EFFECT OF BANKING REGULATIONS ON COMMERCIAL BANKS' CREDIT AVAILABILITY IN KENYA

BY

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MASTERS IN SCIENCE (FINANCE AND INVESTMENTS)

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DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for a ward of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

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I do hereby confirm that I have examined the Master's dissertation of

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And have certified that all revisions that the dissertation panel and examiners recommended have been duly addressed.

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ABSTRACT

Banks perform various functions and one of these functions is the bank credit. Bank credit is very vital because it provides funding for various sectors in the economy hence contributing to the development of the economy. This study aimed at determining the effect of banking regulations on commercial banks credit availability in Kenya. To investigate the effect of capital requirement regulation on credit availability by commercial banks in Kenya, to examine the effect of interest rate regulation on credit availability by commercial banks in Kenya and to determine the effect of liquidity regulation ratio on credit availability by commercial banks in Kenya. The following theories provided guidance to the study; agency theory, signalling theory and financial information theory. Under this study descriptive research design was adopted in analysing the effect of banking regulations on commercial banks credit availability in Kenya. Descriptive research acts as a forerunner to quantitative research designs with the general provision on some guidelines on the variables that need to be tested quantitatively. The target population were all the 43 commercial banks that have been operating in Kenya for the last 5 years that is from 2012 to 2016 as provided in the CBK list of 2016. The study used census method of sampling and sampled all 43 commercial banks in Kenya. A census provides a study of the whole population and it's sometimes referred to as absolute enumeration or absolute count. In the current study, published literature and financial reports formed secondary source of data collection for capital requirement, interest rates, liquidity and credit availability of commercial banks in Kenya for the study period, 2012 to 2016. Descriptive statistics was used in the analysis of the data collected. The use of descriptive statistics helped in data presentation and organization. The techniques include use of tabulation, diagrams and graphs; the quantitative data was analysed using the SPSS software. Based on the results, the study revealed that increasing capital regulation results to a positive increase in credit availability, thus the study concludes that capital requirement regulation had positive influence on credit availability by commercial banks in Kenya. On interest rate, the study found that interest rate regulation have positive influence on credit availability by commercial banks in Kenya. The research revealed a strong positive correlation between liquidity regulation and credit availability. The study noted that enforcing liquidity regulation ratio can lead to credit availability by commercial banks in Kenya; hence the study infers that standard liquidity regulation ratio has positive influence on credit availability by commercial banks in Kenya. The study recommends that reforms on the capital regulation should be strengthened to encourage more enhanced competition within the banking industry with an aim of boosting credit availability. On the other hand, it is advisable for the policymakers and the Government to draw better interest rate policies that will enhance the performance of commercial Banks in Kenya.

Key words: Credit availability, Bank regulation, Commercial banks

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TABLE OF CONTENTS

DEDICATION

I would like to dedicate this work to my lovely wife and children who understood my busy schedule while undertaking this research project.

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS AND ABBREVIATIONS

CBK - Central Bank of Kenya

CIB – Corporate and Investment Banking

FSA - Financial Services Authority

KBA - Kenya Bankers Association

LCR - Liquidity Coverage Ratio

ANOVA - Analysis of variance

MENA - Middle East and North Africa

PBT - Profits before Tax

SMEs - Small Medium Enterprises

SPSS - Statistical Package for Social Science

TERMS AND DEFINITIONS

Capital: refers to financial assets or the financial value of assets, such as funds held in deposit accounts, as well as the tangible machinery and production equipment used in environments such as factories and other manufacturing facilities (Adrian & Shin, 2009).

Commercial bank: is a type of financial institution that provides services such as accepting deposits, making business loans, and offering basic investment products (Naceur, 2008).

Credit: is the trust which allows one party to provide money or resources to another party where that second party does not reimburse the first party immediately but instead promises either to repay or return those resources at a later date (White & Morrison, 2011)

Interest rate: is the amount charged, expressed as a percentage of principal, by a lender to a borrower for the use of assets (Stiglitz & Weiss, 2001).

Liquidity: it is the degree to which an asset or security can be quickly bought or sold in the market without affecting the asset's price (Modigliani, 2009).

