit risk as it's the most common type of risk as banks offer loans. It's a ratio of non-performing loan to total assets.

2.3.5   Management Efficiency

Management Efficiency is one of the key internal factors that determine the bank profitability. It is represented by different financial ratios like total asset growth, loan growth rate and earnings growth rate. The capability of the management to deploy its resources efficiently, income maximization, reducing operating costs can be measured by financial ratios (Ongore & Kusa, 2013). The study adopted total operating expenses to total revenue ratio in calculating management efficiency.

2.4   Empirical Literature Review

The following section reviewed empirical literature. It reviews studies done by other scholars on prudential regulations and bank's profitability. The review is undertaken to eliminate duplication of what has been done by other scholars and to provide a clear understanding of the existing knowledge base in the problem area.

2.4.1   Capital Adequacy Regulation and Financial Performance

Ogboi and Unuafe (2013), study on the impact of capital adequacy on banks' performance in Nigeria. Using time series and cross-sectional data obtained from annual reports from banks, the study found that capital adequacy influenced financial performance (return on assets) positively. Molefe and Muzindutsi (2016) examined the effect of capital and liquidity management on profitability in five leading South African banks during the period 2004 to 2014. A co-integration panel analysis was used to test for the effect of the liquidity indicators on profitability. The capital ratio and quick ratios were used as liquidity indicators, while return on assets and return on equity

were used for measuring profitability. The empirical results showed that there is no long-run relationship between banks' profitability, liquidity and capital management. For the short-run, capital ratio was found to have significant positive effect on banks' profitability; whereas liquidity does not have an effect on banks' profitability.

Nyanga (2012) investigated the determinants of financial performance of commercial banks in Kenya. Data was collected from the forty-three commercial banks in Kenya for ten years (2001-2010), descriptive correlation and regression research designs were used to analyze data. The findings are that there was a negative correlation between capital adequacy and return on equity. Karanja and Nasieku (2016) examined the effect of capital adequacy regulation on the financial performance of commercial banks in Kenya. The study adopted a descriptive research design. The study's target population was commercial banks listed by 2014. The study used secondary data retrieved from the respective banks' annual financial reports for five years between 2010 and 2014. Pearson's Correlation Coefficient analysis was used to test the relationship between the variables. Study findings showed that capital adequacy ratio for the commercial banks decreased from 2010 to 2014.

Sentero (2013), examined the effect of capital adequacy regulation on efficiency of commercial banks in Kenya. The study adopted descriptive research design; the population consisted of the forty three commercial banks in Kenya. The research used data envelopment analysis (DEA) technique to measure economic efficiency. The researcher found that there is a significant relationship between capital adequacy and efficiency of commercial banks. Gudmundson, *et al* (2013) examined the effect of capital adequacy regulation on banks competition, stability and performance. They used Lernex index, Panzer and Rosse H-statistics to measure level of competition while return on equity was used to measure performance. The study found that an increase in the core capital reduces competition to some level after which competition starts to increase. Return on equity showed a positive relationship in support of the evidence that capital regulation improves the performance of banks and enhances financial stability.

2.4.2 Liquidity Management Regulation and Financial Performance

Eden (2014) investigated the impact of national bank of Ethiopia (NBE) regulation on bank performance. Balanced fixed effect panel regression was used for the data analysis for six private commercial banks for the period from 2004 to 2013. The study found that liquidity management regulation had negative impact on banks performance.

Kamau (2013) examined the factors influencing liquidity level of commercial banks in Kisumu city, Kenya. Using descriptive and correlation analysis concluded that, variation in liquidity levels are caused by internal and external factors. Internal factors included management policies and profitability while external factors include market risk and regulation. Olongo (2013) investigated on the effect of financial fraud and liquidity management on financial performance of commercial banks in Kenya. Using correction analysis, the study found that performance of banks and other financial institutions is significantly affected by liquidity management, asset quality and fraud loss as there is a positive correlation between return on assets and liquidity management, and fraud loss.

Guthua (2013), investigated the effects of asset liability management on the liquidity risk of commercial bank of Kenya. Secondary data from published annual financial reports and annual central bank of Kenya reports for the forty three commercial banks in Kenya were used. Using regression model, the researcher found that there was a significant positive relationship between capital adequacy, return on assets, loan to deposit ratio to liquidity of commercial banks, thus asset liability has an effect on stock returns of commercial banks in Kenya.

Majakusi (2016) examined the effects of liquidity management regulation on the performance of commercial banks in Kenya. The study used secondary data from the Central bank of Kenya for the period between 2010 to 2014, applied regression model was used in data analysis and found that there were fluctuations in the financial performance while liquidity management and capital adequacy registered a steady growth. Return on assets and liquidity management were positively correlated. This showed that liquidity management enabled banks to manage their liquid assets well and were able to meet the need for additional cash to satisfy customer demands for cash thus good financial results.

2.4.3   Asset Quality Regulation and Financial Performance

Barth and Levine (2012) carried out a study on the evolution and impact of new bank regulations. Using a regression analysis, the study found that new regulations are positively related to with fewer non-performing loans, the study also found that new regulations are not positively related to bank's performance.

Ondieki & Nyakundi (2013) analyzed the significant causes that led to rigidity of commercial banks' lending rates despite cost-incentives from the central bank. They adopted a descriptive research design. The study found that despite concerted efforts by the Central bank of Kenya for the commercial banks to lower their lending rates, little gain was made since major determination was dependent on the high-level non-performance loans, stiff industry competition, internal policies barriers and lending channels. The authority of the Central bank of Kenya to effectively regulate the channels was in opposition to majority beliefs that banks would only operate with vigor without a strong and visible hand of the regulator.

Nzoka (2015) investigated the effects of assets quality on the financial performance of commercial banks in Kenya, between the years 2010 to 2014. All the 43 commercial banks in Kenya were targeted for this study. Secondary data was obtained from annual Central bank of Kenya banks supervision reports. The study found that the relationship between asset quality and financial performance was negative.

Gorowa & Igyo (2017), examined the effect of corporate governance on the performance of asset quality of banks in the post 2004 banking sector reforms. The population of study consisted of the twenty four banks. Time series data for the post-reform period (2006-2014) were generated from the Central Bank of Nigeria. Statistical bulletin and annual financial reports of the various banks in Nigeria were analyzed with descriptive and inferential statistical tools. Multiple regression analysis was used to test the hypotheses. The study found that despite the reforms, banks were still facing post reform challenges of non-performance.

2.4.4 Credit Risk Management and Financial Performance

Credit risk refers to the risk management process that involves risk identification, risk analysis and assessment, risk audit monitoring and risk control. The performance of any bank is interpreted based on the industry performance. When there are shocks to the industry, investors become lenient on their firm and attribute to the decline to systemic risk. According to Kithinji (2010) investigation of credit risk management using data for 2004-2008, the level of credit risk for banks decreased significantly in 2007-2008 when banks were compelled to implement Basel II framework, which saw a decrease in the nonperforming loans to total loans ratio, although the regression analysis found that there was no significant linear relationship between profits and credit risk measured by the amount of credit and non-performing loans.

Over a more recent and longer observation period (2005-2013) credit risk management has effects on both return on assets and return on equity in Jordanian commercial banks (Alshatti, 2015). The study examined the effect of credit risk indicators, particularly capital adequacy, credit interest/credit facilities, facilities loss/net facilities, non-performing loans/gross loans, and leverage ratios. However, the Jordanian empirical evidence revealed a positive effect of nonperforming loan ratio (NPL) with return on assets and return on equity, which is contrary to theoretical consensus where non-performing loans are assumed to cause a negative effect on profitability.

Vossen (2010), carried out a study on bank liquidity management in New York. Using descriptive research method, noted that banks are responsible for managing liquidity reaction and liquidity risks that exposes the banks to financial challenges. The study found that liquidity management regulations have a positive effect in liquidity risks reduction thus increase firm performance.

Naceur and Omran (2011) investigated on bank performance and regulation carried out on the Middle East and North Africa region. The study investigated the effect of regulation, competition and financial reforms on the performance of banks across the broad Middle East and North Africa regions spectrum. The study used empirical data to evaluate the significance of bank-specific characteristics. The study found that regulation and credit risk have positive and significant effect on profitability, interest margins, cost efficiency and stock returns. Vianney (2013) conducted a

study on the relationship between regulation and financial performance of commercial banks in Rwanda. The study adopted regression model, the finding indicate that regulation has no significant influence on the financial performance of banks.

Mwongeli (2016) examined the effect of regulation on the financial performance of commercial banks in Kenya. The study involved forty three commercial banks in Kenya, three years before the implementation of regulation and three years after implementation of regulation. Chi square test of independence was used to analyze relationship between the two variables. The study found that there is no relationship between credit risk and financial performance.

Mabeya *et al.,* (2016) studied the effects of implementation of central bank of Kenya prudential guidelines on the profitability of commercial banks in Kenya. A survey of banks in Kisii County. The study used descriptive survey of twenty commercial banks operating within the county. They collected primary data using questionnaires and analyzed using regression analysis. The study found that risk management has a positive effect on profitability (return on equity) of banks. Therefore recommended that banks adopt the guidelines to minimize excessive risks and ensure considerable profitability.

Kimotho (2015) examined the effects of credit risk management practices on financial performance of commercial banks in Kenya. The study used descriptive research design .The study's target population consisted of all commercial banks operating within Nairobi city. Questionnaires were used to collect primary data. The data was analyzed using statistical package for social sciences (SPSS). The study found that credit risk management regulations influenced bank's profitability positively.

Mwangi (2014) studied the effect of risk management on financial performance of commercial banks in Kenya. The study adopted descriptive research design and secondary data used were collected from annual financial reports and central bank of Kenya reports. Multiple regression analysis was used in analyzing the data obtained. The findings indicated that there was a positive relationship between risk management and financial performance in commercial banks in Kenya.

2.4.5 Management Efficiency and Financial Performance

Mwenda and Mutoti (2011) investigated the effects of reforms in the financial sector in Zambia. The research analyzed how new regulations affect efficiency of commercial banks. The study found that the new regulatory and supervisory financial frameworks had significant positive effects on bank's management efficiency.

Karemera (2013) examined the relationship between regulation and financial performance of commercial banks in Rwanda. Using a regression analysis, the study found that the capital requirement, liquidity ratio and management efficiency were insignificant in explaining profitability of commercial banks in Rwanda.

Njeule (2013) investigated the effect of central bank of Kenya prudential regulation 2006 on the financial performance of commercial banks in Kenya. Using a regression model, the study found that there was a positive correlation between performance (return on assets) and; management efficiency, and corporate governance. This shows that central bank prudential regulation has a positive effect on financial performance of commercial banks.

Ochieng (2014) studied the effect of prudential guidelines and regulations on the financial performance of commercial banks in Kenya. The study used secondary data gathered from central bank of Kenya supervision reports and annual financial statements. A multiple linear regression model was used. The study found out that there is a positive relationship between financial performance of banks and management efficiency. Otieno (2012) examined the relationship between corporate governance factors and financial performance of commercial banks in Kenya. The study used regression for analysis. The study found that management efficiency has a positive effect on bank's performance.

2.4.6 Summary of Literature Review

The literature review has shown that the research on bank performance has received a lot of attention both in Kenya and other parts of the world. Despite this, there exist research gaps observed from the studies. Some studies found positive relationship between prudential regulations and bank performance (Gudmundson *et al.,* 2013; Sentero, 2013; Majakusi, 2016;

Njeule, 2013) other studies found no significant relationship between prudential regulations and bank performance (Molefe & Muzindutsi, 2016; Eden, 2014; Mwongeli, 2016).

Odongo (2013), Nzioki (2011) studies on the effect of new prudential regulations focused on prudential regulation 2006 making it impracticable to apply the research findings on the implementation of prudential regulation 2013. Karemera (2013), Vianney (2013) and Eden (2014), research studies were conducted outside Kenya hereby limiting the applicability to the research findings in the Kenya situation. This particular study aims at bridging the gap from the earlier studies by investigating the impact of prudential regulations 2013 on financial performance of commercial banks.

