EFFECTS OF INTEREST RATE CAPPING ON PERFORMANCE OF COMMERCIAL BANKS IN KENYA

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A RESEARCH PROJECT PRESENTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

DECEMBER, 2018 `

DECLARATION

This project is my original work and has not been presented for a degree in any other university or for any other award.

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D61/87351/2016

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

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Mr. J. Barasa

ACKNOWLEDGEMENTS

I whole heartedly thank the Lord God Almighty for His grace and favor which enabled me to undertake this project.

I am greatly indebted to my supervisor Mr. Barasa for his guidance and support that made this project possible.

My sincere gratitude goes to my parents, siblings and friends for their words of encouragement and support throughout my studies.

DEDICATION

This project is dedicated to my parents Rev. Mr. & Mrs. John and Mary Amuhinda, My siblings Richard, Deborah and Paul Amuhinda for your love, support and encouragement. You have been inspirational figures in my life. May the Almighty God bless you abundantly.

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ABBREVIATIONS

CBK: Central Bank of Kenya

CBR: Central Bank Rate

KCB: KCB Bank Kenya Limited

MPC: Monetary Policy Committee

NIM: Net Interest Margin

NPL: Non Performing Loans

NSE: Nairobi Securities Exchange

ROA: Return on Assets

ROE: Return on Equity

SPSS: Statistical Package for the Social Sciences

VIF: Variance Inflation Factor

ABSTRACT

The rate of interest charged on loans and advances which makes banks earn interest income and the rate of interest paid to depositors, which translates to the cost of funds both have a significant impact on the performance of any commercial bank. This study sought to determine the effects of interest rate capping on performance of commercial banks in Kenya. The capping law took effect on 14th September 2016 as a result of the numerous issues raised by the public with regard to the cost of credit. The law stipulates that the lowest rate banks can offer on deposits is 70% of the CBR and the lending rate at 4% above the CBR. This study had three specific objectives: To establish the effect of interest rate capping on credit uptake performance of commercial banks in Kenya; To identify the effect of interest rate capping on profitability of commercial banks in Kenya; To investigate the effect of interest rate capping on the portfolio of non-performing loans on commercial banks in Kenya. The descriptive research design was utilized in the study. The study targeted the 36 licensed commercial banks out of the 43 registered ones, leaving out 6 commercial banks which are either acquired by other banks, under receivership or statutory management. Secondary data capturing the performance of the commercial banks over the period 2015-2017 was obtained from published financial statements, CBK publications and journals, World Bank Journals and relevant Government Ministries. The data obtained from the study environment was analyzed through descriptive statistics and inferential statistics by use of SPSS version 16. The findings of the study established that credit uptake increased following the introduction of the capping law. This was mainly due to issuance of loans to large borrowers. The profitability of the banks in the period under review increased. In addition, the non performing loans portfolio also increased. The study concluded that interest rate capping positively affects performance of commercial banks. The study recommends that the Central bank and the Government through the ministry of Finance should come up with policies that benefit banks, large and small borrowers.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The Banking Act defines a bank as any financial institution that carries on the business of banking. Some of the activities carried out include; acceptance of deposits, lending to the public, offering of forex and trade finance services. In Kenya the licensing and regulation of commercial banks is done by the CBK. The performance of commercial banks is critical to their success hence the need to assess it. Interest rate is a key factor that affects the performance of commercial banks either positively or negatively. Keynes (1936) defines interest rate as the compensation for parting with liquidity for a defined period of time and the reward for accepting a claim or security in lieu of money.

Interest rate capping is regulatory measure that is used by governments to control the financial sector. Wild (2012) defined an interest rate cap as the limit on how high the interest rate on a loan or mortgage may rise. The introduction of interest rate capping was done with an aim of protecting consumers from being charged high rates of interest and ensuring they have access to credit facilities. Commercial banks also benefit as consumers with poor credit ratings are not able to access credit facilities.

There have been some radical evolvements within the Kenyan financial industry policy environment. In 1970s the financial environment was governed by direct controls which were followed by full liberalization in 1990s leading to interest rates being determined by market forces CBK, (2017). The use of market determined interest rates resulted in a high cost of credit thus becoming a hindrance to a large segment of the population to access

credit facilities. There have been several attempts to introduce capping in the Kenyan financial sector with mixed outcomes. In 2001, a bill that sought to place a ceiling to commercial banks interest rates to the rate of the 91 day Treasury bill with a margin of 4% was introduced in the Kenyan Parliament. Another attempt to introduce capping was in 2013 by the Parliamentary Budget Office which proposed to cap rates in consistent with the CBR. This two attempts failed as people advocated for a free market structure.

The interest capping law took effect on September 14, 2016 as a result of the numerous issues raised by the public with regard to the increasing cost of credit. The law stipulates that the lowest rate banks can offer on deposits is 70% of the CBR and the lending rate at 4% above the CBR. In addition, banks have a duty of informing borrowers the interest they receive on their deposits. Successful implementation of the law would result in low cost of credit leading to an increase in credit access. Borrowers will also be able to predict the maximum interest charged on loans using the CBR.

The study derived its foundation from the Theory of Liquidity and the Loanable Funds Theory. Keynes who propounded the theory of liquidity advocated for a historically given price level that is set by the central bank of a given country. The price level informs on the interest rate to be charged. This theory is of importance as it provides a strong basis for government involvement in interest rate capping. On the other hand, the loanable funds theory stipulates that consumers and investors demand loanable funds for consumption and investment purposes. With this theory the determination of interest rates is left to the market forces of demand and supply. Banks are better left to charge their own interest rates hence capping shouldn't exist. It was thus necessary to determine how capping has affected the performance of commercial banks.

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1.1.1 Interest Rate Capping

Wild (2012) defined an interest rate cap as the limit on how high the interest rate on a loan or mortgage may rise. Capping is a regulatory measure that is used by government of a given country to prevent commercial banks from exceeding a stated level of interest rate. Borrowers tend to enjoy a mix of fixed and variable rates on loans where capping is introduced. According to Maimbo and Henriquez (2014) capped interest rates tend to fluctuate without exceeding a stated limit. Munguti (2015) averts that the capping law meant that the lowest rate banks can offer on deposits is 70% of the CBR and the lending rates at 4% above the CBR. This meant that with a CBR of 10%, commercial banks will be required to pay an interest rate of 7% for a savings account and consequently charge the rate of 14% on issuance of loans.

A number of countries have introduced and implemented interest rate capping laws with mixed results. Examples of these countries include Zambia (2013), El Salvador (2012) and the Kyrgyz Republic (2013). The Republic of Korea was successful in implementing interest caps on loans for the period 1956-94, Demitriades & Luintel, (2001). Countries tend to introduce interest rate capping for various reasons. One of the reasons for the introduction is financial inclusivity. This is done where a country has minimal financial literacy levels, where there is limited transparency and low disclosure requirements, Maimbo & Henriquez, (2014). According to Bekaert, Harvey, and Lundblad (2001), financial markets that are accessible tend to impact positively on the growth of an economy, productivity levels and poverty reduction. Another reason for the introduction is both political and economic pressure from the people. According to Munguti (2015)

ceilings is a tool used by governments in response to the political and economic turmoil that their country experiences.

Various arguments have been advanced in relation to introduction of capping in an economy. Scholars argue that introducing rates brings mixed results in an economy. One argument is that the introduction of interest rate capping has enhanced financial inclusivity. This is evidenced with the inclusion of economically disenfranchised segments of the population in the financial system. Another result of capping is the shift in lending where banks have opted to lend to the government and large corporations, who have known collateral and are thus considered safer borrowers rather than lending to the small borrowers who are deemed to be riskier.

1.1.2 Performance of Commercial Banks

The economic growth of any country largely depends on the banking industry. It is therefore the duty of the management of commercial banks to critically analyze the performance and ensure they are performing well. According to Guest, Michie, Conway and Sheehan (2003) performance refers to outcomes, end results and achievements emanating from activities that an organization is involved in. These outcomes can be either positive or negative.

There are various factors which affected the performance of commercial banks. The internal factors are unique and specific to a given bank and are thus within the control of management and the board. The external factors are beyond management's control thus affecting the entire banking industry, Al Tamimi, (2010); Aburime, (2008).