Regulations: an authoritative rule dealing with details or procedure (Naceur, 2013)

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Several banks, owned by foreign entities dominate the banking industry in Kenya, though there are some, moderately locally owned banks. Nairobi Securities Exchange has listed six of the major banks found in Kenya. By 30th June 2016, 43 commercial banks were under the regulation of the Central Bank of Kenya (CBK). Banks have joined forming Kenya Bankers Association (KBA), which assists banks' in solving issues of interest affecting member bank institutions (CBK, 2009). In early 1990's, before the freedom in financial system, the Kenyan government greatly played a major role in allocation of credit to bank among borrowers. Over the last 10 years, there has been tremendous advancement in the level of profit of the banking industry in Kenya. However, despite good performance by the Kenyan banks, analysis has indicated that, some banks are not making profit. For instance, the small and standard banks constituting approximately 57% of the banking industry, in 2009 reported Ksh 0.09 billion loss, before being taxed. This is in comparison of Ksh 49.01 billion that was reported by the large financial institutions in the same year (CBK, 2013).

By 1990, the extensive deregulation measures implemented were made less strict. These included controls based on the interest rates, restrictions on entry to the market and diversification that were removed. Removing the controls on the allocation of credit preordained that commercial banks were authorized to offer loans as per their own credit policies and terms that would oversee the features to be regarded by the banks at times of

creating the regulation decisions (Musyoka, 2011). Offering credit constitutes a vital function of the banks and provides the necessary funds to various sectors in the country. It stands out as the vital source of finance for commercial activities in Kenya and is considered as a significant tool to raise incomes and by channelling the resources to where they will have utmost use. As growth takes place, the main question that comes about is; to what extent does banking regulations affect bank lending by commercial banks in Kenya?

Regulations by the Central bank of Kenya direct banks on what is required, limitations and guidelines they should take in their field. This ensures transparency exists between the banks, clients and corporations associated with the bank. Being related to the banking industry and relying on what the global and the national economy enfold to, it is vital for the agencies enforcing the regulations to uphold the control over the consistent activities of the banking institutions. Commercial banks in Kenya's licensing and regulation is as per the requirements of the banking act and the protocols and sensible strategies allotted thereunder. Mortgage finance corporations together with commercial banks are examples of the major stakeholders in the banking industry in Kenya who are subjective to the regulations governing their sensible position and market behaviour in order to protect their whole reliability and firmness of the financial system (Atieno, 2011).

According to Hodgman (2010), credit availability acts as a limitation to the supply of extra credit to the borrowers who are in need of the funds, even if the borrowers are keen to recompense exorbitant interest rates. Commercial banks in Kenya's available credit represents the unexploited part of a credit card or a revolving loan, for instance, home-equity line of credit. The prerequisite of a person credit history indicates that he or she as

a borrower is regarded as a safe credit risk. Commercial banks in Kenya have high credit scores, which show good credit status and vice versa. A person's credit history is dependent on several factors, which includes the sum borrowed, the available sum remaining and the suitability of the payments.

1.1.1 Commercial Banks in Kenya

The main body that controls and regulates the commercial banks and other mortgage institutions in Kenya who are in pursuit of the necessities of the banking act and the protocols issued under it is the Central Bank of Kenya. In the Kenyan banking system banks are the central players. Much attention is given to them when off-site and on-site surveillance are being conducted to ensure they follow the set rules and regulations. According to the CBK (2013), the banking sector in Kenya comprises of fourty three banks with a registered net assets as at 31st December 2013 totalling to Ksh. 2.7 trillion. There are twenty-six local private commercial banks with Ksh. 1.7 trillion net assets accounting for 61.4% of the total assets. There are fourteen commercial banks owned by foreigners with Ksh. 900 billion and accounted for 34% of the total net assets. The remaining three are local public commercial banks with Ksh. 100 billion which is 4.6% of the sector's total assets.

As stated by Obulutsa and Merriman (2014), over the past decade, the commercial banks performance in Kenya has been commendable. This has been after implementation of certain reforms that have been put through in their productivity, efficiency and monetary stability. This has gone on since 1990's. However, bank profits have been unpredictable. In the year 2008 to 2013, Profits before Tax (PBT) were under 20% on standard terms. In

the year 2013, there was an increase in PBT of all commercial banks by 16.6% compared to the figures in 2012 where the increase in profits before tax was by 20.6%. Regulation, of course, is not without significant costs. Recent financial times in Kenya create an ailing banking sector with the collapse of two major banks and near collapse of another bank. In late 2015, Dubai bank was the first to collapse after it was put under receivership by the Central Bank of Kenya (CBK) for the following reasons: violating the laws and regulations set for the banks, unable to maintain suitable capital and ratios relating to liquidity, unable to sustain necessities of non-performing loans and presence of fragile corporate structures. Two months later, Imperial bank followed suit. Unlike its predecessor Dubai bank, Imperial bank had enjoyed a rather great market confidence demonstrated by oversubscription of its two billion corporate bonds (Mwega, 2016).