2.5   Conceptual Framework

The conceptual framework provides the scheme that relates the variables used to investigate the subject of interest. It provides the association between dependent variable and the independent variables.

The performance of commercial banks may improve as capital adequacy protects a bank against credit, market and operational risks so that it can absorb any losses that may arise and protects debtors. Adequate level of capital is therefore expected to positively influence bank performance. Banks are also expected to build sufficient liquidity to meet obligations as they fall due without incurring unacceptable losses or risking damage to the bank's reputation. Adequate level of liquidity is therefore expected to positively influence bank performance.

The quality of a loan portfolio determines the profitability of banks as losses from non-performing loans pose a big risk to banks. An improvement of the asset quality following implementation of prudential regulations is expected to ensure that nonperforming loans in banks is as low as possible thus reduce chances of bank losses An improved asset quality is therefore expected to positively influence bank performance.

Credit risk management activities can help banks to reduce their exposure to risks, thus adequate levels of risk management is therefore expected to positively influence bank performance. An

efficiency management has the capability to deploy its resources efficiently, income maximization, reducing operating costs thus improve on performance.

The intervening variable of bank ownership is crucial as different owners have different interests and capacities to influence performance.

This is reflected in the following framework;

Independent Variables   **Dependent Variable**

Capital adequacy ratio

Intervening variable

Liquidity management ratio

Bank ownership

Asset quality ratio

Financial performance . Return on assets (ROA) .

Credit risk management ratio

Management efficiency ratio
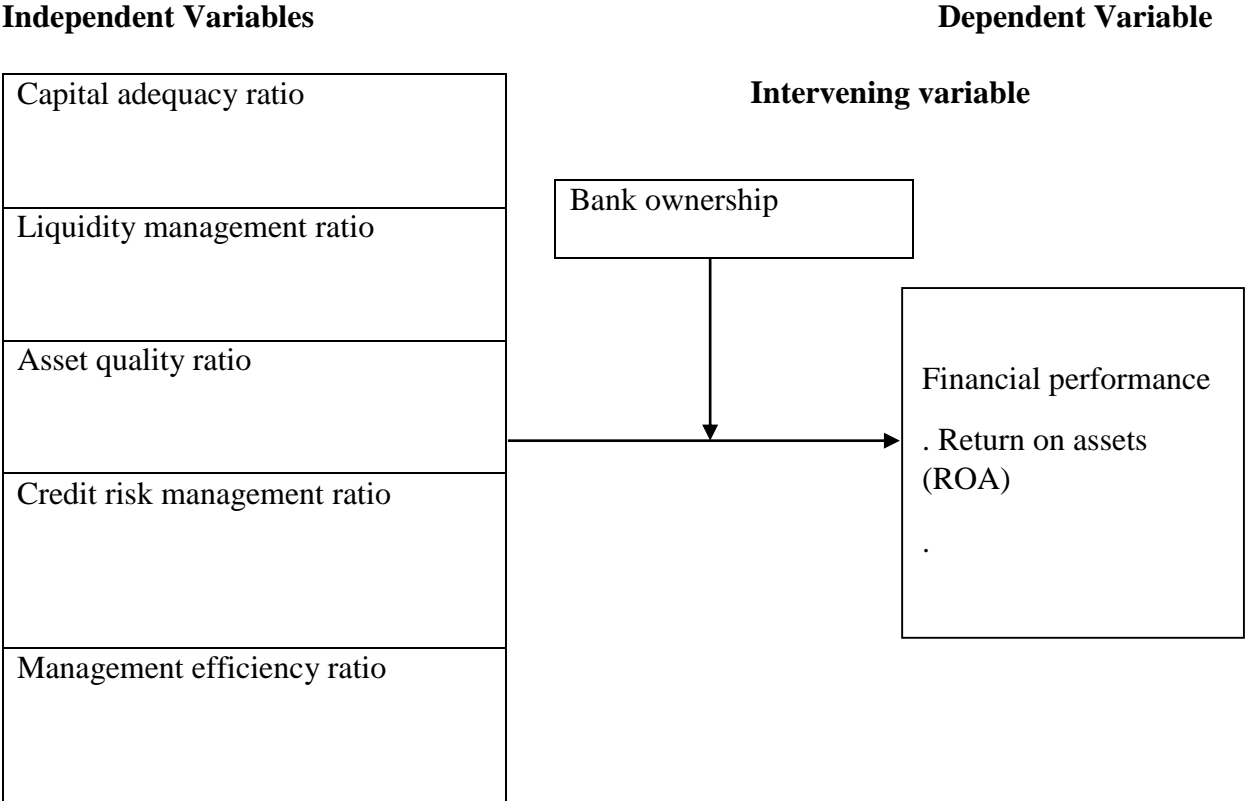
Figure 2.1: Conceptual Framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1   Introduction

This chapter outlines the methodology used in conducting the study. It explains the research design, population of study, methods of data collection and data analysis techniques.

3.2   Target Population

According to Mugenda and Mugenda (2003), a target population is a collection of elements or objects that the researcher uses to generalize the result of the study. The target population comprise of all the commercial banks licensed to operate in Kenya over the period of study, 2013-2017. The period is selected as it represents the period immediately after the enactment and implementation of prudential regulations 2013. A period of five years after the implementation of the prudential regulation is selected for analysis as it allows for the new regulation to affect the performance of banks.

3.3   Sample Size

All commercial banks operating in Kenya were analyzed in this study hence the study adopted census survey method. This is occasioned by the fact that population of commercial banks operating in Kenya in the Kenyan banking sector is small. As of 2013, there were only forty three licensed banks, which justified complete enumeration of all banks. The study population comprised of all the forty-three commercial banks that operated in Kenya during the period of study. Banks with data gaps were eliminated, seven banks were eliminated thus only thirty six (36) banks were analyzed. The banks that were eliminated are; charterhouse bank limited, chase bank Kenya limited, Dubai bank Kenya limited, Fidelity commercial bank limited, Giro commercial bank limited, Habib bank limited and Imperial bank limited.

3.4   Data Collection

The study adopted a quantitative design which meant use of secondary data. Secondary data was appropriate for the study since the financial performances of firms are published by firms in annual financial reports. The study collected data from annual financial reports (company financial statements) from all the banks and central bank of Kenya annual supervisor's reports for five years

after prudential regulation implementation date. The variables for the five-year period (2013 - 2017) were computed as indicated below. The data collected were ratios, which are arbitrary values that indicate the relationship between the derivatives. These ratios are the capital adequate ratios, asset quality ratio, liquidity ratio, efficiency ratio and credit risk ratio, with the derivatives captured in the data collection sheet.

The capital adequacy ratio (CAR) is a measure of how much equity a bank holds to protect the investors from possible insolvency. CAR is computed as the quotient of shareholder's capital to risk weighted assets (RWA). The liquidity ratio measures bank's ability to handle short-term obligations, computed as the ratio between total customer deposits and total assets. Asset quality is measured using the asset quality ratio (AQR), which is a measure of the performance of issued loans. The AQR is measured as a ratio between non-performing loans and total loans, with a high ratio indicating poor credit management policies that result in losses in the form of non-performing loans. Credit risk ratio is measured as a quotient of non-performing loans to total assets and indicates the proportion of non-performing loans to total assets.

3.5   Research Design

A research design is a plan, structure and strategy used in a research so as to obtain answers to the research questions. It provides a framework for panning and carrying out a research study. (Njeule, 2013). In studying the effects of prudential regulation on the financial performance of commercial banks in Kenya, the study adopted a correlational research design. The design allows researcher to analyze inter-relationship among many variables in a single study. It also allows a researcher to analyze several variables either individually or in a combination that might affect a particular phenomenon being studied (Kipruto *et al.,* 2017). This research design is appropriate for a study that seeks to examine relationship between variables, which is the objective of the study.

3.6   Instrumentation

The accuracy of findings from a study depends on the quality of data collected and used in analysis. The study used data collection sheet to collect secondary data in the form of financial data of banks published in financial statements and statutory filings with the regulator, the Central bank of Kenya for the period (2013-2017). The information by the regulator is published in the Annual

Supervisor's report, which is published on its website. Banks are expected to maintain strict accounting reporting standards in local generally acceptable accounting principles (GAAP) and Central bank of Kenya reporting guidelines, which ensured data validity.

3.7   Data Analysis

The secondary data collected was analyzed by the use of inferential and descriptive statistics using statistical package for social sciences (SPSS). Descriptive statistics explains the attributes on the data collected and analyzed. The descriptive statistics used included minimum, maximum, mean and standard deviation and presented in the form of tables and trend analysis. Inferential statistical techniques were used to test study hypotheses at 95% confidence level (alpha= 0.05). Correlation coeffient measure was used to establish the strength of relationship between the variables. Multiple regression model was used to analyze the relationship between the variables. The following regression model was adopted;

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

Where;

Y= Financial Performance measured by return on assets (ROA)

$X_1=$ **Capital Adequacy** measured by capital adequacy ratio (CAR) which is a measure of how much equity a bank holds to protect the investors from possible insolvency. The ratio is computed as the quotient of shareholder's capital to risk weighted assets (RWA).

$X_2=$ **Liquidity Management** is measured by liquidity ratio which captures bank's ability to handle short-term obligations, its computed as the ratio of total customer deposits to total assets

$X_3=$ **Asset Quality** is measured using the asset quality ratio (AQR), which is a measure of the performance of issued loans

$X_4=$ **Management efficiency** given by Total operating expenses to total Revenue

$X_5=$ **Credit Risk management** measured by credit risk ratio is which a quotient of non-performing loans to total assets and indicates the proportion of non-performing loans to total

a= constant term of the model

$\beta_i=$ coefficients of the model, i=1,2,3,4,5.

$\varepsilon=$ error term.

3.8   Operationalization of Study Variables

Variable	Measurement
Capital adequacy	Capital to risk weighted assets.
Liquidity	Customer deposits to total assets.
Asset quality	Non-performing loans to total loans.
Credit risk Management	Total debts to total Capital.
Management efficiency	Total operating expenses to total revenue.
Return on assets (ROA)	Total earnings to total assets.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION.

4.1   Introduction

The chapter presents data analysis, presentation, and interpretation of the research findings. The analysis of bank performance based on panel data published by banks for the period 2013 through to 2017. The panel data captured provides information indicating the stability of banks. In this regard, the researcher narrowed down the study of stability on five metrics, namely capital adequacy, asset quality, liquidity management, management efficiency and credit risk management. Capital adequacy indicates the proportion of capital in held assets. A highly leveraged bank has low capital adequacy since a significant portion of its assets are debt financed. As such, it would be more vulnerable to insolvency in case of a major shocks in internal or external environment that affect its business model. Conversely, liquidity is the measure of the bank's ability to fulfill its short-term obligations. This means having adequate working capital to finance its lending operations and other banking functions. Asset quality ratio used measures the quality of assets by evaluating the proportion of assets consumed by non-performing loans. A high ratio would indicate low asset quality as non-performing loans reduces held assets.

The chapter documents the data collection procedure, statistical analysis and findings made that are consistent with the objectives set for the study. Mainly, the section details multiple regression models for the panel data and draws inferences on the appropriateness of the regression model in predicting bank performance.

4.2   Descriptive Statistics

Descriptive statistics used in this study are minimum, maximum, mean and standard deviation. The variables were analyzed so as to obtain their mean, maximum, minimum and standard deviation. Standard deviation shows how dispersed above and below the mean. The mean indicates the average value of the data analyzed. Trend analysis was carried out to come up with the pattern of change in the variable in the forty three commercial banks operating in Kenya.

4.2.1   Bank Performance

The research involved panel data for banks across a five-year period. Financial ratios were used for comparison across the multiple years. The return on assets (ROA) was used as the performance measures, consistent with the research objectives. Table 4.1 summarizes the profitability of banks.