Al-Hussein & Johnson, (2009) avers that financial performance is concerned with ascertaining the achievement of financial goals. It also measures the effectiveness of asset utilization in generating revenues. Profitability, repayment capacity, solvency, financial efficiency and liquidity are the main measures of gauging the financial performance of a firm according to Crane (2010). The balanced scorecard analyzes a firm's performance from the financial and customer perspective. It also measures a firms learning and growth. In addition, the internal business processes are analyzed with an aim of measuring a firm's performance, Kaplan & Norton, (2001).

The ROA measures the efficient utilization of assets by management in generating revenue. ROE measures how productive the management is in utilizing banks funds to generate profits. Lastly, the NIM provides an indication of the difference between interest incomes generated by the bank e.g. interest earned on credit issued and interest paid out to lenders who have deposited their funds with the bank.

1.1.3 Impact of Interest Rate Capping on Performance of Commercial Banks

According to CBK (2017) there exists a need of analyzing the effect of the capping law on our economy. CBK averts that there was a reduction in financial intermediation by commercial banks. The average loan size experienced a significant increase despite the decline in loan accounts. Banks have also changed their lending strategy and now have preference to lending to large corporations and government. This leaves the smaller borrowers in a dilemma on where to access credit.

According to Okwany (2017) interest rate capping has a negative impact on commercial banks profitability, credit uptake, and non-performance of loans. Commercial banks

income is generated from both interest and non interest income. This follows that as interest rates increase the revenue of commercial banks also increases. With the introduction of interest rate capping, banks were required not to exceed a stated limit. This meant that they couldn't increase the rates they charged beyond that limit leading to a reduction in their revenues. This necessitated the need of investigating how the commercial banks performance in Kenya is affected due to the introduction of capping law.

1.1.4 Commercial Banks in Kenya

Mugisha (2017) posits that banks act as a link between the various participants in our economy. They actualize this role in the following ways. First and foremost, they provide an avenue for deposit making and in return the public earns interest on the deposits made. These deposits are generally the public's savings. In addition, taxes are paid through banks thereby making them collection agents for the tax authority. Secondly, banks act as a medium for payment of bills through the use of credit cards. Salaries are also processed in the form of direct debits or transfers. Last but not least, banks issue loans to the general public. The loan facilities aid individuals and organizations in undertaking various investment opportunities. The government also benefits as the loan facilities issued to it have been used to finance budgets.

The history of Commercial Banks in Kenya dates back to the 1890s. In 1896, the National Bank of India commenced its operations in Kenya. Standard Chartered bank previously known as the Standard Bank of South Africa opened its doors in 1910. In 1916 Barclays Bank was formed following the merging of the National Bank of South Africa and Anglo-Egyptian Bank, CBK (2013). The banking industry continued to

experience an increment in the number of banks being formed. According to CBK website (www.centralbank.go.ke) the country has 43 licensed commercial banks.

The enactment of the capping law in August 2016 was meant to cushion the public from being charged high rates of interest. The banks were charging rates ranging between 19-24% per annum thus enjoying interest spreads averaging to 11.4% (www.cytonn.com). These rates were at 6.6% above the world average. The law was thus enacted and implemented in September 2016 to safeguard the public from the high rates charged by banks. Banks were therefore required to have lending rates not exceeding 4% above the CBR currently at 9% and the lowest rate payable to depositors at 70% of the CBR.

The commercial banks took various drastic actions following the enactment of the law. Family bank issued a profit warning in the last quarter of 2016 and plans to do staff rationalization. Banks such as KCB, Sidian, NBK, Bank of Africa, Ecobank and Standard Chartered Bank also announced their cost cutting plans by downsizing the staff numbers.

In March 2017, President Uhuru Kenyatta while addressing the nation during the state of the Nation address stated that commercial banks have decreased or slowed down their lending to the public as a result of capping of interest rates. This slowdown was unfortunate as it wasn't the intended result of capping. The Government through the Ministry of Finance and CBK has promised to conduct an investigation the impact of the capping law on borrowing. Kenya's growth projection was recently reduced by World Bank from an estimated growth of 5.9% in 2016 to 5.5%. This reduction was by 50 basis points and was largely attributed to the capping of interest rates on loans.

1.2 Research Problem

Gardner et al., (2005) assert that in determining the performance of commercial banks, interest rate is a key factor that ought to be considered. Several studies done by scholars on interest rates. Ngari (2013) researched on the relationship between interest rate spread and ROA. His study indicated that a positive linear relationship existed among the two variables. Kipngetich (2011) opined that, interest rates charged by banks are crucial for attainment of high financial performance. Mang'eli (2012) opined that the performance of commercial banks is significantly influenced by interest rates spread.

In the past, governments have utilized interest rate caps to protect consumers from exploitation by financial institutions. The caps were also used for political reasons. The antagonists of such interventions argue that interest rate capping has a tendency of distorting the market leading to generation of adverse selection. Financial institutions have a strong preference of granting credit facilities to high collateral clients thereby inhibiting lending to clients who have little access to credit facilities from other sources that are also considered risky. This preference tends to create inefficiencies in financial intermediation.

It is evident from the minutes of CBK's MPC meeting that SMEs in Kenya have been affected disproportionately following the introduction of capping. This disproportionate is as a result of rigid credit standards and banks shifting their lending towards government and large corporations who are considered to be safer borrowers as opposed to the small riskier borrowers. This shift is largely due to the suppressed margins that have been experienced as a result of interest rate capping law that was implemented in September 2016.

A critical analysis of these studies proved existence a gap that needs to be filled. For instance, Mugisha's study did not fully analyze all the commercial banks in Kenya and Kipngetich (2011) focused on profitability thus ignoring the other performance indicators. Interest rates are a critical element in determining the financial performance of banks and the subject of capping is thus relevant. It is also evident that commercial banks play a critical role in the economy of any country and their performance is thus crucial for the growth of the economy. A study on the effect of interest rate capping on the performance of commercial Banks in Kenya is thus relevant.

1.3 Objective of the Study

The objective of the study was to examine the effects of interest capping on the performance of commercial banks in Kenya.

1.4 Value of the Study

The study findings will be of great benefit to the government, scholars, general public and other stakeholders within the banking industry. The government through the Ministry of Finance and Planning will benefit with the recent information which is vital in policy formulation aimed at creating an enabling environment for conducting business activities. The policies will also be aimed at enhancing access to credit facilities and protecting both the large and small borrowers and the banks at large. The study will provide more insights on the topic on Interest rate capping and will thus serve as reference material to other scholars interested in this subject. Commercial banks will also benefit as they will be able to get data and vital information on how capping has affected their performance.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The segment clearly highlights the theories underpinning the study. It also covers the findings of empirical studies conducted by other researchers in the related area. The conceptual framework provides a diagrammatic illustration of the connection between the variables.

2.2 Theoretical Literature Review

This part provides an insight on the theories that are vital to the study. The theories provide a firm basis of the theoretical background relating to the study.

2.2.1 Theory of Liquidity

Keynes (1936) was the first economist to introduce the theory of liquidity. Keynes posits that interest is the payment or reward for parting with money or liquidity. The demand of money is clearly explained by the three motives i.e. transactional, precautionary and speculative. The transaction motive explains the money demanded to meet current basic transactions, money demanded to meet unforeseen problems or contingencies is explained by the precautionary motive. The speculative motive explains the amount of money demanded for investment opportunities. These investments ought to offer a more attractive rate of return.

The CBK comes up with monetary policies whose main aim is to control the supply of money in the market. The supply of money is thus determined by the government and CBK. With this theory the interest rates are thus determined by purely monetary forces.

Keynes advocated for a historically given price that is set by the central bank. In addition, a minimum interest rate floor ought to be set beyond which interest rates could not fall. This clearly reflects the element of capping of interest rates. Critics of this theory argue that interest rate was not a purely monetary phenomenon since other forces such as capital productivity and other elements in the political economy posses a key role in interest rate determination. The relevance of this theory is evident as it provides an avenue for the implementation of capping.

2.2.2 The Loanable Funds Theory

The genesis of the loanable funds theory is closely associated with Wicksel in 1930. Ohlin and Robertson (1934) also had great contributions towards the formulation of the loanable funds theory. Robertson (1934) posits that the interest rate determination was done by the interplay between supply of and demand for loanable funds. According to Turnovskey (1985), loanable funds refer to the amount of money which was demanded and supplied at any time. Consumers and investors demand loanable funds for various reasons. These loanable funds are normally utilized for current consumption and others invested in lucrative investment opportunities. The relationship between interest rates and loanable funds is inverse since consumers and investors have a strong preference of borrowing at low rates of interest hence the inverse relationship. A graphical representation shows the demand curve slopping downwards from left to right.