1.1.2 Bank Regulations

Bank regulation is a technique, which the government uses to control banks to given necessities, limitations and guidelines enacted to create market transparency between banks and clients and corporations which they work with. Effective regulation to the banks have two main roles: one is to shield the investors, creditors and depositors private interests,' secondly is to protect interest collectively by endorsing integrity and enhancing the financial services markets reputation. According to Liewellyn (1999), banks contribute immensely in the country's economic system growth and in this regard banks should be controlled and supervised to ensure the banking system is stable and the investors and clients are safeguarded.

The most common banking regulation is the capital requirement. This designs a structure on the manner in which banks and other financial institutions should enhance their capital management. The classification of capital and properties is very consistent hence ensuring risk is weighted. White and Morrison (2011) noted that the controller makes sure that banks have adequate capital at their disposal. The commercial banks main goal is financial performance. Without emphasis on financial performance, the business entity will not persist to the end. The value of collateral offered by borrowers is a bank regulation that at times affects the credit availability response of lenders. Security availability can minimise the irregular information that occurs between the borrowers and commercial banks. On the other hand, Jalilian et al., (2007), noted that the loan quantity rationing, is a regulation used by the banks when granting credit to individuals selected as borrowers who are worthy of the credit, while others excluded, as they are not creditworthy.

Commercial banks use interest rate caps for economic reasons, commonly to provide support to borrowers. That may be the reason banks have acknowledged what it considers being a lending failure to customers, or that an interest rate cap is a way to try to force a greater emphasis of financial resources on the borrowers than the market would regulate. In Kenya, there is no correlation between what clients get in terms of the money they deposit and what the banks charge in terms of the money they give as loans. The bank amendment bill (2016) signed by President Uhuru on 24th August 2016 has given borrowers some sigh of relief as banks have been charging high interest rate on loans before enactment of this law. Different arguments surround the perceived benefits and disadvantages of the new law (Mwega, 2016). The Banking Amendment Act 2016

requires financial institutions including commercial banks to disclose the information related to the charges and terms involving a loan before giving the same to the borrowers. It stipulates that commercial banks should enhance capping of the interest rate offered on such credit at a level not exceeding 4% above the base rate provided by the Central Bank of Kenya. The Banking Amendment Act 2016 further entails financial institutions including commercial banks to recompense interest rate of at least 70% on the applicable base rate of the Central Bank of Kenya on all monies deposited in accounts that earn interest in Kenya.

Commercial banks liquidity shows their capacity to provide resources, growth in net worth and ability to meet obligations as required. Liquidity depicts one of the vital financial barometer that shows stability because when liquidity falls short in a given bank, it may create a problem such as bank run in its system resulting from their interrelated activities. From the placement of Dubai Bank Ltd and Imperial Bank Ltd into liquidation and Chase Bank Ltd under receivership, it seems CBK thoroughly checks the banking sector especially on liquidity and risks on credit. Liquidity affects banks that have failed liquidity tests in the market that used the liquidity amenities existing at the CBK for instance, open market operations, intraday liquidity facilities, lender of last resort and re-discount of government securities. The challenges connected to liquidity result from subdivision of liquidity in the inter-bank market. The central bank of Kenya prescribes the least liquidity requirement of 20% of deposits, developed and short-term liabilities. Liquidity necessities are different from organization to organization depending on cash flow necessities. Each organization identifies its exclusive liquidity necessities over specific period and plans for any suitable funding.

1.1.3 Credit Availability

Credit availability is the amount of borrowed money which a borrower has right to use at a given period. Available credit is the disparity between the total of the credit line or limit, and the total amount already borrowed. Available credit is always available for withdrawal or for direct acquisitions (Modigliani 2009). Bank credit is believed to be one of the vital functions of the banks, where it grants to the allocation of the essential support in terms of money provision in all the economic sectors in the country, which includes household, government and business (Hashi & Toçi, 2011). The credit given to these sectors is critically examined to ensure achievement of growth in business operations and investments that would propel the economy as a whole positively. According to Stiglitz and Weiss (2001), credit availability has inadequate credit markets signalized by the information asymmetry that makes it expensive for commercial banks in obtaining precise information pertaining to borrowers and to observe and record the borrower's actions.