Table 4.1: Overall Banks Profitability

	2013	2014	2015	2016	2017	Average
N	36	36	36	36	36	36
Mean	3.7%	3.0%	2.2%	1.9%	1.2%	2.4%
Std. Deviation	4.9%	2.9%	2.7%	3.1%	3.8%	3.5%
Range	37.0%	16.0%	11.0%	14.0%	21.0%	20.0%
Minimum	-7.0%	-7.0%	-5.0%	-7.0%	-14.0%	-8.0%
Maximum	30.0%	9.0%	7.0%	7.0%	7.0%	12.0%

The above analyses indicate the impact of firm-specific characteristics on profitability indicated by the return on assets. During the period of study, commercial banks performed at an average of 2.4%. The highest mean was reported in 2013 with a mean of 3.7% while lowest return was in 2017 which recorded a mean return on assets of 1.2%. This indicates a decline in return with each year, indicating a worsening profitability level for the banking industry. Fluctuations on return on assets during the period of study were averaged at 3.5%. The year2013 recorded the highest standard deviation of 4.9% while 2015 recorded the lowest deviation of 2.7%. The minimax return on asset was recorded in 2015 at -5.0% while the maximum returns was recorded in 2013 at 30.0%.

Table 4.2: Return on Assets Analysis of Banks

Bank Name	2013	2014	2015	2016	2017	Mean	SD
	%	%	%	%	%	%	%
African Banking Corporation Ltd	3.00	1.00	2.00	1.00	2.00	1.80	0.84
Bank of Africa Kenya Ltd	2.00	0.00	-2.00	0.00	0.00	0.00	1.41
Bank of Baroda Kenya Ltd	5.00	4.00	4.00	5.00	5.00	4.60	0.55
Bank of India	4.00	4.00	3.00	5.00	5.00	4.20	0.84
Barclays Bank Kenya Ltd	6.00	5.00	5.00	4.00	4.00	4.80	0.84
CFC Stanbic Bank Ltd	4.00	4.00	4.00	3.00	2.00	3.40	0.89
Citibank N.A. Kenya	7.00	5.00	7.00	7.00	7.00	6.60	0.89
Co-operative Bank of Kenya Ltd	5.00	4.00	4.00	5.00	4.00	4.40	0.55
Commercial Bank of Africa Ltd	4.00	3.00	3.00	4.00	3.00	3.40	0.55
Consolidated Bank of Kenya Ltd	-1.00	-2.00	0.00	-2.00	-3.00	-1.60	1.14
Credit Bank Ltd	1.00	-1.00	-2.00	1.00	1.00	0.00	1.41
Development Bank of Kenya ltd Ltd	2.00	2.00	1.00	1.00	0.00	1.20	0.84
Diamond Trust Bank of Kenya Ltd	6.00	4.00	4.00	4.00	3.00	4.20	1.10
Eco Bank Kenya Ltd	-3.00	-1.00	0.00	-6.00	-3.00	-2.60	2.30
Equatorial Commercial Bank Ltd	1.00	-3.00	-5.00	-7.00	-14.00	-5.60	5.55
Equity Bank Ltd	8.00	7.00	7.00	6.00	6.00	6.80	0.84
Family Bank Ltd	4.00	4.00	4.00	1.00	-2.00	2.20	2.68
First Community Bank Ltd	2.00	1.00	0.00	0.00	1.00	0.80	0.84
Guaranty Trust Bank	1.00	2.00	2.00	2.00	1.00	1.60	0.55
Guardian Bank Ltd	3.00	3.00	2.00	2.00	1.00	2.20	0.84
Gulf African Bank Ltd	3.00	3.00	4.00	3.00	1.00	2.80	1.10
Habib Bank A.G. Zurich	4.00	5.00	4.00	4.00	2.00	3.80	1.10
I & M Bank Ltd	5.00	9.00	6.00	5.00	4.00	5.80	1.92
Jamii Bora Bank Ltd	1.00	1.00	0.00	-3.00	-6.00	-1.40	3.05
K-rep Bank Ltd	30.00	4.00	2.00	0.00	-3.00	6.60	13.33
Kenya Commercial Bank Ltd	5.00	5.00	4.00	5.00	4.00	4.60	0.55
Middle East Bank Kenya Ltd	1.00	1.00	1.00	-2.00	-1.00	0.00	1.41
National Bank of Kenya Ltd	2.00	2.00	-1.00	0.00	1.00	0.80	1.30
NIC Bank Ltd	5.00	4.00	4.00	3.00	3.00	3.80	0.84
Oriental Commercial Bank Ltd	3.00	1.00	5.00	0.00	1.00	2.00	2.00
Paramount Universal Bank Ltd	1.00	1.00	2.00	1.00	1.00	1.20	0.45
Prime Bank Ltd	4.00	4.00	4.00	3.00	3.00	3.60	0.55
Standard Chartered Bank	6.00	6.00	4.00	5.00	4.00	5.00	1.00
Trans-National Bank Ltd	2.00	2.00	2.00	2.00	1.00	1.80	0.45
UBA Kenya Bank Ltd	5.00	-7.00	-4.00	1.00	0.00	-3.40	3.78
Victoria Commercial Bank Ltd	4.00	4.00	3.00	4.00	3.00	3.60	0.55

Majority of banks recorded their highest returns in 2013, with the highest return on assets recorded being 30.00 percent by K-Rep Bank, which now was rebranded to become Sidian Bank in 2015.This is the highest return on asset for the entire period of study. Eco bank Kenya Ltd was the worst performing bank in the year, highlighting its struggles at the time at a negative return on asset of 3 percent. In 2014, most banks recorded a profit as indicated in the positive return on assets. I & M bank recorded the highest return of 9.00 percent while UBA Kenya limited recorded the lowest return of -7.00 percent, this means the bank made losses. In the year 2015, the highest return on asset was made by Equity bank ltd and Citibank N.A limited at 7.00 percent while the lowest return on asset recorded was -5.00 percent by Equatorial Commercial bank ltd. In 2016, the best performing bank was Citibank N.A Kenya at a return of assets of 7 percent while Equatorial commercial bank ltd recorded the lowest performance of -7.00 percent. In 2017, the bank with the highest return on assets was Citibank N.A limited at 7.00 percent while Equatorial Commercial bank limited recorded the lowest performance of -14.00 percent.
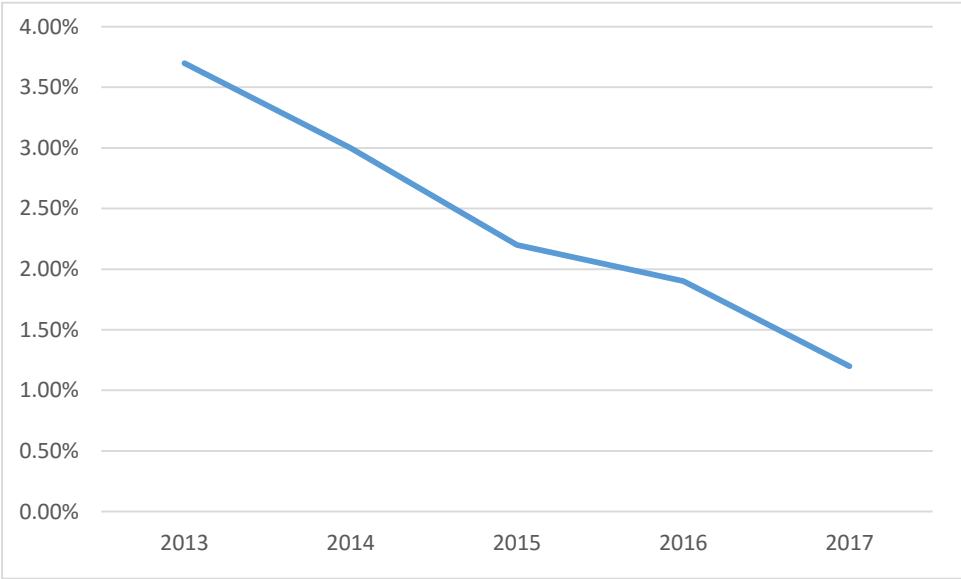
Figure 4.1: Return on Assets Trend Analysis

The mean return on assets in 2013 was 3.66 percent, the highest for the period. The return measure declined with each year, indicating a worsening profitability level for the banking industry. However, the high standard deviation, high range between the maximum and minimum return on assets suggest the impact of firm-specific characteristics on profitability indicated by the return on

assets. Majority of banks recorded their highest returns in 2013. The return on assets declined steadily to reach the lowest ratio across the period of 1.2 percent.

4.2.2   Capital Adequacy

In this section, the study sought to analyze the effect of capital adequacy on the performance of commercial banks in Kenya.

Table 4.3: Overall Capital Adequacy

	N	Minimum	Maximum	Mean	Std. Deviation
2013	36	11.0%	153.0%	28.3%	22.0%
2014	36	0.0%	100.0%	23.0%	9.9%
2015	36	9.0%	73.0%	22.2%	11.7%
2016	36	2.0%	49.0%	23.9%	9.7%
2017	36	9.0%	125.0%	27.7%	20.6%
Average	**36**	**6.2%**	**100.0%**	**25.0%**	**14.8%**

From the above table, the average capital adequacy for the period under review was 25.0%. The average capital adequacy ratio remained relatively stable across the years, with the regulation seemingly resulting in a decline in the capital adequacy ratio. Banks appeared to adjust their capital position in 2014 and maintained that ratio to 2016. However, the average capital adequacy increased to a level comparable to that observed in 2017 as shown in Table 4.3.

Table 4.4: Capital Adequacy Analysis of Banks

Bank Name	2013	2014	2015	2016	2017	Mean	SD
	%	%	%	%	%	%	%
African Banking Corporation	20.00	11.00	11.00	16.00	12.00	14.00	3.50
Bank of Africa Kenya ltd	15.00	15.00	16.00	18.00	19.00	16.60	1.60
Bank of Baroda Kenya ltd	21.00	25.00	27.00	31.00	34.00	27.60	4.50
Bank of India	42.00	40.00	43.00	49.00	57.00	46.20	6.20
Barclays Bank Kenya ltd	17.00	19.00	18.00	18.00	18.00	18.00	0.60
CFC Stanbic Bank ltd	19.00	19.00	17.00	17.00	14.00	17.20	1.80
Citibank N.A. Kenya	36.00	28.00	18.00	27.00	26.00	27.00	5.70
Co-operative Bank of Kenya	17.00	17.00	17.00	19.00	17.00	17.40	0.80
Commercial Bank of Africa	17.00	15.00	16.00	20.00	21.00	17.80	2.30
Consolidated Bank of Kenya	11.00	12.00	12.00	37.00	9.00	16.20	10.50
Credit Bank ltd	26.00	19.00	16.00	23.00	16.00	20.00	3.90
Development Bank of Kenya	26.00	41.00	38.00	36.00	36.00	35.40	5.00
Diamond Trust Bank	21.00	19.00	18.00	20.00	21.00	19.80	1.20
Eco Bank Kenya Ltd	31.00	24.00	19.00	13.0	17.00	20.80	6.20
Equatorial Commercial Bank	11.00	9.00	18.00	30.00	12.00	16.00	7.60
Equity Bank ltd	27.00	15.00	15.00	15.00	18.00	18.00	4.60
Family Bank ltd	18.00	20.00	16.00	18.00	18.00	18.00	1.30
First Community Bank ltd	16.00	12.00	12.00	11.00	13.00	12.80	1.70
Guaranty Trust Bank	47.00	38.00	42.00	41.00	43.00	42.20	2.90
Guardian Bank ltd	18.00	17.00	18.00	2.00	20.00	15.00	6.60
Gulf African Bank ltd	18.00	14.00	16.00	19.00	15.00	16.40	1.90
Habib Bank A.G. Zurich	33.00	37.00	22.00	32.00	27.00	30.20	5.20
I & M Bank ltd	21.00	18.00	19.00	18.00	20.00	19.20	1.20
Jamii Bora Bank ltd	50.00	36.00	73.00	26.00	62.00	49.40	17.00
K-rep Bank ltd	153.00	24.00	22.00	24.00	17.00	48.00	52.60
Kenya Commercial Bank ltd	23.00	22.00	20.00	22.00	22.00	21.80	1.00
Middle East Bank Kenya ltd	37.00	34.00	33.00	32.00	43.00	35.80	4.00
National Bank of Kenya ltd	26.00	15.00	9.00	8.00	125.00	36.60	44.70
NIC Bank ltd	18.00	18.00	18.00	21.00	17.00	18.40	1.40
Oriental Commercial Bank	34.00	28.00	36.00	41.00	36.00	35.00	4.20
Paramount Universal Bank	42.00	25.00	24.00	27.00	29.00	29.40	6.50
Prime Bank ltd	22.00	19.00	17.00	22.00	27.00	21.40	3.40
Standard Chartered Bank	25.00	22.00	22.00	22.00	20.00	22.20	1.60
Trans-National Bank ltd	15.00	22.00	21.00	21.00	32.00	22.20	5.50
UBA Kenya Bank ltd	47.00	59.00	24.00	39.00	39.00	41.60	11.40
Victoria Commercial Bank	21.00	20.00	19.00	26.00	23.00	21.80	2.50

Table 4.4 shows capital adequacy ratio for banks across the years, and from the individual performance, in the 2013, K-rep bank recorded the highest capital adequacy ratio of 153.00 percent while Equatorial Commercial bank limited and Consolidated Bank of Kenya limited recorded the lowest capital adequacy ratio of 11.00 percent. The highest capital adequacy recorded in 2014 was

59.00 percent by the UBA Kenya Bank Limited while Equatorial commercial bank limited recorded the lowest capital adequacy ratio of 9.00 percent. In the year 2015, Jamii Bora bank limited recorded the highest capital adequacy of 73.00 percent while National bank of Kenya limited had the lowest capital adequacy level of 9.00 percent. The highest capital adequacy recorded in 2016 was 49.00 percent by the Bank of India limited while Guardian bank limited recorded the lowest capital adequacy ratio of 2.00 percent.