The supply of loanable funds tends to increase when the market is experiencing high interest rate. This is largely due to the lenders increasing their supply of funds to the market. The relationship between interest rate and loanable funds on the supply side is thus a direct one i.e. when interest rates increase the supply of loanable funds also

increases. A graphical representation shows the curve of supply slopes upwards from left to right. The determination of interest rates is thus left to the market forces of supply and demand. Policies that promote competition and efficiency are thus necessary as this will ensure the rates available to consumers and investors are the best. It's thus evident that the theory advocates for an environment where loan capping doesn't exist as the rates will be determined by market forces. Critics of this theory argue that special instances within the business environment may demand for capping of interest rates. This theory is of great importance to this study as it helps us understand why capping may not be necessary.

2.2.3 Theory of Austrian School

The Austrian theory is closely associated with Misses (1881-1973). This theory explains interest rates in terms of the marginal utility of goods where consumers tend to develop time preference to capital, money and goods being produced and exchanged. Interest rate is seen as an element of the free market determined by decision making preference of people. Interest rate thus came into existence since people tend to prefer present goods to future goods. Interest rate is also seen as the discounted amount payable to people with an attempt of motivating them to invest or transfer their present requirements into the future.

According to this theory, the central banks involvement in interest rates tends to make banks to fund loans at lower rates of interest. The lower the interest rates charged impacts on the banks profit margins and thereby affecting the banks performance. This theory thus advocates for a free market economy without government intervention. It is thus evident from this theory that capping shouldn't exist and banks should be left to

determine on their own the rates of interest to charge on loans. This theory is of relevance as it helps us understand why capping may not be necessary.

2.2.4 Classical and Neoclassical Theory

The classical theory defines interest as the compensation made for the utilization of capital. The determination of interest rate is therefore done through the interplay of the supply of and demand for capital. The demand for capital is represented by the demand for investment whereas the supply of capital is derived from saving which is largely dependent on an individual's willingness and ability to save. The interest rate was thus determined by the equality between investment and savings. The classical theory postulates that no minimum interest rate should be set. This means that capping shouldn't exist as it advocates for a minimum rate.

The neoclassical theory is closely associated with Bentham, Menger, Walras and Gossen (1810). The theory tends to explain interest rates in terms of the laws of decreasing marginal utility. The law stated that the marginal utility of a good or service declines as its available supply increases. The changes in interest rate can be easily associated with changes within the relative price level of capital and consumer goods. According to this theory interest rate capping shouldn't exist as interest rates tend to have an effect on the consumption and saving habits of investors and consumers. These two theories are of relevance as they help us understand why capping may not be necessary.

2.2.5 Efficiency Theory

The efficiency theory originated from Demsetz (1973). The theory postulates that the performance of any bank is defined by the efficiency of the bank. Banks that are efficient

tend to incur low costs which would result in high profitability hence better performance. The efficiency of banks can also be attributed to better management and investment in production technologies that have lower costs. With this theory banks can attain favorable levels of production through economies of scale. The size factor is also considered as large banks are in a better position of hiring highly qualified management and investing in production technologies that result in lower operational costs hence leading to higher returns as compared to small banks. This theory therefore provides an understanding on how bank performance is affected by other factors such as management efficiency and size hence relevant to the current study.

2.2.6 Market Power Theory

Bain (1951) introduced the market power theory. The theory asserts that an increase in market power tends to create monopolies thereby resulting in profits hence better performance. This theory works under the assumption that concentrated markets posses superior market imperfections that facilitate firms in setting unfavorable prices to their customers. According to this theory, firms that posses a large market share and offer differentiated products and services have a high affinity of earning monopolistic profits. This theory therefore tends to explain how a bank's performance is affected by its market share. It is clearly evident that banks with large market share benefit from the exertion of market power.

2.2.7 Expense Preference Theory and Economies of Scale theory

The expense preference theory originated from Becker (1957) and was further developed by Williamson (1967). The theory postulates that the main goal of management of a given bank is to own the utility of the bank. The utility of banks is normally realized by

increasing salaries and other staff related expenses. With this theory the management develops a keen focus on staff welfare rather than focusing on maximizing profits. These actions by management are normally done in the short term and eventually result in higher efficiency ratios. These decisions by management result in banks earning more profits in the long-term hence end up performing better. It is thus evident that performance of banks is dependent on many factors rather than just interest rate capping.

The economies of scale theory are closely associated with Emery (1967) and Vernon (1971). According to this theory, large banks tend to enjoy economies of scale and thus produce services at lower costs. Large banks are therefore in a better position to offer their services more cheaply and efficiently as compared to small banks. The end result of this is the high profit margins earned by large banks. The high profit margin is a clear indicator of better performance.

2.3 Determinants of Commercial Banks Performance

This segment focuses on how other factors other than interest rate capping impact on commercial banks performance. These factors are management efficiency, capital adequacy liquidity, asset quality and size of the bank.

2.3.1 Capital Adequacy

Athanasloglou, Brismiss and Delis, (2005) define capital as the amount of owner's funds that commercial banks use to support their business operations. These funds are also meant to cushion banks in case of any adverse situations that may occur. The capital adequacy ratio was a determinant of the internal strength and stability within the bank to withstand losses during crisis. It's also a measure on how much of the bank's assets are

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funded with owners funds. It's derived by the ratio of equity to total assets. Banks that are well capitalized are in a better position of meeting the capital requirements as stipulated by the central bank. This provides an avenue for any excess capital to be issued as loans. In cases of general financial crisis banks with a high capital ratio tend to face a relatively lower financial difficulty.

2.3.2 Asset Quality

Commercial banks generate more income from issuance of loans. Loans are therefore a bank's main assets that aids in generating revenue. The quality of loan portfolio is a critical element in the determination of a bank's the profits. According to Dang, (2011) the losses that are derived from delinquent loans possess a high risk to banks thereby affecting its performance. It is thus necessary for commercial banks to assess their asset quality position as this has an effect on its performance.

2.3.3 Management Efficiency

Efficiency in Management is an internal factor that aids in determining the performance of commercial banks. The ratios used to represent management efficiency include; loan growth rate, asset growth rate and earnings growth rate. The performance of management which in turn reflects commercial banks performance is often expressed qualitatively where the control systems, quality of staff, management systems and organizational discipline are subjectively evaluated. Where there is improved management, the efficiency level tends to increase leading to more profits hence improved performance.

2.3.4 Liquidity

Ability of commercial banks in meeting their obligations as and whenever they fall due is referred to as liquidity. Liquidity is measured by various ratios such as customer deposit to total assets, total loan to customer deposits and cash to deposit ratio, Nyanga, (2012). Banks with relatively high levels of liquidity are in a better position of financing their daily operations such as lending to borrowers and offering cash for withdrawals.

2.3.5 Size of the bank

The size of commercial banks has a significant influence on its performance. Large banks are in a better position of undertaking massive investments in technology and other input factors which in turn results in increased efficiency levels. The customer base also improves resulting into increased deposits which provide banks the capacity to offer more loans. This leads to better performance compared to small banks.

2.4 Empirical Review

Several studies done in relation to interest rate capping and the performance of commercial banks both globally and locally. Focusing on the global context, an investigation on the effect of interest rate capping on performance of banks was conducted by Wild (2012). Wild's findings revealed mixed results about the effect of capping of interest rates on performance of banks. Osei-Assibey and Bockarie (2013) study findings in the Ghanaian context revealed that when interest rate capping was introduced, banks had a challenge in covering the loan costs since they are required to charge a lower interest rate.

In the local context we had a study by Wanjare and Motari (2016) on the Interest rate variation and the profitability of Islamic banks in Kenya. The period under study was 5 years and the average of the CBR was determined for this period. Financial data was also obtained and analyzed. The findings of their study revealed that the market interest rate changes had a positive influence on the profitability of Islamic banks in Kenya.

Njihia (2005) research findings indicated that the loan component has a substantive effect on the banks profits. He further avers that deposits are crucial in maintaining capital adequacy levels thus facilitating issuance of more loans. Maigua and Mouni (2016) investigated how the commercial banks performance in Kenya is influenced by the interest rates determinants. A descriptive research design was adopted together with multiple regressions as a data analysis technique. The study revealed that commercial banks performance is positively influenced by exchange rates, discount rates and inflation rates.