Most investors use credit facilities to finance their projects as it is the most common source of finance. Investors highly depend on these credit facilities being provided by commercial banks to set up their projects. There are various forms of credit facilities being provided by commercial banks and the direct credit facility is the mostly accepted form. Direct credit refers to such facilities that facilitate payment for the customer in either cash or through direct credit to beneficiary account. Modigliani (2009) noted that the fact that commercial banks usurps the role of an intermediary between savers and investors, it leads to the conversion of savings into investments, as the foundation of economic progress, as the investments are the pillar of the national economy, and the

formation of investment projects influencing the national economy and the projects are always contingent on credit facilities. Therefore, credit facilities play a big role in advancement of the national economy.

1.2 Statement of the Problem

Banking regulations in Kenya have become likened to a double-edged sword; cutting across both the lenders, who are the commercial banks and the borrowers in different dimensions. For commercial banks the banking regulations at times affect their business growth hence render them with inadequate amounts to lend. Borrowers on the other hand feel being exploited when commercial banks make supernormal profits while the assets of hard-pressed borrowers are auctioned off due to loan default. Majority of these loan default cases occur because of unpredictable and abrupt fluctuation of interest rates, which become untenable on the part of the borrowers (Adrian & Shin, 2009). The government imposes banking regulations such as interest rate caps to ensure that the borrowers get fair rates for loans. At times, the banking regulations affect the banks in Kenya negatively because they result in reduction of profits. The controlled access to bank credit has caused a stifling growth in the banking sector (Shah, Ahmad & Yousaf, 2017). Again, the introduction of new banking regulations has interfered with market forces and the ease of doing business since banks are not lending as much loans as before the regulations (Barber, Metcalfe & Porteous, 2016). According to Shah, Ahmad and Yousaf (2017), banks now prefer to invest in government securities unlike giving a loan to an individual. Equity bank and Standard Chartered bank were the first banks to announce major investments in government securities and a reduction in personal lending rate.

Studies have been done on the areas of banking regulations and credit availability both locally and internationally. For instance, Peek (2013), investigated the effect of credit availability on small business exporters in the United States. The study found that a deterioration in bank health affects small exporting firms' more than larger exporting firms. The findings suggested that policies to aid SMEs when bank credit availability is impaired should put particular attention on SMEs. Similarly, William and Matthew (2009) carried out a research on bank regulation, capital and credit supply in UK Financial Services Authority. The study found that from 1996 to 2007, banks having either surpluses or deficits of capital comparative to this target incline to have either high or low growth in credit. On the other hand, Gyimah (2013) investigated determinants of credit availability, to the private sector in Ghana. The study found that despite the fact that interest rates may be loosened as a means of making sure the credit allocation, the credit would still be rationed by the Commercial Banks.

A study by Kimutai (2013), on the factors affecting credit availability by Commercial Banks in Kenya found that the main factors that influence credit availability by commercial banks in Kenya are observable characteristics, loan features and firm features. Omboi (2011), studied factors that influence the demand for credit for credit among small-scale investors: a case study of Meru Central District, Kenya. The study outcome showed that the extent of educational of an entrepreneur, household income and the number of dependents are substantial factors that affect SME's to borrow credit from recognized credit institutions. As far as much has been done with respect to banking regulations and credit availability, this study seek to add more knowledge in respect to the effect of banking regulations on commercial banks credit availability in Kenya.

Therefore, this study sought to investigate the effect of banking regulations on commercial banks credit availability in Kenya through extracting, and analysing secondary data sources hence, the study answered the question: What are the effect of banking regulations on Commercial Banks credit availability in Kenya?

1.3 General Objective

To determine the effect of banking regulations on commercial banks credit availability in Kenya.

1.3 Objectives of the Study

i. To investigate the effect of capital requirement regulation on credit availability by Commercial Banks in Kenya
ii. To examine the effect of interest rate regulation on credit availability by Commercial Banks in Kenya
iii. To determine the effect of liquidity regulation ratio on credit availability by Commercial Banks in Kenya

1.4 Research Questions

i. What is the effect of capital requirement regulation on credit availability by Commercial Banks in Kenya?
ii. What is the effect of interest rate regulation on credit availability by Commercial Banks in Kenya?
iii. What is the effect of liquidity regulation ratio on credit availability by Commercial Banks in Kenya?

1.5 Significance of the Study

The findings equip Policy makers and implementers with strategies and benchmarks for bank regulations and control in Commercial Banks. The findings unravel important and analytical experience that the policy makers need to be cautious of in the formulation of regulation on credit availability. This study helps reveal the responsibilities of various stakeholders in banking regulations and the manner in which synergy is of essence in ensuring successful credit availability in the banking industry in Kenya.