In the year 2017, National bank of Kenya limited recorded the highest capital adequacy of 125.00 percent while Consolidated bank of Kenya limited had the lowest capital adequacy level of 9.00 percent.
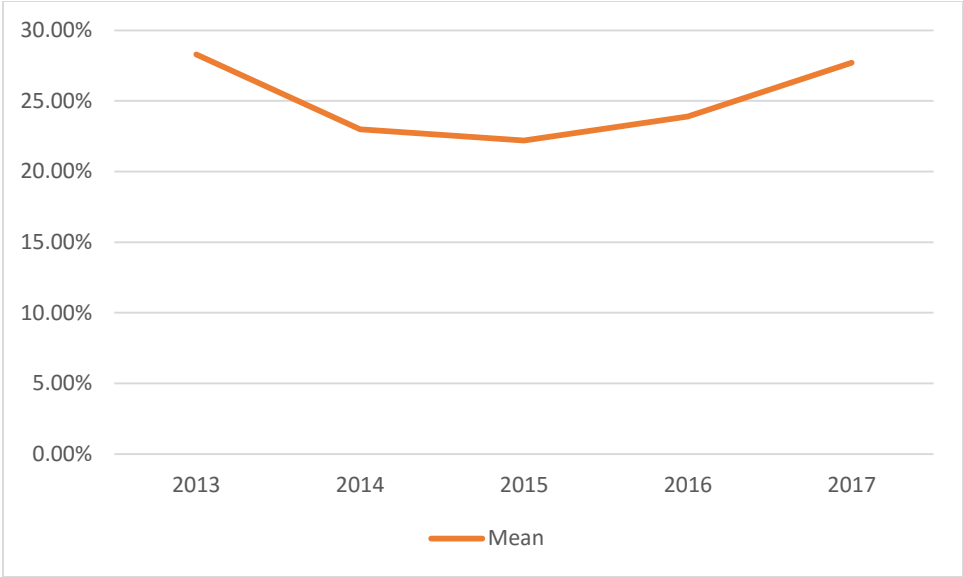
Figure 4.2: Capital Adequacy Trend Analysis

The Capital Adequacy ratio maintained a more level position, with the average ratio fluctuating between 22.2 percent and 28.3 percent over the study period. After regulation, the ratio declined from the high of 28.3 percent to 22.2 percent in 2015, followed by increase in capital adequacy in the next two years to get back to 27.7 percent in 2017. Banks had some movement in capital adequacy that reduced capital adequacy levels, but reverted back to initial capital levels by the end of the period. Based on the trend analysis, banks on average hold 0.22-0.28 in capital for every held in risk-weighted assets.

4.2.3 Liquidity Management

This section analyzed the effect of liquidity management on the performance of commercial banks in Kenya.

Table 4.5: Overall Liquidity Ratio

	Minimum	Maximum	Mean	Std. Deviation
2013	48.0%	491.0%	83.2%	65.2%
2014	0.0%	100.0%	68.0%	19.5%
2015	7.0%	748.0%	86.6%	108.2%
2016	35.0%	85.0%	68.7%	11.4%
2017	44.0%	92.0%	73.5%	10.0%
Average	**26.8%**	**303.2%**	**76.0%**	**42.9%**

The average mean liquidity for banks during the period of study was 76.0 percent. Liquidity ratio trend shown in Table 4.5 points to disparities in liquidity positions. The highest liquidity ratio was observed in 2013 with a mean of 83.20 percent. While the lowest was recorded in 2014 at 68.0 percent. Standard deviation was averaged at 42.9 percent. 2015 recorded the highest standard deviation of 108.2 percent while 2017 recorded the lowest standard deviation of 1.0 percent. The average maximum liquidity was 303.2 percent while the average minimum was 26.8 percent.

Table 4.6: Liquidity Management Analysis of Banks

Bank Name	2013	2014	2015	2016	2017	Mean	SD
African Banking Corporation ltd	0.81	0.72	0.70	0.72	0.80	0.75	0.05
Bank of Africa Kenya ltd	0.70	0.67	0.69	0.62	0.62	0.66	0.04
Bank of Baroda Kenya ltd	0.80	0.79	0.78	0.78	0.81	0.79	0.01
Bank of India	0.74	0.72	0.58	0.56	0.79	0.68	0.10
Barclays Bank Kenya ltd	0.73	0.73	0.07	0.69	0.70	0.58	0.29
CFC Stanbic Bank ltd	0.56	0.57	0.54	0.60	0.75	0.60	0.08
Citibank N.A. Kenya	0.61	0.64	0.77	0.75	0.81	0.72	0.08
Co-operative Bank of Kenya ltd	0.76	0.76	0.78	0.74	0.73	0.76	0.02
Commercial Bank of Africa ltd	0.73	0.69	0.75	0.76	0.81	0.75	0.04
Consolidated Bank of Kenya ltd	0.70	0.71	0.71	0.68	0.66	0.69	0.02
Credit Bank ltd	0.75	0.81	0.71	0.75	0.79	0.76	0.04
Development Bank of Kenya ltd	0.54	0.50	0.57	0.35	0.47	0.49	0.08
Diamond Trust Bank of Kenya	0.74	0.72	0.66	0.69	0.77	0.72	0.04
Eco Bank Kenya Ltd	0.69	0.71	0.66	0.68	0.86	0.72	0.08
Equatorial Commercial Bank ltd	0.89	0.86	0.72	0.62	0.61	0.74	0.13
Equity Bank ltd	0.67	0.73	0.69	0.73	0.75	0.71	0.03
Family Bank ltd	0.80	0.76	0.77	0.60	0.69	0.72	0.08
First Community Bank ltd	0.88	0.09	0.85	0.85	0.85	0.70	0.34
Guaranty Trust Bank	0.72	0.54	0.53	0.56	0.60	0.59	0.08
Guardian Bank ltd	0.88	0.87	0.86	0.84	0.83	0.85	0.02
Gulf African Bank ltd	0.81	0.80	0.77	0.80	0.83	0.80	0.02
Habib Bank A.G. Zurich	0.76	0.74	0.48	0.69	0.74	0.68	0.12
I & M Bank ltd	0.68	0.63	0.70	0.63	0.73	0.67	0.04
Jamii Bora Bank ltd	0.49	0.65	0.65	0.51	0.44	0.55	0.10
K-rep Bank ltd	4.91	0.76	0.77	0.66	0.73	1.57	1.87
Kenya Commercial Bank ltd	0.78	0.77	0.76	0.75	0.77	0.77	0.01
Middle East Bank Kenya ltd	0.63	0.70	0.72	0.71	0.76	0.71	0.05
National Bank of Kenya ltd	0.84	0.85	0.89	0.84	0.92	0.87	0.03
NIC Bank ltd	0.76	0.69	0.68	0.66	0.68	0.69	0.04
Oriental Commercial Bank ltd	0.77	0.79	7.48	0.70	0.71	2.09	3.02
Paramount Universal Bank ltd	0.82	0.77	0.77	0.81	0.81	0.80	0.03
Prime Bank ltd	0.82	0.82	0.78	0.75	0.77	0.79	0.03
Standard Chartered Bank	0.74	0.73	0.74	0.74	0.75	0.74	0.01
Trans-National Bank ltd	0.73	0.75	0.72	0.76	0.77	0.75	0.02
UBA Kenya Bank ltd	0.67	0.75	0.53	0.35	0.64	0.59	0.16
Victoria Commercial Bank ltd	0.66	0.71	0.70	0.70	0.72	0.70	0.02

In 2013, K-rep bank recorded the highest liquidity ratio of 4.91 percent while Development bank of Kenya limited recorded the lowest capital adequacy ratio of 0.54 percent. The highest liquidity

ratio in 2014 was 0.87 percent by Guardian Bank Limited, while Guaranty Trust bank limited recorded the lowest liquidity ratio of 0.54 percent. In the year 2015, Habib bank limited recorded the highest liquidity ratio of 0.99 while Barclays bank of Kenya limited had the lowest liquidity level of 0.07. The highest liquidity ratio recorded in 2016 was 7.48 percent by the Oriental Commercial bank limited while Development bank of Kenya limited recorded the lowest capital adequacy ratio of 0.35. In the year 2017, National bank of Kenya limited recorded the highest liquidity ratio of 0.92 while Development bank of Kenya limited had the lowest liquidity ratio of 0.47.

Generally, banks maintained high liquidity ratios, although financed by deposits. In 2013, the total deposits to total assets ratio was 0.83, an indicator of how banks were reliant on deposits. However, this ratio declined after the regulation steadily to 0.73 in 2017. Banks maintained lower asset levels to total deposits, which placed them at greater risks of illiquidity. A high liquidity ratio meant that deposits held were high percent of total assets.
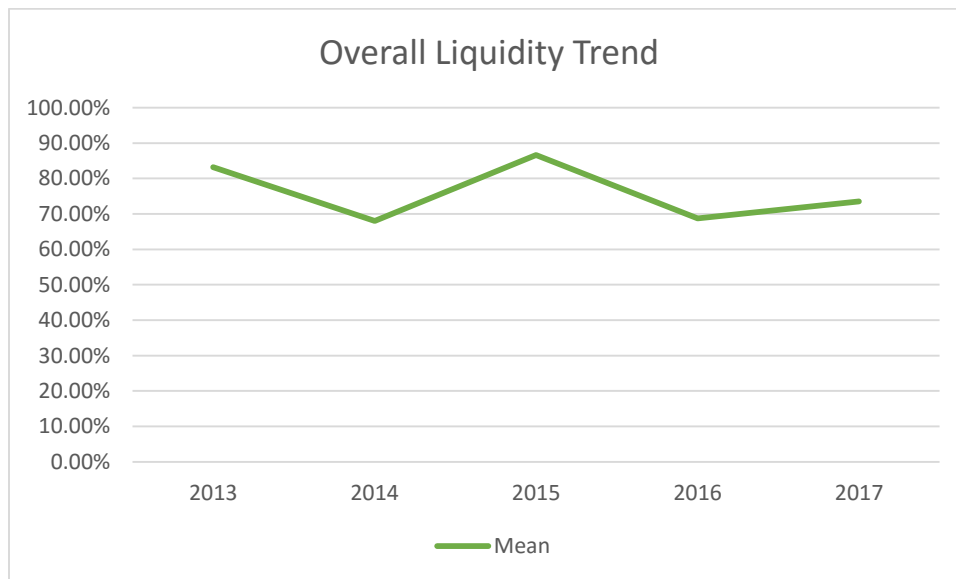
Figure 4.3: Overall liquidity Trend Analysis

The liquidity trend shows stability in the liquidity. The liquidity ratio was highest in 2013, with the year's average at 83.2 percent. The ratio decreased to 68 percent, but increased to 86.6 percent in 2015. After 2015, average liquidity reverted back to the 68 percent mark in 2016 before

increasing to 73.5 percent in the last year. Banks appear to maintain a high liquidity ratio, but once that ensures deposits are completely covered by held assets.