Mang'eli (2012) carried out a study that examined the relation between interest rate spread and financial performance of commercial banks. Mang'eli's findings established that performance of commercial banks is significantly affected by the interest rate spread as they tend to increase the cost of loans. In addition, Mang'eli discovered that regulations on interest rates tend to determine the interest rate spread in banks which has an effect on performance of commercial banks. His findings also revealed that the techniques employed in managing credit risk tend to have a remote effect on the value of a bank's interest rate spread. This is largely due to benchmarking of interest rate against the associated non-performing loans. In addition, it is evident that the performance of commercial banks was also affected by the provisions made on non-performing loans.

2.5 Conceptual Framework

A conceptual framework is a diagrammatic representation that depicts the relationship between the variables Mugenda (2008). The following Conceptual Framework shows effect of the independent variable towards the dependent variable.

Figure 2.1: Conceptual Framework

Independent Variable   Dependent Variable

```
┌─────────────────────────┐                    ┌──────────────────────────────────┐
│  Interest Rate Capping  │ ────────────────►  │  Commercial Banks Performance    │
└─────────────────────────┘                    │                                  │
                                               │     • Credit Uptake              │
                                               │     • Profitability              │
                                               │     • Non-Performing Loans       │
┌─────────────────────────┐  ─────────────────►│                                  │
│ Capital Adequacy        │                    └──────────────────────────────────┘
│ Management Efficiency   │
│ Size of the bank          Control Variable
│ Liquidity               │
└─────────────────────────┘
```
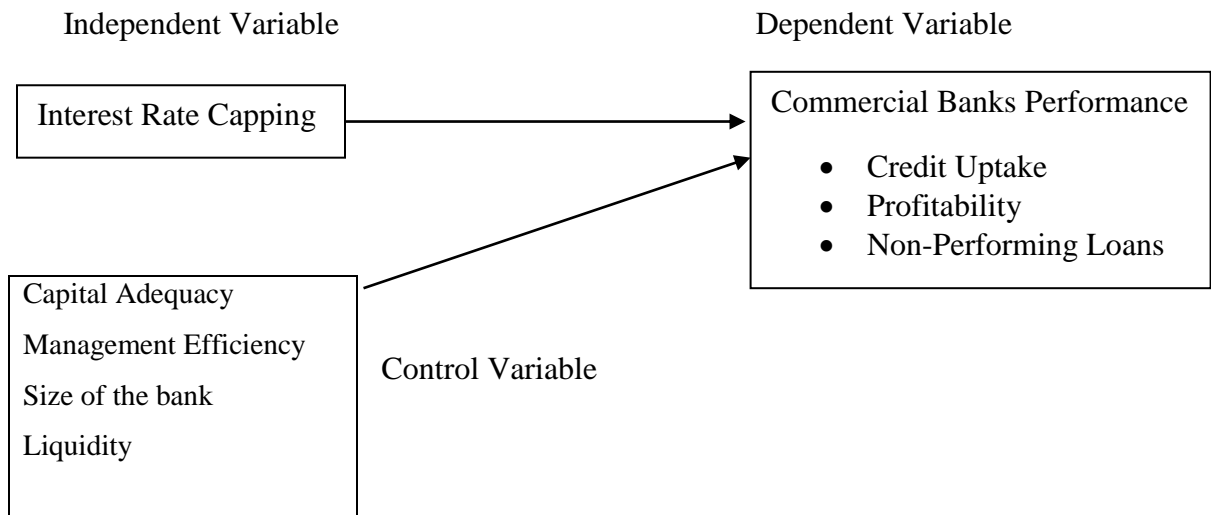
CHAPTER THREE

METHODOLOGY

3.1 Introduction

The methodology of conducting the study has been highlighted in this chapter and clearly details the following areas; the research design, population, data collection procedures, sample and sampling design and anallyzation of data.

3.2 Research Design

Research design encompasses the data gathering techniques, sampling strategies and how time and cost constraints have been dealt with, Cooper & Schindler, (2003). The study utilized a descriptive research design approach that entails collecting data for testing hypothesis. It also provides answers to questions relating to the current status of the subjects in the study. A descriptive research tends to describes elements in a study the way they exist in their natural setting, Creswell (2012).

3.3 Population

Grabich (2012) posits that a study population is a set of people, services, elements or events that are studied with an aim of providing answers to the research questions. The population tends to have similar characteristics. This study's population shall be the commercial banks in Kenya, 43 in number.

3.4 Sample Size

The sample size covered the 36 commercial banks excluding seven banks that are either acquired by other banks, in receivership or under statutory management. These are Chase Bank (K) Limited, Dubai Islamic Bank, Giro Bank, Habib Bank Limited, Mayfair Bank,

Charter House Bank Limited and Imperial Bank Limited. The table below shows the sample size for the study.

Table 3.1: Number of banks in the study

	Tier	Number of Banks	Sample Size	Sampling Procedure
1.	Large	6	6	Census
2.	Medium	14	14	Census
3.	Small	23	16	Purposive/ Census
Total		43	36	

Source: Author (2018)

3.5 Sampling Techniques

The sampling technique employed was a census approach targeting the 43 commercial banks.

3.6 Data Collection

Mugenda (2008) defined data as the facts obtained from the study environment by a researcher. Secondary data collection method was utilized in the study. Data was obtained from published financial statements of commercial banks, World Bank, CBK reports and financial publications.

3.7 Data Analysis

Data derived from the study environment was counterchecked for accuracy, consistency, uniformity and completeness. Proper arrangement of data was done to facilitate coding and tabulation. The SPSS version 16 was employed in analyzing quantitative data obtained from the study environment. The researcher considered the period before and

after capping of interest rate. The three variables under consideration were credit uptake, profitability and non-performing loans. The model was as follows;

Pre- capping period   Post- capping period

$X_1; X_2; X_3$ $X_1+1; X_2+1; X_3+1$

Where;

$$X1 = Credit\ Uptake\ measured\ by\ amount\ of\ loans\ issued$$

$$X2 = Bank\ Profitability\ measured\ by\ ROA\ and\ ROE$$

$$X3 = Non - Performing\ Loans\ measured\ by\ amount\ of\ non$$
$$- performing\ loans$$

The average of the variables x_1, x_2 and x_3 before and after interest rate capping was determined.

3.7.1 Diagnostic Tests

Diagnostic tests are the initial tests that were performed on raw data to determine if the data had any anomalies. The tests conducted include;

3.7.1.1 Normality Tests

The normality tests are done to establish weather a set of data or observations follow a normal distribution. A histogram or a Q-Q plot can be used test for normality in a data set. Where the mid points at the top of each histogram bar are joined together resulting in a bell shaped curve, the observations are said to be normally distributed. For the

probability plot or the q-q plot, observations that seem to fall closely along the fitted distribution line are said to be normally distributed.

The Bayesian test compares the bayes factor with a certain set of standards. The comparison will reflect the normality of a set of data. Jarque-bera test tests the skew and kurtosis of data. A higher JB statistic denotes greater deviation from what one would expect in a normal distribution. The JB statistic for a normal distribution ought to be zero Gujarati, (2003). Martinez and Iglewicz (1981) developed a normality test that derives its basis on a robust estimator of dispersion and the median. The test is known as the Martinez-Iglewicz test and Hoaglin (1983) asserts that it is better for the test to be used in exploratory data analysis. For a distribution to be considered normal, the value of the test statistic calculated ought to be close to one.

3.7.1.2 Heteroskedasticity Tests

Heteroskedasticity refers to a situation where the variance of errors is not the same for all distributions. The margin of error between data sets can be calculated using heteroskedasticity tests. The Bartlett test determines whether variances across samples are equal. The Breusch Pagan test determines heteroskedasticity in a linear regression model. This test assumed that the error terms were distributed normally.

3.7.1.3 Multicollinearity Tests

Multicollinearity occurs when one explanatory or predictor variable can be explained by another with some accuracy. The variance inflation factors (VIF) method identifies correlation and strength of correlation between independent variables. The test thus quantifies how much the variance is inflated. The VIF should take values between 1 and

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10 to show that there is no correlation. According to Gujarati, (2003), multicollinearity is indicated with a VIF of less than or equal to 1 and greater than or equal to 10. Other multicollinearity tests include the F-test, T-test and chi-square test which detect severity of multicollinearity. Multicollinearity can also be detected by regression.