The study is vital to the management of banking industry in Kenya for it helps them to understand the regulations governing credit availability. The study also helps potential investors with interests in the banking sector in getting helpful information on the banking regulations imposed to them by the banking sector in Kenya. The research is beneficial to executives and managers as it brings help in refinement of the usability of the regulations in commercial banks so that it becomes understandable to every stakeholder affiliated with the bank and the subjectivity removed largely.

The study fills the knowledge gap in the area of credit availability and bank regulations. The findings can hence be used by the scholars as a foundation for furthering research on credit availability and bank regulations. In order to get more definite results, the researchers may vary the variables by using the findings of this study. In the current literature the study brings much contribution in the field of credit availability. It should promote incentive for enhanced research to improve and expand the present research in the area especially in Kenya. Results of the study benefits the researchers and academicians as it contributes in providing information in as far as bank regulations is

concerned. The study also acts as a contribution to other researchers to exploit on other areas of interest not yet fully capitalized on.

1.6 Scope of the Study

The study tried to establish the effect of banking regulations on Commercial Banks credit availability in Kenya. It focused on the 43 Commercial Banks that have been operating in Kenya for the last 5 years that is from 2012 to 2016. This study was restricted to commercial banks in Kenya; this makes the research findings not to be generalized to other financial institutions.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter gives an evaluation of the literature works on the subject of effect of banking regulations on credit availability as in the previous studies and the gaps filled by the research study. This section covered the theoretical framework and empirical review.

2.2 Theoretical Framework

This section studied several theories that have been used to support the study on the effect of banking regulations on credit availability. The study have been conducted based on the following theories: agency theory, signalling theory and financial information theory.

2.2.1 Agency Theory

This theory was developed by Jensen and Meckling (1976). It is in relation to two agency relationship problems (Jensen & Meckling 1976). Agency theory is a belief which elaborate and describes the relation that exist between the principals and the agents in any business. The agency theory aims at settling complications that can emerge in relationships in the agency as a result of disregarded or ignored goals or dissimilar levels of aversion to risk. In finance the predominant agency relationship is that between the shareholders who are referred to as the principals and the company executives who are referred to as the agents. The agency challenge becomes apparent when the desired results of the principal and that of the agent are in a battle and at times when it is

problematic for the (shareholder) principal to confirm activities of the (management) agent. (Kräkel, 2012). There can be an association between credit relationship and agency relationship in that in credit relationship the creditor who is dedicated to some capital reimbursements and some interest charges with specified circumstances recognized in an undertaking previously entrenched between the two sides. Therefore one can assume a discrepancy of interest that exists between the creditor and the debtor.

In some circumstances, an agent uses the funds of the principal. Even though the agent is the one who makes decision, they are going to incur less or no risk because all the losses are the liability of the principal. Baron (2010) noted that the agency theory manages the various levels of risks existing between the principal and the agent. This can be noted when shareholders donate financial assistance to a unit that corporate executives utilize at their will. The risk tolerance of an agent will be more diverse than that of the principal since there is unequal risk distribution.

The theory is relevant to the study because it discusses challenges that arise due to variation between the desires or even goals between the principal and agent. This circumstance may happen because the principal is not conscious of the activities of the agent or maybe resources prohibits the principal from getting the information. In overall financial system and regulations in the commercial banks, information irregularity issues are great than in all the other sectors. Howells and Bain (2004) elaborated that the origin of banking regulations is the presence of uneven information, being that the bank's clients are not so much informed and are more disadvantaged on matters pertaining to the banks as opposed to the bank itself.

2.2.2 Signalling Theory

Signalling theory was developed by Michael Spence (1973). Signalling theory claims that the markets are not completely effectual. The individuals tasked with management are able to get effective information than what the respective shareholders have and they may exploit the information to their advantage. The management at times sends out signals, which can show the firm's future direction. The management demonstrates the activities it carries out to show the optimum worth of an enterprise (Van Horne & Wachowicz, 2005). Since the market is often in search of any information and would react to what the management communicates and what it does. For instance, the market can respond on dividends where the management increases the dividends of the organization and investors react confidently. Where the management demonstrates its confidence in an optimistic future and that it works towards what it says, then the market's positive response can explain signalling theory (Constantine, 2008).

The theory is relevant to the study because the signalling theory creates the relations that links a firm's financial advantage and cash flow in circumstances of uneven information. Signalling theory proposes a positive association. Taking into account the capital organization in the signalling environment, Ravid and Sarig (2001), found that organizations indicate their value by having the best mix in terms of the dividends and advantage. They envisage that effective organizations can be greatly advantaged to warrant good dividends than the less effective organizations. Lenders have unequal information regarding the banks investment predictions. The shareholders then attempt to pass their positive expectations to lenders expecting good performance in the future through different signals that can be highly advantaged. The lenders evaluate the facts of

such signals and then approve loans. In case a high advantage can also work as a financing sign for the banks, then their advantage level should be higher and this should be associated with concurrent investments.