4.2.4 Asset Quality

In this section, the study sought to analyze the effect of asset quality on the performance of commercial banks in Kenya.

Table 4.7: Overall Asset Quality Ratio Statistics

	Minimum	Maximum	Mean	Std. Deviation
2013	0	0.19	0.0636	0.05206
2014	0	1.00	0.0800	0.09900
2015	0	0.33	0.1077	0.08557
2016	0	1.06	0.1661	0.22998
2017	0	2.59	0.2861	0.46296
Average		**1.034**	**0.1407**	**0.18591**

The average mean asset quality for banks during the period of study was 0.14. Asset quality trend shown in Table 4.7 points to disparities in asset quality. The highest ratio was observed in 2017 with a mean of 0.28 percent. While the lowest was recorded in 2013 at 0.06.

Standard deviation was average at 0.18. The year 2017 recorded the highest standard deviation of 0.46 while 2013 recorded the lowest standard deviation of 0.05. The average maximum asset quality was 1.03 while the average minimum was 0.14.

Table 4.8: Asset Quality analysis of Banks

	2013	2014	2015	2016	2017	Mean	SD
African Banking Corporation	0.01	0.07	0.17	0.19	0.22	0.13	0.09
Bank of Africa Kenya Ltd	0.06	0.06	0.24	0.29	0.31	0.19	0.12
Bank of Baroda Kenya Ltd	0.04	0.04	0.07	0.09	0.06	0.06	0.02
Bank of India	0.01	0.01	0.02	0.01	0.02	0.01	0.01
Barclays Bank Kenya Ltd	0.04	0.04	0.04	0.07	0.07	0.05	0.02
CFC Stanbic Bank Ltd	0.02	0.04	0.05	0.06	0.08	0.05	0.02
Citibank N.A. Kenya	0.02	0.04	0.06	0.03	0.05	0.04	0.02
Co-operative Bank of Kenya	0.04	0.04	0.04	0.05	0.39	0.11	0.16
Commercial Bank of Africa	0.03	0.04	0.04	0.07	0.07	0.05	0.02
Consolidated Bank of Kenya	0.13	0.26	0.19	1.04	0.25	0.37	0.38
Credit Bank Ltd	0.06	0.10	0.09	0.08	0.09	0.08	0.02
Development Bank of Kenya	0.14	0.14	0.21	0.26	0.59	0.27	0.19
Diamond Trust Bank of Kenya	0.19	0.01	0.03	0.04	0.08	0.07	0.07
Eco Bank Kenya Ltd	0.08	0.10	0.08	0.20	0.39	0.17	0.13
Equatorial Commercial Bank	0.15	0.26	0.33	0.16	0.34	0.25	0.09
Equity Bank Ltd	0.03	0.05	0.03	0.07	0.07	0.05	0.02
Family Bank Ltd	0.07	0.07	0.06	0.32	1.35	0.37	0.56
First Community Bank Ltd	0.09	0.15	0.24	0.32	0.40	0.24	0.13
Guaranty Trust Bank	0.17	0.04	0.04	0.07	0.10	0.08	0.05
Guardian Bank Ltd	0.09	0.08	0.10	0.08	0.11	0.09	0.01
Gulf African Bank Ltd	0.17	0.07	0.09	0.10	0.10	0.11	0.04
Habib Bank A.G. Zurich	0.02	0.02	0.02	0.03	0.10	0.04	0.04
I & M Bank Ltd	0.02	0.02	0.05	0.05	0.22	0.07	0.09
Jamii Bora Bank Ltd	0.07	0.09	0.07	0.20	0.21	0.13	0.07
K-rep Bank Ltd	0.09	0.07	0.33	0.05	0.12	0.13	0.11
Kenya Commercial Bank Ltd	0.05	0.02	0.06	0.07	0.08	0.06	0.02
Middle East Bank Kenya Ltd	0.26	0.30	0.27	0.30	0.44	0.33	0.16
National Bank of Kenya Ltd	0.06	0.11	0.16	0.24	0.41	0.20	0.14
NIC Bank Ltd	0.02	0.01	0.12	0.07	0.39	0.12	0.16
Oriental Commercial Bank Ltd	0.08	0.09	0.13	0.13	0.10	0.09	0.05
Paramount Universal Bank Ltd	0.10	0.03	0.13	0.06	0.12	0.09	0.04
Prime Bank Ltd	0.02	0.02	0.19	0.05	2.59	0.57	1.13
Standard Chartered Bank	0.03	0.08	0.11	0.08	0.13	0.09	0.04
Trans-National Bank Ltd	0.06	0.02	0.10	0.13	0.22	0.11	0.08
UBA Kenya Bank Ltd	0.08	0.07	0.02	0.02	0.05	0.04	0.03
Victoria Commercial Bank Ltd	0.001	0.000	0.001	0.004	0.002	0.002	0.000

The asset quality trend indicates a general increase in the asset quality ratio, an indication of the increase in the proportion of non-performing loans issued by banks in the financial sector as shown in Figure 4.4. The average asset quality in 2013 was 0.06. This meant that non-performing loans were at 6 percent of total loans. By 2017, the AQ ratio had increased to 0.28. The non-performing loans was 29% of total loans, this is a worrying position for industry as non-performing loans threatens bank's stability.

The asset quality ratio for banks was the low in 2013, a clear indication of their inexperience in managing loan portfolios. After 2013, all the bank groups increased their asset quality ratio, reflecting an industry-wide challenge in managing non-performing loans.
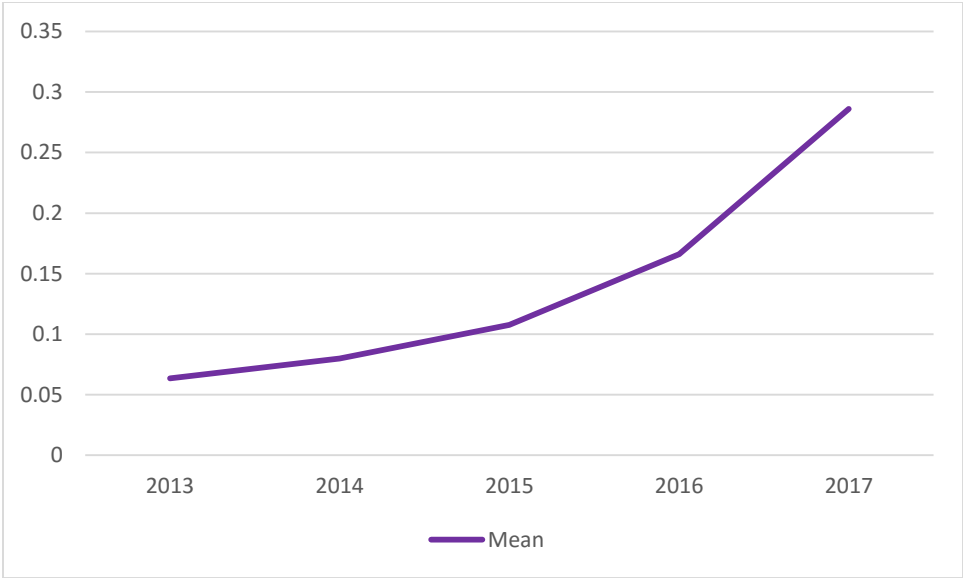
Figure 4.4: Asset Quality Trend Analysis

The asset quality ratio has been on an exponential growth from 2013 to 2017, rising from 6.36 percent to 28.6 percent. The first two years had gradual growth where the ratio increased to 10.77 percent. After 2015, the ratio grew exponentially, first to 16.6 percent in 2016 and then to 28.6 percent in 2017. The high growth in the ratio is worrying since it indicates weakening credit management policies.

4.2.5 Management Efficiency

In this section, the study sought to analyze the effect of management efficiency on the performance of commercial banks in Kenya.

Table 4.9: Overall Management Efficiency

	Minimum	Maximum	Mean	Std. Deviation
2013	25.0%	175.0%	63.5%	25.5%
2014	0.0%	100.0%	65.0%	21.3%
2015	5.0%	182.0%	66.3%	32.9%
2016	28.0%	324.0%	82.6%	58.5%
2017	28.0%	387.0%	90.4%	67.6%
Average	**17.2%**	**233.6%**	**73.6%**	**41.2%**

The management efficiency for banks kept declining with each year, with 2013 being the most efficient where operating expenses were 63.52 percent of revenues. This increased marginally in 2014 and 2015 to 65.00 percent and 66.30 percent respectively. 2016 represented a difficult year for the industry, with majority of banks unable to control expenses, which saw the management efficiency ratio increase to 82.55 percent of revenues. The position worsened even further in 2017, where the average ratio was 0.90 percent.

Table 4.10: Management Efficiency Analysis of Banks

Bank Name	2013	2014	2015	2016	2017	Mean	SD
African Banking Corporation	0.64	0.74	0.74	0.86	0.90	0.78	0.10
Bank of Africa Kenya ltd	0.74	0.93	1.40	1.00	0.98	0.93	0.28
Bank of Baroda Kenya ltd	0.25	0.45	0.21	0.28	0.28	0.29	0.09
Barclays Bank Kenya ltd	0.56	0.99	0.53	0.53	0.56	0.63	0.20
Bank of India	0.22	0.26	0.27	0.21	0.20	0.23	0.02
CFC Stanbic Bank ltd	0.53	0.52	0.54	0.64	0.67	0.58	0.07
Citibank N.A. Kenya	0.34	0.44	0.36	0.34	0.33	0.36	0.04
Co-operative Bank of Kenya	0.62	0.63	0.59	0.58	0.61	0.61	0.02
Commercial Bank of Africa ltd	0.68	0.71	0.74	1.52	1.05	0.94	0.36
Consolidated Bank of Kenya	0.83	0.87	0.68	0.98	1.03	0.88	0.14
Credit Bank ltd	0.89	1.13	1.22	0.87	0.87	1.00	0.17
Development Bank of Kenya	0.63	0.60	0.51	0.50	0.84	0.62	0.14
Diamond Trust Bank of Kenya	0.50	0.43	0.47	0.47	0.51	0.48	0.03
Eco Bank Kenya Ltd	1.75	1.23	0.97	3.24	1.49	1.74	0.89
Equatorial Commercial Bank	0.81	0.72	1.82	2.15	3.87	1.87	1.28
Equity Bank ltd	0.49	0.51	0.50	0.45	0.52	0.49	0.03
Family Bank ltd	0.72	0.67	0.93	0.93	1.07	0.86	0.17
First Community Bank ltd	0.82	0.92	0.99	1.03	0.83	0.92	0.09
Guaranty Trust Bank	0.84	0.76	0.81	0.75	0.82	0.80	0.04
Guardian Bank ltd	0.55	0.52	0.61	0.59	0.71	0.60	0.07
Gulf African Bank ltd	0.70	0.66	0.62	0.69	0.90	0.71	0.11
I & M Bank ltd	0.38	0.33	0.42	0.49	0.56	0.44	0.09
Habib Bank A.G. Zurich	0.28	0.32	0.33	0.38	0.42	0.35	0.05
Jamii Bora Bank ltd	0.75	0.77	0.97	1.38	2.57	1.29	0.76
K-rep Bank ltd	0.69	0.66	0.77	0.98	1.37	0.89	0.29
Kenya Commercial Bank ltd	0.56	0.51	0.51	0.48	0.49	0.51	0.03
Middle East Bank Kenya ltd	1.23	1.24	1.34	1.38	1.16	1.27	0.70
National Bank of Kenya ltd	0.75	0.70	0.05	0.74	0.89	0.63	0.33
NIC Bank ltd	0.46	0.44	0.41	0.50	0.58	0.48	0.07
Oriental Commercial Bank ltd	0.60	0.82	0.74	0.70	0.65	0.70	0.08
Paramount Universal Bank ltd	0.66	0.63	0.65	0.66	0.69	0.66	0.02
Prime Bank ltd	0.44	0.40	0.40	0.49	0.57	0.46	0.07
Standard Chartered Bank	0.40	0.40	0.45	0.45	0.48	0.44	0.04
Trans-National Bank ltd	0.66	0.71	0.70	0.76	0.86	0.74	0.08
UBA Kenya Bank ltd	2.13	2.35	1.87	0.91	0.98	1.64	0.66
Victoria Commercial Bank ltd	0.38	0.39	0.44	0.43	0.46	0.42	0.03