3.7.1.4 Autocorrelation Tests

Autocorrelation refers to correlation of error terms over time. The Ljung- Box Q test and Durbin-Watson test are examples of autocorrelation tests. The problem of autocorrelation is controlled by the robust standard errors. The Pearson's Product Moment of Correlations is also another test that can be used to check for presence of correlation between the variables. The decision rule is done at 95% confidence interval. . If the Sig value is less than 0.05 there is evidence of correlation, otherwise there is no evidence.

3.7.2 Tests of Significance

The t- test was done to establish statistical significance among variables at a significance level of 5% or a confidence level of 95%. The test was also utilized in establishing the difference in mean between the variables. The values of the variables before and after capping were obtained. An average of these values was computed. The difference between variable means was established. The standard deviation of the differences was used to calculate the standard error of the mean difference. The t value was computed as follows;

$$t_{calc} = \frac{statistic - hypothesized\ value}{estimated\ standard\ error\ of\ the\ statistic}$$

Where; Statistic is the difference between sample means; Hypothesized value is the null hypothesis and estimated standard error is the standard deviation divided by the square root of number of banks in the study.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

Data analysis and interpretation of the discoveries from the research environment is clearly highlighted in this chapter. Secondary data collection method was employed in the research where data was retrieved from published financial statements of banks. The research covered two years i.e. 2015-2017 and data was analyzed using SPSS. The period 2015-2016 September was considered pre interest rate and the period October 2016-December 2017 was considered post interest rate capping. The aim will be to provide an understanding of the findings in relation to interest rate capping and performance of commercial banks.

4.2 Response Rate

Kenya has 43 commercial banks and the researcher collected secondary data for 36 commercial banks, excluding seven banks that are either acquired by other banks, under statutory management or in receivership. These are Chase Bank (K) Limited, Dubai Islamic Bank, Giro Bank, Habib Bank Limited, Mayfair Bank, Charter House Bank Limited and Imperial Bank Limited. The sample size is thus 36 and this represents 83% of all the commercial banks in Kenya.

4.3 Data Validity

Data utilized was obtained from the CBK hence considered valid. The data was also considered valid since all the banks were considered in the research.

4.4 Descriptive Statistics

The tables below show the statistical summary of means, minimum, maximum, standard deviation, kurtosis and skewness of credit uptake (CU), profitability (ROA and ROE) and non- performing loans (V2) portfolio before and after interest rate capping for the industry. The period before interest rate capping has been represented by 0 and that after interest capping has been represented by 1.

Table 4.1 Descriptive Statistics

			CU	v2	ROA	ROE
Capping	0	Mean	6.017066E7	4.360317E6	.044382	.267849
		Std. Deviation	2.2060222E6	9.9673374E5	.0177004	.0071681
		Minimum	5.6920E7	3.2821E6	.0164	.2589
		Maximum	6.3632E7	5.8726E6	.0682	.2763
		Kurtosis	-.007	-1.422	-.572	-1.874
		Skewness	.104	.444	-.270	-.149
	1	Mean	6.340785E7	6.490948E6	.044222	.273369
		Std. Deviation	3.6112910E6	5.6634688E5	.0211621	.0054780
		Minimum	6.0341E7	5.9172E6	.0162	.2668
		Maximum	6.8273E7	7.2139E6	.0696	.2782
		Kurtosis	-2.146	-2.448	-1.173	-3.063
		Skewness	.669	.526	-.234	-.580

Source: Author (2018)

Key: CU- Credit Uptake, V2- Non Performing Loans

ROA- Return on Assets, ROE- Return on Equity.

The mean of the credit uptake for the pre-cap period stood at 60.2 billion while for the post-cap period was 63.4 billion translating to 5.3% growth for the whole industry. The mean of the loan book before the capping of interest rate deviated from the mean by 2.2 billion while that after the capping deviated from the mean by 3.6 billion shillings. The data remains to be slightly skewed with a light tail.

The mean of the non performing loans for the pre-cap period stood at 4.36 billion while for the post-cap period was 6.49 billion translating to 48.9% growth for the whole industry. The mean of non- performing loans before the capping of interest rate deviated from the mean by 996 million while that after the capping deviated from the mean by 566 million shillings. The data is slightly skewed with a light tail.

The mean of the profitability for the pre-cap period stood at 2.52 billion while for the post-cap period was 3.49 billion causing a 38.6% growth in the entire industry. The mean of profitability before the capping of interest rate deviated from the mean by 1.19 billion while that after the capping deviated from the mean by 1.70 billion shillings.

4.5 Diagnostic Tests

Diagnostic tests are the initial tests that were performed on raw data to determine if the data had any anomalies. The tests conducted include, test of normality which was done using the Q-Q plots in the appendices. Most of the observations lied along the distribution line which means that data on Credit Uptake, Gross NPL, ROA and ROE were normally distributed. The absence of skewness in the data is proof that the data is normally distributed.

Heteroskedasticity test was done to calculate the margin of error between sets of data. According to the Breush pagan formula, heteroskedasticity is detected when the result from the computation is statistically significantly, that is, less than 0.05. From the linear regression that was performed, all the significant values were all greater than 0.05 meaning there was no heteroskedasticity present in the model.

Multicollinearity refers to a state of high intercorrelations among independent variables in a regression model. The VIF and the levels of tolerance are examined to determine presence of multicollinearity. A small tolerance indicates absence of a linear relationship between the variables. VIF was a measure of impact of collinearity among the variables indicated in the regression analysis. The VIF should take values between 1 and 10 to show that there is no correlation. A VIF of less than or equal to 1 and greater than or equal to 10 indicates existence of multicollinearity, Gujarati, (2003). The following table presents the multicollinearity test conducted for the study. Since the VIFs are between 1 and 10, there is no evidence of multicollinearity.

Table 4.2 Multicollinearity Test Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	-.727	9.554		-.076	.942		
v2	3.010E-7	.000	.798	1.799	.115	.248	4.040
CU	1.317E-8	.000	.082	.233	.822	.397	2.522
ROA	-.921	6.445	-.033	-.143	.890	.931	1.075
ROE	-4.464	28.622	-.059	-.156	.880	.335	2.986

Source: Author (2018)

a. Dependent variable Capping

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The Auto correlation test or The Pearson's Product Moment of Correlations is also another test that can be used to check for presence of correlation between the variables. The decision rule is done at 95% confidence interval. If the Sig value is less than 0.05 there is evidence of correlation, otherwise there is no evidence. The degree of relationship between the variables can be seen based on the value of the coefficient of correlation.

4.6 Tests of Significance

The independent t- test was utilized in testing statistical significance among variables at a significance level of 5% or confidence level of 95%. The test was utilized to establish the differences of mean between the variables. From the table, we note that interest rate capping did have significant impact on credit uptake, profitability and non performing loans. In general, the results indicated that interest rate capping did have a significant effect on the commercial banks performance in Kenya.

Table 4.3 Independent Samples Test

		t-test for Equality of Means				
		T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
v2	Equal variances assumed	-4.275	10	.002	-2.1306308E6	4.9835836E5
	Equal variances not assumed	-4.693	9.683	.001	-2.1306308E6	4.5395507E5
CU	Equal variances assumed	-1.938	10	.081	-3.2371833E6	1.6702256E6
	Equal variances not assumed	-1.781	6.126	.124	-3.2371833E6	1.8175543E6
ROA	Equal variances assumed	.014	10	.989	.0001598	.0112191
	Equal variances not assumed	.014	7.713	.989	.0001598	.0115898
ROE	Equal variances assumed	-1.441	10	.180	-.0055207	.0038322
	Equal variances not assumed	-1.511	9.898	.162	-.0055207	.0036527

Source: Author (2018)

KEY: CU- Credit Uptake, V2- Non Performing Loans

ROA- Return on Assets, ROE- Return on Equity.

4.7 Correlation Analysis

Correlation analysis was done to determine the connection between the variables. The study findings revealed the existence of a negative relationship between credit uptake and profitability (ROA and ROE) as indicated by the negative Pearson correlation coefficients (r= -0.016,p=0.960 and r= -0.099, p=0.760). The relationship between non performing loans and credit uptake was also revealed to be positive i.e. (r=0.545, p=0.067).   There exists a positive relationship between non performing loans and

profitability (ROA and ROE) as indicated by (r= 0.053, p=0.871 and r= 0.613, p=0.034). This is shown in table 4.4 below.