2.2.3 Information Asymmetry Theory

Distorted information idea first came into existence in a paper written in 1970 by George A. Akerlof's. The paper entitled; The Market for "Lemons" Quality Uncertainty and the Market Mechanism. Akerlof (1970) stated that those people who buy cars see varied information than sellers; sellers are motivated to sell goods of a lower regular market excellence. The term "lemons" was used by Akerlof to refer to depraved cars. He assumes that buyers are not able to distinguish lemons from good cars. Thus, those who sell good cars are not able to get better standard market prices. Saxton and Anker (2013) state that unequal information provide affirmations in dealings where a firm has superior information than the other. This may create a disparity of competence in dealings, which at times can occasion the transactions to go askew, in a worst case, leading to market failure (Aboody, 2010).

According to Christozov and Chukova (2008), growing unequal information is an anticipated result of a market economy. As workers focus and become more productive in their respective fields of proficiency, they can offer greater value to staff in other fields. For instance, a stockbroker's services are less valued to clients who have enough knowledge to buy and sell their own stocks with self-assurance. One alternative to ever-expanding unequal information is for workers to learn in all fields, rather than concentrating in those areas where they can offer more value (Aboody, 2010). A large

opportunity cost comes as a result and would likely result in a lower level of collective output, lowering the living standards. Another substitute is to make information available, such as through the internet. This does not replace the unequal information; however, it only affects shift of information unevenness away from modest areas and into areas that are more complex.

The theory is significant to the study because it proposes that the government involvement can avert prices from precisely reflecting identified information, which can cause market failure. For instance, commercial banks may raise all premiums if they cannot make decisions on a claimant's banking history. Uneven information in commercial banks is vital since it tends to be significant in those areas where information is multifaceted, difficult to obtain or both (Saxton & Anker, 2013). For example, it is comparatively difficult to get big bits of unequal information asymmetries when dealing with banking regulations.

2.3 Empirical Review

This section presents the work that has been done by various researchers on the effect of banking regulations on credit availability. It includes; capital requirement regulation and credit availability, interest rate regulation and credit availability, and liquidity ratio regulation and credit availability.

2.3.1 Capital Requirement and Credit Availability

The agreement passed during the Basel I accord in 1988 required commercial banks to ensure they hold capital in ration to their envisaged credit risks. The requirement is

thought to have led to a remarkable reduction in the supply of credit hence in this regard, Naceur (2013), investigated the Basel capital requirements and credit availability in the MENA region. The study used data set covering yearly observations from 1989 to 2004 for banks in Morocco, Egypt, Tunisia, Jordan and Lebanon. The study tested for the effect of the capital adequacy ratio, separately and interactively with Basel capital requirements, on credit extension in the selected MENA countries.

The results provide strong support for a substantial upsurge in the tremendous growth of credit after the enactment of capital regulations. Notwithstanding high capital competent ratios, banks have grown their credits and assets. The growth of credit seems to be determined by fluctuation in demand accredited to actual growth, risk of the exchange rate and the cost of borrowing. Generally, the outcome associated with macroeconomic variables, as compared to capital availability, appear to prevail in ascertaining the growth of credit status, irrespective of the adequacy in the capital ratio, and irrespective of disparity across banks by listings, nationality and ownership.

A study in Canada by Holmstrom and Tirole (2010), tested the relation between capital regulations and credit development. The study used the capital regulations data for a period from 1998 to 2011. The study used regression analysis to relate capital regulations to credit expansion. They demonstrated that capital ratio acts pro-cyclically, cumulating during the expansion and reducing during the contraction. The strong association between banks' assets and liabilities, increase of deposits during growth, together with banks' credit growth, ensuing to an upsurge in the capital adequacy ratio.

Still on capital requirement, in Belgium, Olivier (2016) looked at bank capital necessities and credit supply; an evidence from pillar 2 decisions. The study focused on a period from 2010 to 2014. The study used regression analysis to relate capital requirements to credit supply. The study found that credit supply is directly affected by the macro prudential capital requirements. The capital buffers obtained during booms contributes to stability in financial flexibility during downturns and this helps in credit crunch mitigation. Additionally, the credit boom can also be cooled down as a result of the higher capital requirement if the commercial banks integrates more of their prospective social costs of defaults. The objective of macro prudential capital requirements is not to affect credit supply, but to promote the stability and soundness of distinct financial institutions. However, it may influence bank activity including lending, if the cost of raising capital within or externally is high.