The management efficiency ratio is an overall measure of management's ability to translate strategy into profits by minimizing costs and optimizing revenues. Although the trend indicates a general decline in the management efficiencies of banks, smaller banks were more affected by the worsening conditions than the other banks, which meant they ended up in loss by 2017.
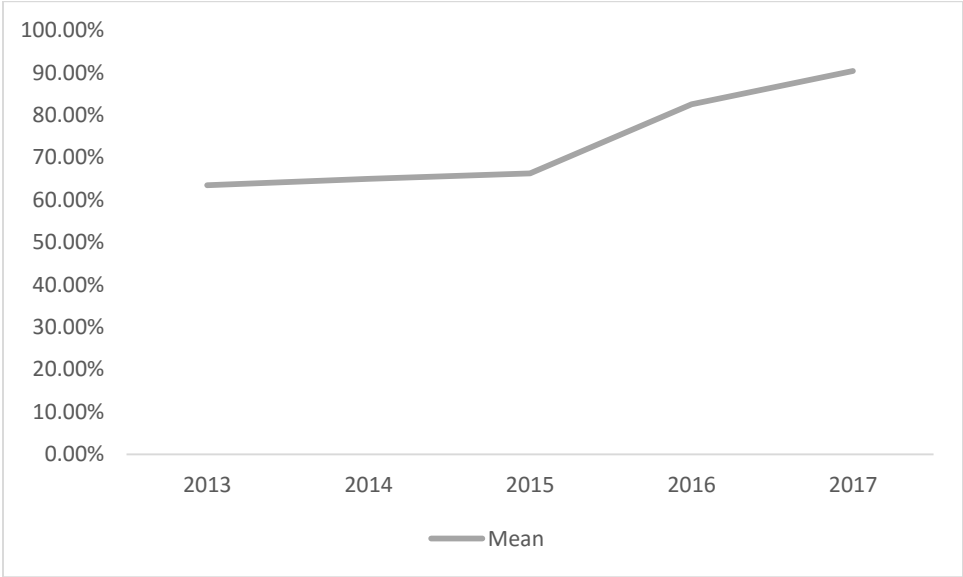
Figure 4.5: Management Efficiency Trend Analysis

The management efficiency ratio increased from an average of 63.5 percent in 2013 to an average of 90.40 percent in 2017. Up until 2015, the ratio was stable, increasing to 66.3 percent. However, the management efficiency ratio increased drastically in 2016 to an average of 82.6 percent. By 2017, the average management efficiency ratio was 90.4 percent. The increase in management efficiency ratio indicates weak cost management structures across the industry.

4.2.6   Credit Risk Management

In this section, the study sought to analyze the effect of credit risk on the performance of commercial banks in Kenya.

Table 4.11: Overall Credit Risk

	Minimum	Maximum	Mean	Std. Deviation
2013	0	0.4	0.0385	0.06482
2014	0	1	0.0600	0.106
2015	0	0.88	0.0846	0.14298
2016	0	0.26	0.0696	0.06093
2017	0	0.28	0.0993	0.0857
Average	**0**	**0.564**	**0.0704**	**0.09209**

The credit risk management ratio was in 2013 was 0.0385, indicating low industry risk as non-performing loans were equal to 3.85 percent of total assets. The ratio increased over the years, with the average n 2017 at 0.099; the proportion of non-performing loans for the average industry stood at 9.9 percent of total firm assets.

Table 4.12: Credit Risk Analysis of Banks

	2013	2014	2015	2016	2017	Mean	SD
African Banking Corporation	0.01	0.04	0.12	0.13	0.14	0.09	0.06
Bank of Africa Kenya Ltd	0.05	0.04	0.14	0.19	0.2	0.12	0.08
Bank of Baroda Kenya Ltd	0.02	0.02	0.03	0.04	0.03	0.03	0.01
Bank of India	0.00	0.01	0.01	0.01	0.01	0.01	0
Barclays Bank Kenya Ltd	0.02	0.02	0.02	0.04	0.05	0.03	0.01
CFC Stanbic Bank Ltd	0.01	0.02	0.02	0.03	0.04	0.03	0.01
Citibank N.A. Kenya	0.01	0.01	0.02	0.01	0.02	0.01	0.01
Co-operative Bank of Kenya Ltd	0.02	0.03	0.02	0.03	0.02	0.03	0.01
Commercial Bank of Africa Ltd	0.02	0.02	0.02	0.04	0.03	0.03	0.01
Consolidated Bank of Kenya	0.08	0.19	0.14	0.15	0.18	0.15	0.04
Credit Bank Ltd	0.03	0.07	0.07	0.06	0.06	0.06	0.01
Development Bank of Kenya	0.08	0.08	0.11	0.16	0.24	0.13	0.07
Diamond Trust Bank of Kenya	0.13	0.01	0.02	0.02	0.04	0.04	0.05
Eco Bank Kenya Ltd	0.04	0.05	0.05	0.11	0.16	0.08	0.05
Equatorial Commercial Bank	0.09	0.18	0.23	0.1	0.21	0.16	0.07
Equity Bank Ltd	0.02	0.05	0.02	0.04	0.04	0.03	0.01
Family Bank Ltd	0.05	0.05	0.04	0.06	0.14	0.07	0.04
First Community Bank Ltd	0.04	0.1	0.19	0.26	0.25	0.17	0.09
Guaranty Trust Bank	0.07	0.01	0.02	0.03	0.05	0.04	0.02
Guardian Bank Ltd	0.06	0.05	0.07	0.05	0.07	0.06	0.01
Gulf African Bank Ltd	0.11	0.05	0.06	0.06	0.06	0.07	0.03
Habib Bank A.G. Zurich	0.01	0.01	0.01	0.01	0.03	0.01	0.01
I & M Bank Ltd	0.01	0.01	0.03	0.03	0.01	0.02	0.01
Jamii Bora Bank Ltd	0.04	0.05	0.05	0.14	0.16	0.09	0.06
K-rep Bank Ltd	0.4	0.05	0.14	0.06	0.04	0.14	0.15
Kenya Commercial Bank Ltd	0.03	0.01	0.03	0.05	0.05	0.03	0.02
Middle East Bank Kenya Ltd	0.19	0.19	0.19	0.21	0.28	0.17	0.1
National Bank of Kenya Ltd	0.03	0.06	0.1	0.12	0.27	0.11	0.09
NIC Bank Ltd	0.02	0.01	0.08	0.05	0.04	0.04	0.03
Oriental Commercial Bank Ltd	0.09	0.06	0.88	0.09	0.08	0.22	0.37
Paramount Universal Bank Ltd	0.04	0.01	0.08	0.04	0.08	0.05	0.03
Prime Bank Ltd	0.01	0.01	0.01	0.03	0.24	0.06	0.1
Standard Chartered Bank	0.02	0.05	0.06	0.04	0.06	0.05	0.02
Trans-National Bank Ltd	0.03	0.01	0.07	0.09	0.15	0.07	0.05
UBA Kenya Bank Ltd	0.02	0.01	0.01	0.01	0.02	0.01	0.01
Victoria Commercial Bank Ltd	0.03	0.01	0.01	0.01	0.01	0.01	0.01

K-rep bank recorded the highest credit risk of 0.40 percent while Victoria Commercial Bank limited, UBA Kenya Bank limited, Oriental Commercial Bank and Citibank N.A. Kenya recorded the lowest credit risk in 2013. The highest credit risk in 2014 was 0.88 percent by Dubai Bank Limited while Victoria Commercial Bank limited recorded the lowest credit risk. In the year 2015 Oriental Commercial Bank Limited recorded the highest credit risk of 0.88 while Victoria Commercial Bank limited had the lowest credit risk. In the year 2017, Middle East Bank Kenya limited recorded the highest credit risk of 0.28 while Victoria Commercial Bank limited had the lowest credit risk.
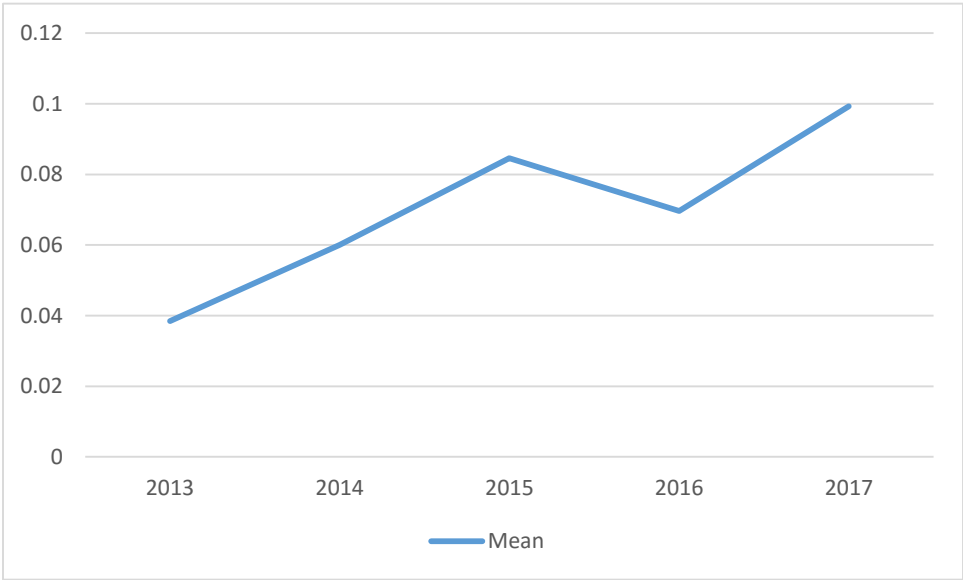

Figure 4.6: Credit Risk Management Trend analysis

The credit risk management ratio trend is an upward curve, with banks increasing their loan portfolios without proportionate increase in assets. The ratio was at its lowest in 2013, where the average credit risk ratio was 0.0385. This was followed by a sharp increase in 2014 and 2015, taking it to an average of 0.0846. There was a sharp decline in the CR ratio in 2016 that brought it down to 0.0696, but this was reversed in 2017 to take the average ratio to 0.0993, the highest ratio across the five-year period. Consequently, banks appear to be struggling to manage growing loan portfolios

## 4.3	Inferential Statistics

Inferences from a research or study is one based on the observation made from the phenomenon in the study or analysis from the study of sample or population during the time. To achieve study objectives, the researcher conducted descriptive statistics, trend analysis and regression analysis to investigate the relationship that exists between the dependent variables and the independent variables (Mugenda & Mugenda, 2003). In this study, the relationship between the five variables was evaluated using correlation and regression analysis. Correlation and correlation coefficients are used to test the research hypotheses.

## 4.4	Regression Assumptions

Statistical tests depend upon some assumptions about the variables used in the analysis. Kipruto *et al.,* (2017) in their study argued that when these assumptions are not met, the results may not be valid as it may lead to under or over-estimation of the statistical significance. Thus it is important to test for these assumptions in order to validate the results, hence ensuring that the findings are worth using in decision making. Prior to data analysis, the following assumptions for regression were checked that is multicollinearity, linearity and normality.