The model indicates that interest rate capping has an impact on the performance of commercial banks in Kenya. There exists a positive relationship between interest rate capping based on the positive coefficients of credit uptake, profitability and non performing loans portfolio

Table 4.4 Correlation Analysis

		v2	CU	ROA	ROE	Capping
v2	Pearson Correlation	1	.545	.053	.613[*]	.804[**]
	Sig. (2-tailed)		.067	.871	.034	.002
	N	12	12	12	12	12
CU	Pearson Correlation	.545	1	-.016	-.099	.523
	Sig. (2-tailed)	.067		.960	.760	.081
	N	12	12	12	12	12
ROA	Pearson Correlation	.053	-.016	1	.211	-.005
	Sig. (2-tailed)	.871	.960		.510	.989
	N	12	12	12	12	12
ROE	Pearson Correlation	.613[*]	-.099	.211	1	.415
	Sig. (2-tailed)	.034	.760	.510		.180
	N	12	12	12	12	12
Capping	Pearson Correlation	.804[**]	.523	-.005	.415	1
	Sig. (2-tailed)	.002	.081	.989	.180	
	N	12	12	12	12	12

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

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

Key: v2;-Gross Non Performing Loans, CU- Credit Uptake

4.8 Discussion

Analyzed data obtained exhibited some pertinent issues which warranted a brief discussion.

4.8.1 Effect of Interest Rate Capping on Credit Uptake

The study established that credit uptake increased after interest rate capping. This contradicts previous studies from Okwany (2017), who had suggested that the law resulted in a decrease in the number of approved loans. The findings also break from Neil (2015) that interest rate capping reduces the number of new borrowers due to strict regulations by both regulators and the bank. The study also established that interest rate capping increases the selection criteria.

A possible explanation for the increase in loans, or credit uptake even after interest rate capping could be that banks approved larger loans to larger debtors. That is, the law indeed resulted in less lending to small borrowers who have little or no collateral, as suggested by Okwany and Neil, but that they then lent more to those with large collateral or security. Another possible explanation could be that banks lent more to the government. The converse could also be true: that, banks still offered credit to small borrowers and to those borrowers with poor credit histories. The terms of offer could have been favorable to commercial banks but the least favorable to borrowers.

The CBK asserts that other factors that affect demand for credit may also have come into play, such as loans from non-bank institutions and banks internal financing. In addition, political stability created a favorable serene for business activities to prosper in various economic sectors such as real estate, tourism, agriculture and trade. Commercial banks

therefore retained optimistic about the economic outlook and were confident about lending, lower rates notwithstanding.

4.8.2 Effect of Interest Rate Capping on Profitability

Interest rate capping can either increase or decrease the bank's profits. The study indicated an increment in profitability of the profits from commercial banks for the period under review. Again, this contradicts Okwany (2017) who found out that bank profitability had not increased since the law came into effect. Okwany however considered only one bank KCB, in his study, while the current study examined 36 banks. However, one could question whether this is as a direct result of interest rate capping, alone. This study therefore breaks with Okwany, but concurs with Bockari (2013) who argued that banks can enhance profitability through encouraging more innovation, increasing financial literacy, increasing efficiency through cost control measures and improving the credit information-sharing platform.

In addition, banks could have grown their profitability by lending to government, sophisticated customer segmentation, automating customer care and tapping into the digital revolution. Fieldmam (2008) suggests that the banks income arises from both interest and non interest income. Large banks could be able to make huge investments in non- interest income activities that could potentially increase their income. This could eventually make banks earnings to be less sensitive to changes in interest rates ceteris paribus. The ability to earn non interest income and to diversify income sources could increase even more if the Kenya government and the central bank and other regulators provide banks with authority to engage in other nonbanking activities such as insurance activities

4.8.3 Effect of Interest Rate Capping on Non Performing Loans

The study found that interest rate capping had increased non performing loans portfolio. Carlos (2015) discovered that interest rate capping doesn't affect non-performing by great impact due to intense selection imposed during lending. It is instructive to note however, that Carlos did not say that interest rate capping did not increase non performing loans. The difference is one of degree (amount), rather than ontology (being or existence).

Several factors can cause an increase in non-performing loans. These include low economic growth, currency depreciation, high cost of refinancing, loan overload, low liquidity in the market, unemployment and low wages. It's instructive to note that an increase in non-performing loans does have an effect on the financial performance of financial institutions. In addition, banks also experience far reaching implications such as the unavailability of funds to be offered to potential borrowers since this funds could be tied up to non-performing loans.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This summary of findings, conclusions and recommendations of the study based on the study objectives has been provided for in this chapter. The suggested areas for further research have also been highlighted. The main aim of the study was to establish the effects of interest rate capping on the performance of Commercial banks in Kenya

5.2 Summary

Upon completion of the study and the data collection on the study the following were observed and taken into consideration: Effect of Interest capping on Credit Uptake, Effect of Interest Rate Capping on Profitability and Effect of Interest Rate Capping on Non Performing Loans and they have been discussed as follows;

5.2.1 Effect of Interest Rate Capping on Credit Uptake

The study established that credit uptake increased after interest rate capping. In assessing the operational performance, banks have to consider key performance indicators such as credit uptake so as to determine whether the banks are performing well or otherwise. With this in mind, it is of great importance to establish the effect of interest rate capping regulation on credit uptake bearing in mind that credit uptake is a vital factor for determining operating performance of banks. With the introduction of the capping law credit uptake within the banking industry increased. This increase can be attributed to increased demand by various sectors of the economy.

The lending decisions of banks are crucial in determining the credit facilities to be issued to firms and organizations and consequently the allocation of loans. Banks normally consider various factors before issuing credit facilities. Factors such as size, repayment ability, amount of loans and nature of activities a firm engages in are normally considered. The size factor proves to be a hindrance to small businesses in accessing loans during interest capping regimes, but encourages big firms with huge collateral. This seems to be the case here: while approval for loans for small debtors decreased, credit uptake for borrowers with big collateral increased. In addition, banks also have Credit Reference Bureaus where they can access information on borrowers' credit worth, and thus make a more informed decision about borrowers.

5.2.2 Effect of Interest Rate Capping on Profitability

The study established that interest rate capping increased the profitability of banks as indicated by the high returns on (ROA) and (ROE), and the p-value of 0.890 and 0.880. The p-value indicates that interest rate capping has a significant impact on profitability. Although interest rate capping reduces the interest spread, banks may have been forced to increase profits through other means such as employee restructuring, closure of branches, increase in ATM charges, hidden charges, cost efficiency etc. The increase could also have been attributed to increase in interest on government securities.

Commercial banks income is largely derived from interest income. Following the implementation of the capping law, credit uptake within the banking industry increased with a huge portion being granted to government and large borrowers. The increase in issuance of loans to various sectors in the economy translated into banks earning more income hence the increase in profitability.

5.2.3 Effect of Interest Rate Capping on Non Performing Loans

The study found that non performing loans increased under the regime of interest rate capping as denoted by the p-value of 0.115. This clearly shows that interest rate capping had a direct impact on non performing loans portfolio. A possible explanation for the increased number of non- performing loans could be the challenging business environment that banks experienced, delayed payments and provisioning of loans.

With the capping law in existence, banks were required to charge interest at 4% above the CBR. The demand for credit increased yet the banks were required to offer same rates to both high risky and low risky borrowers. This flat rate offered to customers could have attributed to the increased number of non-performing loans since the high risky borrowers have a higher tendency of defaulting on loans. In addition, the stability of banks is likely to be affected by the increased number of non-performing loans. It is thus necessary for banks to establish ways of managing non-performing loans so as to avoid instances of them falling bankrupt.

5.3 Conclusion

From the findings discussed above, interest rates capping by commercial banks are a major factor that affects the performance of commercial banks in Kenya. The relationship between the lending rates credit uptake, profitability, and non- performing loans is generally positive. The study thus concludes that the capping law had a positive effect on the performance of commercial banks in Kenya.

The main aim of the government in introducing the interest rate capping law was for consumer protection. The law was meant to safeguard the people from being charged high rates of interest by commercial banks and thus facilitate access to credit. From the

study it's evident that banks gravitated their lending to government and large borrowers as opposed to small borrowers who were considered to be riskier. This shift in lending is likely to affect the overall growth of the economy.