In Norway, Kristiansen (2014) studied the capital requirements and bank behaviour of the DNB Bank Group. The study focused on Norwegian banks' behaviour in the period 2009-2013. The study used regression analysis. The study of the Norwegian banks' behaviour in the year 2009 to 2013 shows that banks have basically adapted to the capital requirements provisions through issuing of equity capital or retaining earnings. The study further shows that Norwegian banks are on the right track in terms of fulfilling the capital requirements set by the Norwegian Ministry of Finance. Similarly, Berger and Udell (2010), studied the risk - based capital requirement set out in the late 1980s in United States. The study used inferential statistics. The study found that declines in loan demand or reduction of other sources of loan supply in the early 1990s played a greater role in reducing financial institutions lending. The study concluded that there is

significant evidence that both capital crunch and lower loan demand facilitated reduction in loan supply hence resulted in a reduction in lending.

2.3.2 Interest Rate Regulation and Credit Availability

On interest rate regulation, Lydiah (2013), investigated the effect of interest rates on demand for credit by small medium enterprises in Nairobi County, in Kenya. The period of study was between 2008 to 2012.The study used descriptive statistics and SPSS in the analysis of interest rates demand and credit. At 95% confidence level the study found that the variables generated values that were statistically significant and could be depended on in describing the demand for credit by SMEs from lending establishments. The research findings additionally showed that owners‟ equity, effective interest rates and annual profits gave an account for the demand of loans. The research findings were graphically presented by use of pie charts, bar graphs and tables for better understanding and clarity.

On the other hand, in the United States, Michael (2008) investigated the impact of interest rates and term regulations on credit supply for joint centre for housing. The study period was 20 years from 1988 to 2008. The study found that with the steady shift in the past 20 years to risk-based valuing of loans, the odds of a rate upper limit actually helping any borrowers have lessened, especially where loan markets are modest. Competition directs that good debtors pay lower rates whether or not the rates have ceilings. Truly uneducated debtors may pay less if rates were organized and controlled, but only if they were adequately low risk as to still succeed at the limited rate. Higher risk debtors are not aided at all. Similarly, Hurka (2015) investigated the impact of interest rate regulation on profitability of Nordic Commercial Banks. The study

investigated thirteen banks across 16-year period from 2000-2015. The study found that loan loss provision ratio has negative impact on the general performance of commercial banks, while capital adequacy ratio provides mixed results. The component of the financial crisis, especially its impact in the credit risk management change has depicted that macroeconomic environment contributes immensely in the profitability decrease after the financial crisis than the credit risk management.

In Ghana, a study by Akowuah (2013), on interest rates and the demand for credit took place over the period September to November 2001. The analysis of the qualitative data done through the use of Statistical Packages for Social Science (SPSS) version 20, while the qualitative data was analysed using content analysis. The results shows that interest rates contributes to a positive influence on the internal demand for credit in the short run and a negative association in the end. While an increase in the real lending rate may not directly hinder the need for credit, it may ultimately lead to the demand for credit reducing in the end and vice versa. In the same direction, if an upward pressure on prices is put by market forces, the authorities should take advantage of the same and make more credit available. But, if authorities want to converse the negative short run or positive long run then stress should be placed on the stability of the respective price to provide the link between the real lending rate and the need for credit. Similarly, Benh-Khedhiri, Casu and Sheik-Rahim (2005), looked at interest rates differentials and profitability in Tunisian banking industry focusing on the determinants of credits unions' net interest margins as indicators of the sector's efficiency. The study sampled 10 banks and used panel data analysis to investigate the determinants of bank net interest margins from 1996 to 2005.

The results shows that the net interest margins is positively associated to operating costs, interest payments, bank capital and negatively, standard of management.

On the other hand, Georgievska (2011), focused on determinants of lending interest rates and interest rate spreads in the national bank of the Republic of Macedonia. The study used panel data estimation techniques on domestically sampled commercial banks. The outcome shows how lending rates are commonly affected by the size of bank and market share and to some degree by rates offered on deposit and the non-performing loans. Moreover some of the policy variables such as the foreign interest rate and the domestic policy rate seem to be very important as well. Additionally, the size of the bank and the market share, in conjunction with the distinction between foreign and domestic rates, are the greatest significant factors influencing interest rate spreads, while the influence of other factors is defined to a lesser extent.