### 4.4.1	Multi-collinearity Diagnostic Test

For multiple regression to be effective, variables need to be independent to ensure that the variables improve the prediction model. Multi-collinearity is a term used to explain correlation that exists between independent variables in a linear relationship. Multi-collinearity is measured using the Variance Inflation Factor (VIF) and the Tolerance Value. When the VIF is too high or too low, there is multi-collinearity. Specifically, when the VIF is zero of less, there is multi-collinearity among the variables. Similarly, when the VIF is greater than ten (10), there is multi-collinearity in the variables. A regression model is only effective when any multi-collinearity among the variables is removed by identifying and eliminating related variables using the VIF factor (Meyers *et al.,* 2016).

Table 4.13: Collinearity Diagnostics

Model	Collinearity Statistics	
	Tolerance	VIF
Capital Adequacy	.720	1.390
Liquidity	.763	1.311
Asset Quality	.595	1.679
Management efficiency	.818	1.223
Credit risk	.561	1.782

Using return on assets as the dependent variable and the five independent variables, all the VIFs fall above 0.1 and are less than 10, making them all within the acceptable range for the absence of multi-collinearity. The VIF and tolerance values indicate that there is no existence of multi-collinearity among the independent variables.

4.4.2 Test of Normality

Statistical procedures such as regression, correlations, t-tests and analysis of variance are based on the assumptions that the data follows normal distribution. The population of the study are taken as normally distributed. Normality is important because if the assumptions do not hold, it is impossible to draw accurate and reliable conclusions. Test of normality is carried out to assess the extent to which the variables under the study assume a normal probability distribution. (Kipruto et al., 2017). This study tested for normality results for test of normality using histogram. They were presented in figure 4.7.
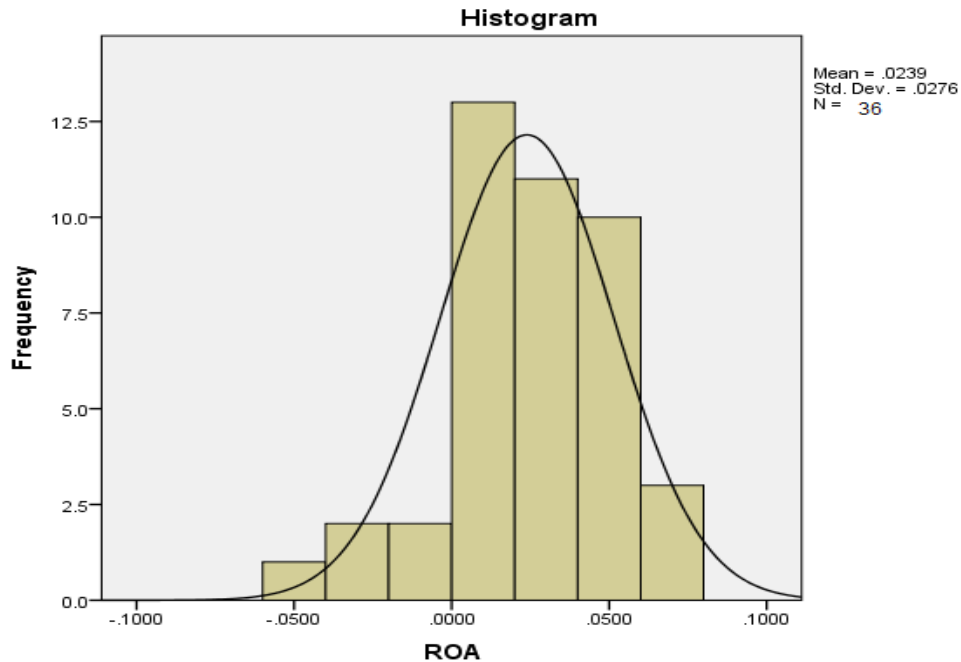
Figure 4.7: Test for Normality

Figure 4.7 above, shows a histogram for financial performance of commercial banks in Kenya which was bell shaped indicating that the data was normally distributed. The standard deviation was 2.8 on all the commercial banks indicating normal distribution.

4.4.3 Linearity

Multiple regressions can only accurately estimate the relationship between dependent and independent variables if the relationships are linear in nature (Sentero, 2013). Absence of a linear relationship between dependent variable and the independent variables can results in the regression linear analysis being an under-estimation of the true relationship. Linearity of data means that the values of the outcome variable for each increment of a predictor variable lie along a straight line. Linearity is an important relationship between the dependent and the independent variables. In this study, linearity was tested using scatter plots as shown in figure 4.8.
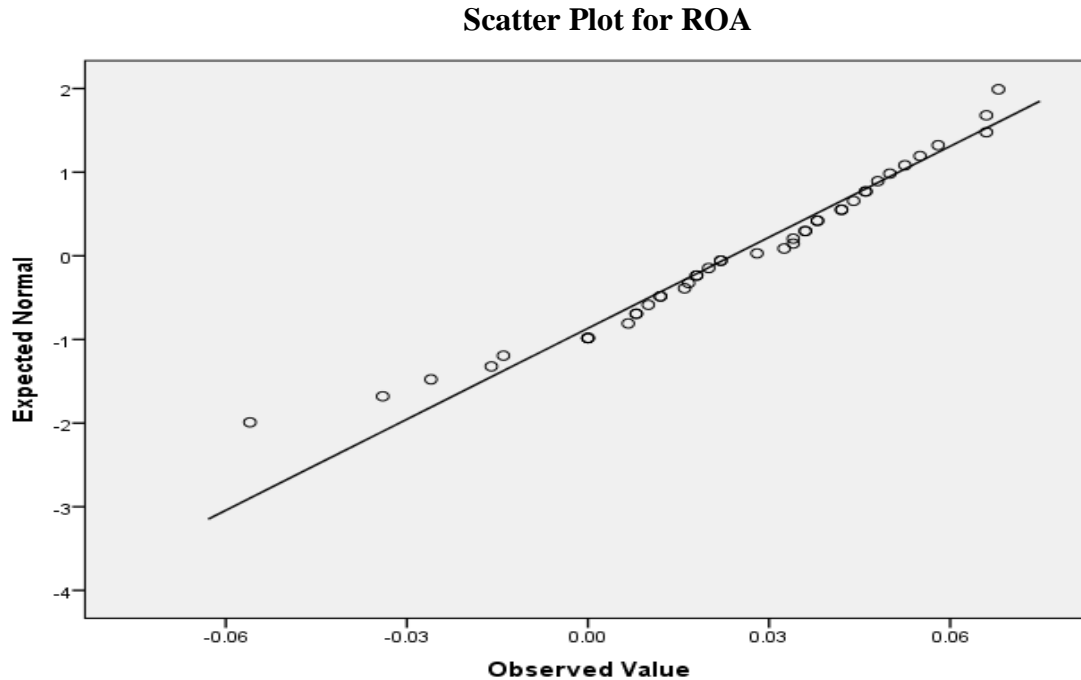
Scatter Plot for ROA

Figure 4.8: Test for Linearity

Figure 4.8 above shows there was general linearity of data despite some cases being slightly away from the regression line. The findings also shows that the effect of prudential regulation on the performance of commercial banks in Kenya is positive.

4.4.4 Correlation Matrix

The correlation coefficient is a measure of the strength and direction of the linear relationship between two variables. The coefficient ranges from -1 to 1, with -1 indicating a perfect negative linear relationship and 1 indicating a perfect positive linear relationship between the variables (Meyers *et al.,* 2016).

Table 4.14: Correlation Matrix

	ROA	L.M	CA	AQ	ME	CR
ROA	1					
LM	0.174423	1				
CA	-0.03577	0.231219	1			
AQ	-0.31545	-0.14862	-0.09582	1		
ME	0.096552	-0.24437	-0.34475	0.243233	1	
CR	-0.41675	0.179479	0.046452	0.610061	0.258556	1

According to the analysis, out of the five independent variables, liquidity ratio has the strongest positive relationship with return on assets (ROA), with a correlation value of 0.174. Alternatively, credit risk has the strongest negative relationship with return on assets (ROA) at -0.42, indicating weak negative linear relationships with performance measures. Asset quality has a weak negative correlation with return on assets (ROA) (r= -0.31) whereas capital adequacy has no linear relationship with the dependent variable (r=-0.03).

4.5   Regression Analysis

The multiple regression model allows for the prediction of linear relationship that exists between the dependent variable and more than one predictor variable. The researcher considered the five predictors of the variables that determine firm performance. This section will display the output of the multiple regression models for the multiple years and discuss findings and make inferences in line with hypotheses.

4.5.1   Multiple Regression

The researcher also considered return on assets (ROA) as a measure for bank performance. The return on assets ROA is a more comprehensive measure of profitability. The same modeling approach was repeated for each of the five years. The regression model fitted using the average panel data and the model summary provided in Table 4.17.

Table 4.15: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.594[a]	.353	.263	.0236667	2.153

Table 4.16: ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	.011	5	.002	3.932	.006[b]
1	Residual	.020	36	.001		
	Total	.031	41			

Table 4.17: Coefficients[b]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.013	.020		-.642	.525
	CA	.013	.041	.048	.324	.748
	LM	.038	.015	.376	2.464	.019
	AQ	.017	.037	.084	.460	.648
	CR	-.267	.080	-.654	-3.332	.002
	ME	.031	.013	.389	2.470	.018

a. Predictors: (Constant), CA, LM, AQ, CR, ME.

b. Dependent Variable: ROA

From the model summary in table 4.15, the R is 0.594, the model has an R^2 (coefficient of determination) of 0.353, which means that the predictor variables explains for 35.3% of the variation in the return on assets (ROA). The rest is explained by factors not concerned in this study. In table 4.16, ANOVA was used to establish the significance of the regression model used in the study. The F computed value was 3.932 (F-critical for 5,36 = 2.477) and its significance level is at 0.006 indicating that the independent variables are significant in predicting the financial performance of commercial banks in Kenya at 95% significance level. The ANOVA analysis also indicate that there is significant difference in the groups (F = 3.93, p =0.006), validating inclusion five variables in the regression equation.

$$Y = -.013 + .013CA + .038LM + .017AQ + .031ME - .267CR + .020$$

Y = Return on Asset

CA = Capital Adequacy.

LM = Liquidity Management.

AQ = Asset Quality.

ME= Management Efficiency.

CR = Credit Risk Management.

a= constant term of the model

b_i = beta coefficient with i= 1,2,3,4,5

ε= error term.

From the above regression model, holding capital adequacy, liquidity management, asset quality, credit risk management and management efficiency constant, financial performance of the commercial banks would be achieved at a unit of -.013. It was also established that a unit increase in capital adequacy would cause an increase in financial performance by a factor of 0.013, a unit increase in liquidity management would result in an increase in financial performance of the commercial banks by a factor of 0.038, a unit increase in asset quality would result in an increase in financial performance of the commercial banks by a factor of 0.017, a unit increase in credit risk management would cause a decrease of financial performance of the commercial banks by a factor of 0.267, a unit increase in management efficiency would result in an increase in financial performance of the commercial banks by a factor of 0.031.

4.6   Hypotheses Testing

The decision factor in the test is that if P value observed is less than the set alpha at the confidence level of 0.05, then the null hypothesis is rejected and the alternative hypothesis is accepted. If the if P value observed is greater than the set alpha at the confidence level of 0.05, then the null hypothesis is accepted.

H_{01}:   Capital adequacy regulation has no significant effect on profitability of commercial banks

The first research objective was achieved by evaluating the null hypothesis that capital adequacy regulation has no significant effect on profitability of commercial banks. This was evaluated using the regression results from the overall regression model in table 4.17. From the regression model, the beta coefficient is 0.013 with a p-value of 0 .748, which is higher than the critical p-value of 0.05. Based on t-test, the study failed to reject the null hypothesis thus capital adequacy regulation has no significant effect on profitability of commercial banks. The study findings is consistent with research finding carried out by Molefe & Muzindutsi (2016), Nyanga (2012) and Karanja & Nasieku (2016), the capital adequacy declined between 2013 and 2017.