5.4 Recommendations

The study recommends that the CBK comes up with policies that benefit commercial banks, big borrowers, and small borrowers. As it is now, interest rate capping has benefited banks and big borrowers. It has protected banks from the risks associated with delays in loans repayment, a phenomenon common with small borrowers who have little or no collateral. With small borrowers out of the way, big borrowers have also benefited from the availability of more funds. When the common man is ignored, the economy suffers, leading to a downward spiral in everything.

5.5 Limitations of the Study

This study's limitations were as follows; Firstly, in a fragile economy such as Kenya's, it only looked at interest rate capping as the independent variable engendering effects in commercial banks, ignoring other factors at work in the economy such as inflation and rate of exchange. This other factors could have contributed either positively or negatively to the performance of commercial banks.

Secondly, this study ignored other policy guidelines such as prudential guidelines from the CBK and the Credit Reference Bureau, which have all made banks more protected from borrower risk since they can now act from a position of knowledge. Thirdly, the study concentrated on the effect the capping law has had on commercial banks ignoring other players within the financial industry such as Sacco's and MFIs whose operations might have been affected with the introduction of the capping law.

5.6 Suggestions for Further Research

This study recommends a study on other factors that influence the performance of commercial Banks such as prudential guidelines, inflation, the exchange rate etc. This will provide a wide overview of the various factors that affect the performance of commercial banks either positively or negatively. Further research should be conducted on the effect of the law on capping on other sectors of the economy such as SMEs. In addition to these, further research should be done with an aim of determining the long-term effect of the capping law on the performance of commercial banks and the economy at large.

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APPENDIX 1: ANALYTICAL OUTPUT

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Capping	0	Mean	6.017066E7	4.360317E6	.044382	.267849
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		Kurtosis	-.007	-1.422	-.572	-1.874
		Skewness	.104	.444	-.270	-.149
	1	Mean	6.340785E7	6.490948E6	.044222	.273369
		Std. Deviation	3.6112910E6	5.6634688E5	.0211621	.0054780
		Minimum	6.0341E7	5.9172E6	.0162	.2668
		Maximum	6.8273E7	7.2139E6	.0696	.2782
		Kurtosis	-2.146	-2.448	-1.173	-3.063
		Skewness	.669	.526	-.234	-.580

V2 is Gross NPL

Normal Q-Q Plot of v2
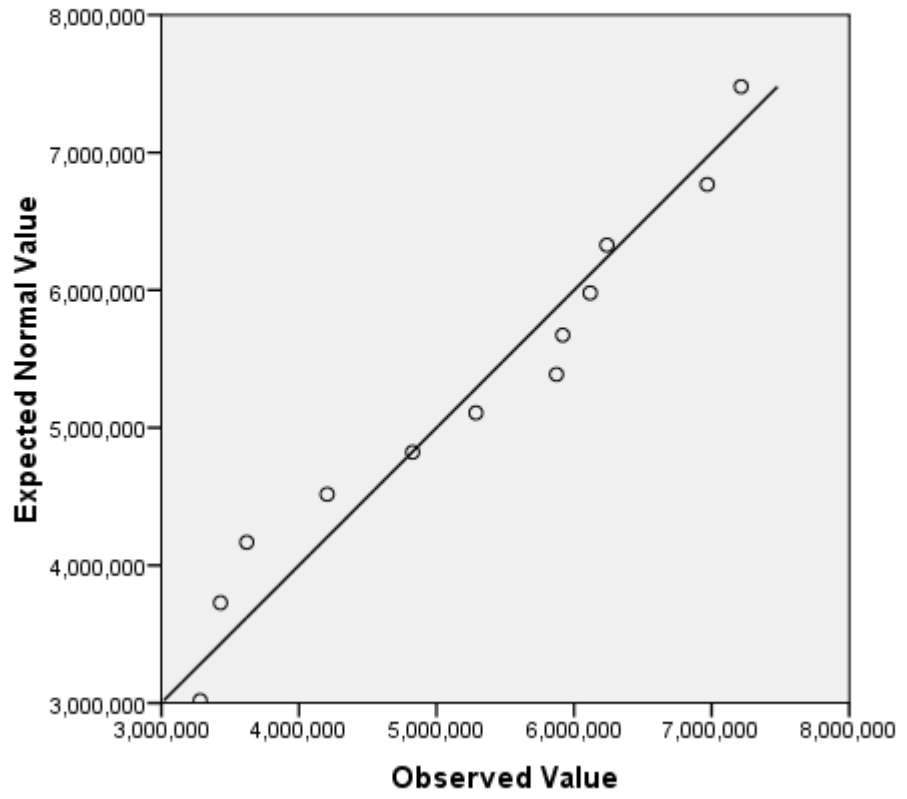
Normal Q-Q Plot of ROA
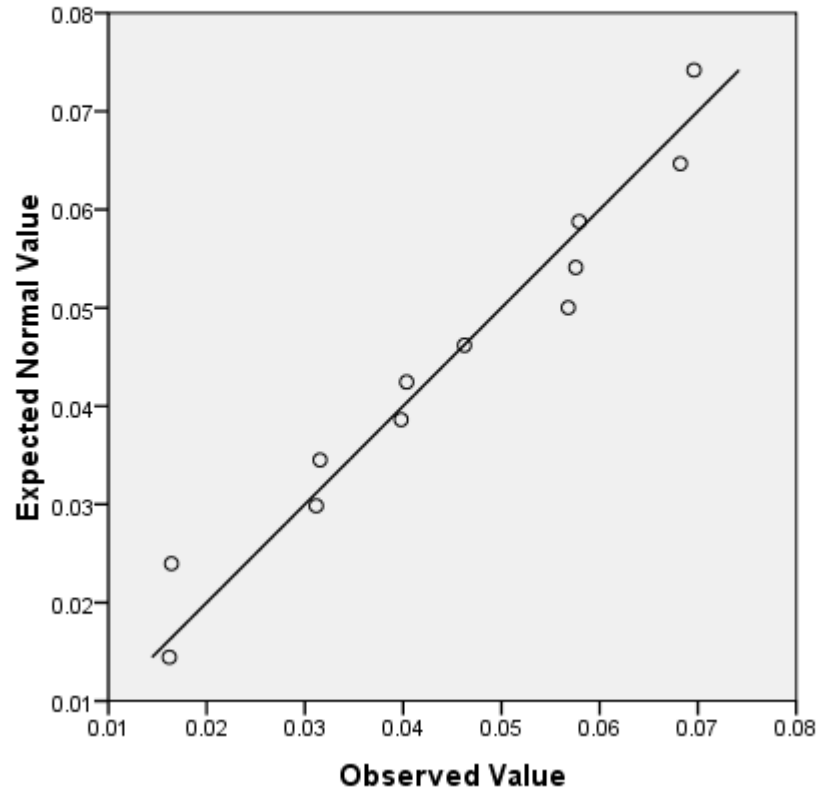
Normal Q-Q Plot of ROE
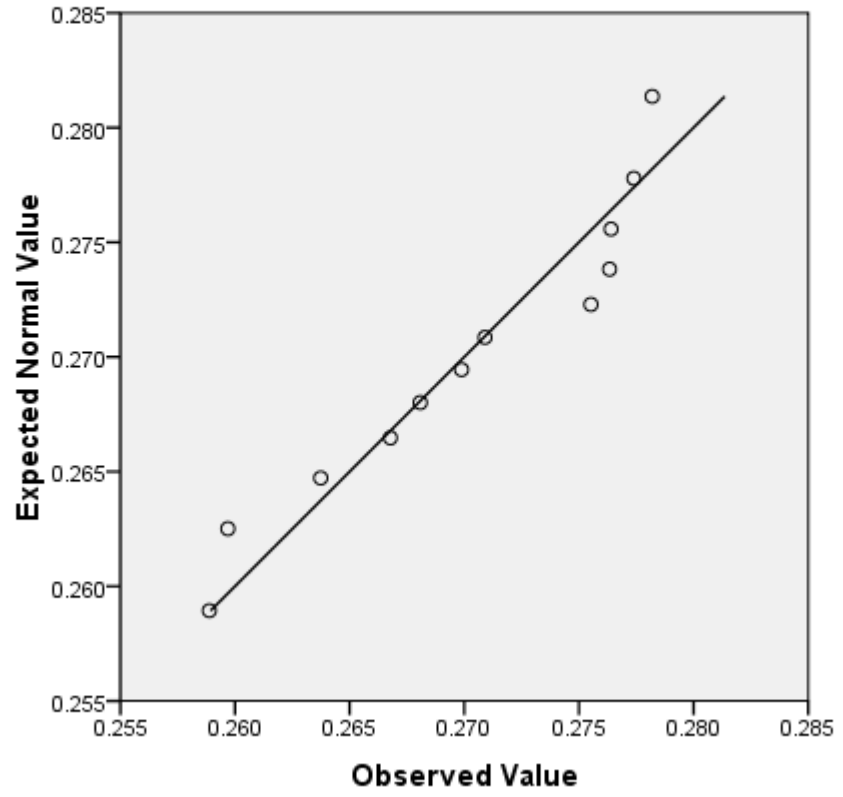
Normal Q-Q Plot of CU
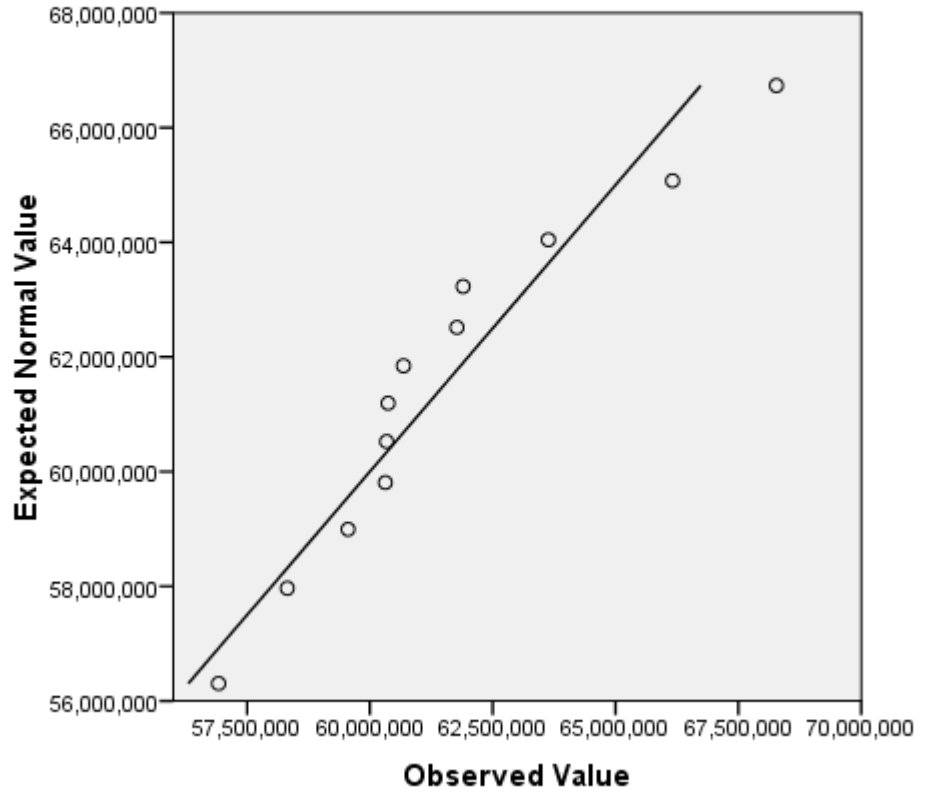
Heteroscedasticity