H₀₂: **Liquidity management regulation has no significant effect on profitability of commercial banks**

This research objective was achieved by testing the null hypothesis that liquidity management regulation had no significant effect on profitability. The hypothesis was tested using the regression output in table 4.17. From the regression, the beta is 0.038, and has a p-value of 0.019, which is less than the critical p-value of 0.05. Therefore, based on the t-test results, the null hypothesis was rejected and the alternative was accepted. Therefore liquidity management regulation has significant effect on the profitability of commercial banks. . The study findings concur with the findings of the research made by Ondieki & Nyakundi (2013), which indicated liquidity management improved profitability of banks.

H₀₃: Asset quality regulation has no significant effect on profitability of commercial banks.

The third research objective was achieved by testing the null hypothesis that asset quality regulation had no effect on profitability of commercial banks. From the regression model output based in table 4.17, Asset quality has a beta coefficient of 0.017, with a p-value of 0.648 which is higher than the critical p-value of 0.05. Consequently, the study failed to reject the null hypothesis thus, asset quality regulation has no significant impact on profitability of banks. The research findings made differed with conclusions made from the research carried out by Ondieki & Nyakundi (2013) and Nzoka (2015), who observed that improved asset quality increased profitability of commercial banks.

H₀₄: **Credit risk management regulation has no significant effect on profitability of commercial banks**

The fourth objective was achieved by testing the null hypothesis that there is no significant relationship between credit risk management regulation and profitability. From the multiple regression model in table 4.17, the beta coefficient for Credit Risk is -0.267 at a p-value of 0.002 which is less than the critical p-value of 0.05. In this case, the null hypothesis is rejected in favor of the alternate that the variable has a significant effect. Credit risk management has statistically significant impact on the profitability of commercial banks. Credit risk ratio is negatively related to performance. This research findings is consistent with the research findings made by Kimotho (2015) and Mwangi (2014) that credit risk regulations improved bank stability and performance.

H05:   Management efficiency regulation has no significant effect on profitability of commercial banks.

The fifth objective was achieved by testing the null hypothesis that there is no significant relationship between management efficient regulation and profitability of commercial banks. From the regression results in table 4.17, the beta coefficient is 0.031 at a p-value of 0.018 which is less than the critical p-value of 0.05 consequently, the null hypothesis is rejected and the alternative hypothesis is accepted. Management efficiency has statistically significant impact on the profitability of commercial banks. .Management efficiency ratio has a positive relationship with performance, with increasing cost as a result of ineffective cost management negatively impacting financial performance. The research findings support the conclusions made in a research done by Njuele, (2013) and Ochieng (2014).

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1   Introduction

The objective of the study was to determine the impact of prudential regulations on the profitability of commercial banks in Kenya. This chapter summarizes the findings made from the data and draws conclusions that in line with developed hypothesis. After making the conclusions, the researcher takes time to enumerate some recommendations. This chapter is organized into three parts: summary, conclusions and recommendations.

5.2   Summary

The researcher summarized the key findings made from the data analysis in line with the study's hypotheses. The data analysis was conducted to help draw evidence-based conclusions on how the prudential regulations influenced bank performances in Kenya. The summary helps identify the key findings made from the study.

5.2.1   Effect of Capital Adequacy Regulation on Bank Performance

Before the enactment of the 2013 prudential regulation, banks operated with low capital levels, with some banks even comfortable operating with customer deposits. Banks that had high capital levels would incur high capital-related costs, which had a negative impact on profitability. Shareholders of banks preferred to maximize their welfare by using the inexpensive deposits to lend than issue capital that would be costly to issue and pay back in dividends. This trend persisted to 2016 where adequate capital was a liability that lowered profits. However, there was a shift, a complete reversal in 2017, where capital adequacy ratio has now become a positive predictor of returns (.393). Nonetheless capital adequacy ratio is not statistically significant factor that influences bank profitability. The regression analysis without capital adequacy as one of the predictive variables indicated less predictive accuracy for all the years than with the variable. In all instances, the coefficient of determination declined by 0.6-1.1% without the variable, underlying its significance in the model.

5.2.2   Effect of Liquidity Management Regulation on Bank Performance

Liquidity regulation was enacted to protect depositors from having illiquid current financial assets held with their banks. In previous years, some banks had working capital challenges that they set restrictions on amounts customers could withdraw without prior notice. Bank experience is determining factor in liquidity, with less experienced banks reporting low liquidity levels in 2013 that came down to .7155, a value comparable to the industry average. From regression, liquidity ratio has a positive relationship with bank performance. High liquidity means more working capital and therefore more profits from increased transactions. The variable was statistically significant in prediction of the dependent variable.

5.2.3   Effect of Asset Quality Regulation on Bank Performance

Banks were able to maintain lower asset quality ratios in 2013. This means that banks were more effective at maintaining lower proportions of non-performing loans to total assets. Comparatively, the ratio went up over the years indicating an increase in the levels of non- performing loans issued by banks. This position is worrying trend in the industry as non- performing loans threatens banks stability. The increase in the ratio is across the industry and could point to the changing dynamics of lending where banks are forced to take up more risk. Based on regression, this ratio had the most significant impact on the regression model, with the beta coefficient of 0.17. Correlation matrix indicated that asset quality has a weak negative correlation with return on assets with a correlation value of -0.31.

5.2.4   Effect of Credit Risk Management Regulation on Bank Performance

Banks managed to maintain low credit risk levels in 2013, but with increase in non-performing loans, they had more assets exposed to default risk. The increase in the credit risk ratio impacted banks even more, with a mean of 9.9 percent of assets providing cover to non-performing loans by 2017. Bank experience in years of operation also affected realized credit risk, with less experienced banks having a higher proportion of assets covering non-performing loans compared to experienced banks. From the regression results, credit risk was the second most significant predictor of performance, increasing its relevance with each year as credit risk ratios increased.

5.2.5 Effect of Management Efficiency Regulation on Bank Profitability

Banks were more efficient at managing costs in 2013, an indication of better structures that ensure revenues are converted to profits. After, costs escalated, reducing their profit margins to less than 20 percent of revenues by 2017. However, it is the some banks that performed poorly, ending up in losses at the end of the study period. From the regression model, the management efficiency ratio is the third most significant predictor of performance, having a positive relationship with performance.

5.3 Conclusions

The study considered a trend analysis to determine the impact of capital adequacy and concluded that the regulation led reduction in capital adequacy. Banks maintained low capital adequacy ratios throughout the period, holding significantly higher proportions of risk weighted assets to shareholder's equity. Smaller banks had the higher capital adequacy ratios compared to larger banks that utilize debt capital to acquire assets.

Banks in the industry struggled with liquidity, especially smaller banks that over-relied on deposits to operate. This indicates that banks in the small peer group operate with low capital levels. Assuming that regulations are set when banks are licensed to ensure capital levels are maintained, the high demand for banking services creates abnormal growth trajectories for banks as they attract customer deposits faster than their capital growth. From the regression model, liquidity has a positive linear relationship with bank performance based on the performance measure.

Asset quality ratio has a negative linear relationship with performance and based on beta coefficients is the most significant predictor of performance and credit risk the second most significant variable in the model. A unit increase in asset quality resulted in an increase in financial performance of the commercial banks by a factor of 0.017. The asset quality trend indicates a general increase in the asset quality ratio, an indication of the increase in the proportion of non-performing loans issued by banks in the financial sector.

The study findings indicated management efficiency as having significant effect on performance. Management efficiency ratio has a positive relationship with performance, the ratio kept declining

over the years with increasing cost as a result of ineffective cost management negatively impacting financial performance.

Credit risk management regulation also had a significant impact on performance with credit risk ratio negatively related to performance. From the research findings, the credit management ratio trend was upward over the study period indicating that non-performing loans in banks were on the rise. This affected performance negatively.

5.4   Recommendation

Based on the inferences made under conclusions, the researcher proposes the following recommendations to stakeholders. The recommendations are influenced by the current study's findings based on the descriptive statistics and regression models in the report.

Prudential regulations have affected how bank's commitment to maintain Central bank of Kenya capital levels. This has meant raising more capital from shareholders and reinvesting back realized profits to achieve the regulator's capital guidelines for banks. It is recommended that banks develop strategies to raise their capital levels to adequate levels to lower risk of solvency.

It is advisable that banks recruit effective management teams and develop stronger internal controls to improve efficiency and credit risk levels. Over the period, banks have struggled to contain escalating costs that have reduced their profit levels. Unchecked costs result in losses, which reduce capital. It is factual that changes in the macro-economic environment may have contributed to the situation.

Banks should lower their non-performing portfolios to secure their long-term stability. The current credit risk is extremely high at between 8 and 12 percent of total assets. Banks should strengthen their internal controls and credit policies to secure their survival.

The regulator, Central bank of Kenya should ensure all banks operating in Kenya adopt the prudential regulation as it ensures that banks have adequate capital. Liquidity problems arise as a direct consequence of low capital input, which force inadequately financed banks to rely on

deposits for working capital. Significant withdrawal of deposits ends up crippling banks, a scenario observed through banks that have become insolvent in this period.

The regulator should seek to provide more holistic and integrated regulations to avoid stifling the industry like during this period where bank performance continued to decline. Regulatory policy should create stability without shrinking the industry.

5.5   Suggestion for Further Studies

Further research gaps on factors that affect the five variables would be useful in gaining a more comprehensive and generalizable understanding of the variables. Further, there appears to be industry trends and patterns that influence changes in the variables. Identification and isolation of the contribution made by market factors can improve the accuracy of prediction by the regression model. Nonetheless, the variables included have significantly higher prediction accuracy in predicting performance.

Additionally, scholars can investigate intervening variables to the relationship between performance and the five predicting variables in this study, which can improve even further the model's predictive accuracy. The study identified liquidity management, credit risk and management efficiency as the only significant predictors of profitability. The study can be improved by identifying other regulatory factors that affect profitability from the prudential performance, which include using other accounting measures that may be more appropriate for indicating capital adequacy, liquidity and asset quality.

The study also used accounting measure of return on assets (ROA) to measure performance. This is a subjective performance measures that could be manipulated by the firms and may not reflect the true measure of financial performance. Another study can be conducted using different performance measures with the same variables.

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APPENDICES:

APPENDIX 1: LIST OF COMMERCIAL BANKS IN KENYA

(1) African Banking Corporation ltd

(2) Bank of Africa Kenya ltd

(3) Bank of Baroda Kenya ltd

(4) Bank of India

(5) Barclays Bank Kenya ltd

(6) CFC Stanbic Bank ltd

(7) Charterhouse Bank ltd

(8) Chase Bank Kenya ltd

(9) Citibank N.A. Kenya

(10) Commercial Bank of Africa ltd

(11) Consolidated Bank of Kenya ltd

(12) Co-operative Bank of Kenya ltd

(13) Credit Bank ltd

(14) Development Bank of Kenya ltd

(15) Diamond Trust Bank of Kenya ltd

(16) Dubai Bank Kenya ltd

(17) Eco Bank Kenya ltd

(18) Equatorial Commercial Bank ltd

(19) Equity Bank ltd

(20) Family Bank ltd

(21) Fidelity Commercial Bank ltd

(22) Guaranty Trust Bank

(23) First Community Bank ltd

(24) Giro Commercial Bank ltd

(25) Guardian Bank ltd

(26) Gulf Africa Bank ltd

(27) Habib Bank A.G. Zurich

(28) Habib Bank ltd

(29) Imperial Bank ltd

(30) I & M Bank ltd

(31) Jamii Bora Bank ltd

(32) Kenya Commercial Bank ltd

(33) K-rep Bank ltd

(34) Middle East Bank Kenya ltd

(35) National Bank of Kenya ltd

(36) NIC Bank ltd

(37) Oriental Commercial Bank ltd

(38) Paramount Universal Bank ltd

(39) Prime Bank ltd

(40) Standard Chartered Bank of Kenya ltd

(41) Trans-National Bank ltd

(42) UBA Kenya Bank ltd

(43) Victoria Commercial Bank ltd

APPENDIX II: DATA COLLECTION SHEET

Variable	2013	2014	2015	2016	2017
Return on Assets (ROA)					
Total Capital					
Risk Weighted Assets					
Customer deposits					
Total Assets					
Non- performing loans					
Total Loans					
Total operating expenses					
Total Revenue					

APPENDIX III: RESEARCH PERMIT