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-3.643	4.717		-.772	.465		
	v2	-2.045E-8	.000	-.156	-.248	.812	.248	4.040
	CU	-4.822E-9	.000	-.086	-.173	.868	.397	2.522
	ROA	-2.100	3.182	-.214	-.660	.530	.931	1.075
	ROE	16.180	14.132	.619	1.145	.290	.335	2.986

a. Dependent Variable: AbsUt

Multicollinearity

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-.727	9.554		-.076	.942		
	v2	3.010E-7	.000	.798	1.799	.115	.248	4.040
	CU	1.317E-8	.000	.082	.233	.822	.397	2.522
	ROA	-.921	6.445	-.033	-.143	.890	.931	1.075
	ROE	-4.464	28.622	-.059	-.156	.880	.335	2.986

a. Dependent Variable: Capping

Correlations

		v2	CU	ROA	ROE	Capping
v2	Pearson Correlation	1	.545	.053	.613[*]	.804[**]
	Sig. (2-tailed)		.067	.871	.034	.002
	N	12	12	12	12	12
CU	Pearson Correlation	.545	1	-.016	-.099	.523
	Sig. (2-tailed)	.067		.960	.760	.081
	N	12	12	12	12	12
ROA	Pearson Correlation	.053	-.016	1	.211	-.005
	Sig. (2-tailed)	.871	.960		.510	.989
	N	12	12	12	12	12
ROE	Pearson Correlation	.613[*]	-.099	.211	1	.415
	Sig. (2-tailed)	.034	.760	.510		.180
	N	12	12	12	12	12
Capping	Pearson Correlation	.804[**]	.523	-.005	.415	1
	Sig. (2-tailed)	.002	.081	.989	.180	
	N	12	12	12	12	12

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

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

Group Statistics

	Capping	N	Mean	Std. Deviation	Std. Error Mean
v2	0	7	4.360317E6	9.9673374E5	3.7672994E5
	1	5	6.490948E6	5.6634688E5	2.5327802E5
CU	0	7	6.017066E7	2.2060222E6	8.3379803E5
	1	5	6.340785E7	3.6112910E6	1.6150184E6
ROA	0	7	.044382	.0177004	.0066901
	1	5	.044222	.0211621	.0094640
ROE	0	7	.267849	.0071681	.0027093
	1	5	.273369	.0054780	.0024499

Independent Samples Test

		t-test for Equality of Means				
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
v2	Equal variances assumed	-4.275	10	.002	-2.1306308E6	4.9835836E5
	Equal variances not assumed	-4.693	9.683	.001	-2.1306308E6	4.5395507E5
CU	Equal variances assumed	-1.938	10	.081	-3.2371833E6	1.6702256E6
	Equal variances not assumed	-1.781	6.126	.124	-3.2371833E6	1.8175543E6
ROA	Equal variances assumed	.014	10	.989	.0001598	.0112191
	Equal variances not assumed	.014	7.713	.989	.0001598	.0115898
ROE	Equal variances assumed	-1.441	10	.180	-.0055207	.0038322
	Equal variances not assumed	-1.511	9.898	.162	-.0055207	.0036527

		Levene's Test for Equality of Variances		t-test for Equality of Means	
				95% Confidence Interval of the Difference	
		F	Sig.	Lower	Upper
v2	Equal variances assumed	2.800	.125	-3.2410424E6	-1.0202192E6
	Equal variances not assumed			-3.1466191E6	-1.1146425E6
CU	Equal variances assumed	3.580	.088	-6.9586779E6	4.8431124E5
	Equal variances not assumed			-7.6624378E6	1.1880711E6
ROA	Equal variances assumed	.169	.690	-.0248379	.0251575
	Equal variances not assumed			-.0267408	.0270603
ROE	Equal variances assumed	.879	.370	-.0140593	.0030179
	Equal variances not assumed			-.0136708	.0026294

APPENDIX II: RAW DATA

	GROSS NP	NET NPL	CU	PBT	TOTAL ASS	ROA	NET INCO	SHAREHO	ROE
FULL YR 2017	7213882	3224969	60368861	3706859	64007839	0.057913	4521595	17755363	0.277394
Q3 2017	6968057	3277727	68272803	3129121	67668505	0.046242	4818216	18052538	0.266779
HALF YR 2017	6117024	2855024	66159791	1980751	63577989	0.031155	2295409	17044129	0.268082
Q1 2017	6238627	2867475	61896916	1007082	62152641	0.016203	1100181	17178844	0.276398
FULL YR 2016	5917151	2842261	60340869	4146549	59577175	0.0696	4744993	16574060	0.278195
Q3 2016	5872557	2886226	61771311	3589456	62354280	0.057566	3582307	17230738	0.276336
HALF YR 2016	5286229	2648112	59554522	2345991	58135959	0.040354	2442752	16017700	0.275521
Q1 2016	4826014	2414019	60683568	986754.5	60101048	0.016418	1098965	15850836	0.263736
FULL YR 2015	4205061	2049628	60314255	3960482	58066593	0.068206	4150762	15670992	0.26988
Q3 2015	3620192	1629634	63631705	3492072	61479536	0.056801	3158506	15965468	0.259688
HALF YR 2015	3282062	1560274	56919779	2260095	56795436	0.039794	2158956	14703209	0.25888
Q1 2015	3430107	1601589	58319513	1870401	59306140	0.031538	1062383	16066028	0.2709