2.3.3 Liquidity Ratio Regulation and Credit Availability

The nature of the liquid asset that a bank holds is one of the primary factors affecting its size when it comes to lending. This is because when a bank maintains a higher liquidity ratio the amount of loans it can grant will reduce. Olokoyo (2011) used this measure for a period from 1980 to 2005 to elaborate the status of the bank lending in Nigeria. By using regression analysis, the study found the model to be significant and the estimators turned out positive. The liquidity ratio measured by deposits of the bank in other banking institutions, total cash and bank balances with the central bank, the financial assets of the trade and dividing the result by the total value of customer deposits and deposits by other financial institutions. The study found that deposits by commercial banks have the

greatest impact on their lending ability and behaviour. The study suggested that the commercial banks should concentrate on mobilizing more deposits to improve on their lending capability.

On the other hand, Ryan (2014) investigated the impact of liquidity regulation on commercial banks in the UK. The study done in the year 2010 when the UK Financial Services Authority (FSA) made banks subjected to tighter liquidity regulation. Data analysis done by SPSS through descriptive statistics and inferential statistics and the output presented graphically using graphs, tables and pie charts. The study found out that banks altered their assets and liabilities to meet fastened liquidity requirements. Banks improved their share of high quality liquid assets and at the same time improved funding from more stable UK non-financial deposits as they tried to reduce the short term intra-financial loans share and short term wholesale funding. From the study, there was no evidence that the contracting liquidity regulation had an effect on the general size of balance sheet of the bank or a harmful effect on the lending to the non-financial sector through either higher interest rates on loans or bargained lending supply.

A study done by Bonner and Eijffinger (2012) tested the extent to which the Dutch liquidity ratio influences the lending rates for corporates and the funding costs for interbank by researching the disparities between commercial banks that are moderately above or below their regulatory liquidity necessities. The study used correlation and regression statistical measures. They used a data of 26 Dutch banks from the year 2008 January to 2011 December. From the data, it was notable that commercial banks whose liquidity requirements are still below the set threshold do not levy higher interest rate charges on corporate loans. They again found out that commercial banks operating with

their liquidity requirements below par, end up paying higher interest rates on unsecured interbank loans, this they do although there is no public revelation of such information.

Using Panel error correction framework, Duijm and Wierts (2014) tested how commercial banks in the Netherlands alter the balance sheet composition to satisfy the Dutch Liquidity Ratio after the liquidity shocks. Through regression analysis, the study used the data of liquidity coverage ratio (LCR) from 2010 to 2013. They found that if the gap between a banks' actual and required liquidity ratio is at a lower level than its average long-term, commercial banks adjusted the composition of balance sheets by ensuring the stable forms of funding is increased, and the liquid assets response remains inconsequential. The result was found to be in line with other studies though the adjustment was a bit uniform following the liquidity regulation tightening, which affected the nature and composition of both the assets and liabilities. On the other hand, Fang (2012) looked at the impact of liquidity ratio on the European banking industry. The study used regression analysis and descriptive statistics. The study found that compliance with liquidity impacts European commercial banks both positively and negatively. The result is that the European commercial banks would shift from high level risk or high level profit CIB commercial activity to retail banking and from the international commercial markets to key domestic commercial markets. Though the level of exposure to risk of commercial banks will reduce, the general aspect on profitability coupled with competition in the international commercial markets and CIB commercial activity will be impacted to a greater extent thus minimising the investors 'desire for banks.

Further, on liquidity regulation, Clemens (2014), investigated liquidity regulation and bank behaviour in Netherlands. The period of study was from 2008 to 2012. The study

found that capital regulation is often associated with the diminishing liquidity buffers. Main potential reason for this effect is because capital in itself and liquidity on the other hand tend to be very expensive for the banks. The other explanation that provides why both banks and regulators neglected liquidity risks is due to the pressure of reaching capital adequacy. Finally, banks' rational choices can also cause declining liquidity buffers. While capital alone does not exhaustively address the whole issue of liquidity risks, it really improves banks' opportunities when it comes to funding themselves in the market and it minimises the chances of bank runs. The financial crisis, however, exhibited that, independent of particular reasons, the liquidity buffers of banks were low and even the high level of capital could not fill in the gaps for sensible liquidity risk management and buffers.

2.4 Conceptual Framework

Below Figure 2.1 provides the variables that were used in the study. The dependent variable being credit availability which was measured by the total loan value. Independent variables are; capital requirement which was measured using the core capital, interest rate which was measured by the changes in the lending rate and lastly the liquidity ratio regulation which was measured in terms of the liquid assets ratio to liquidity outflows.

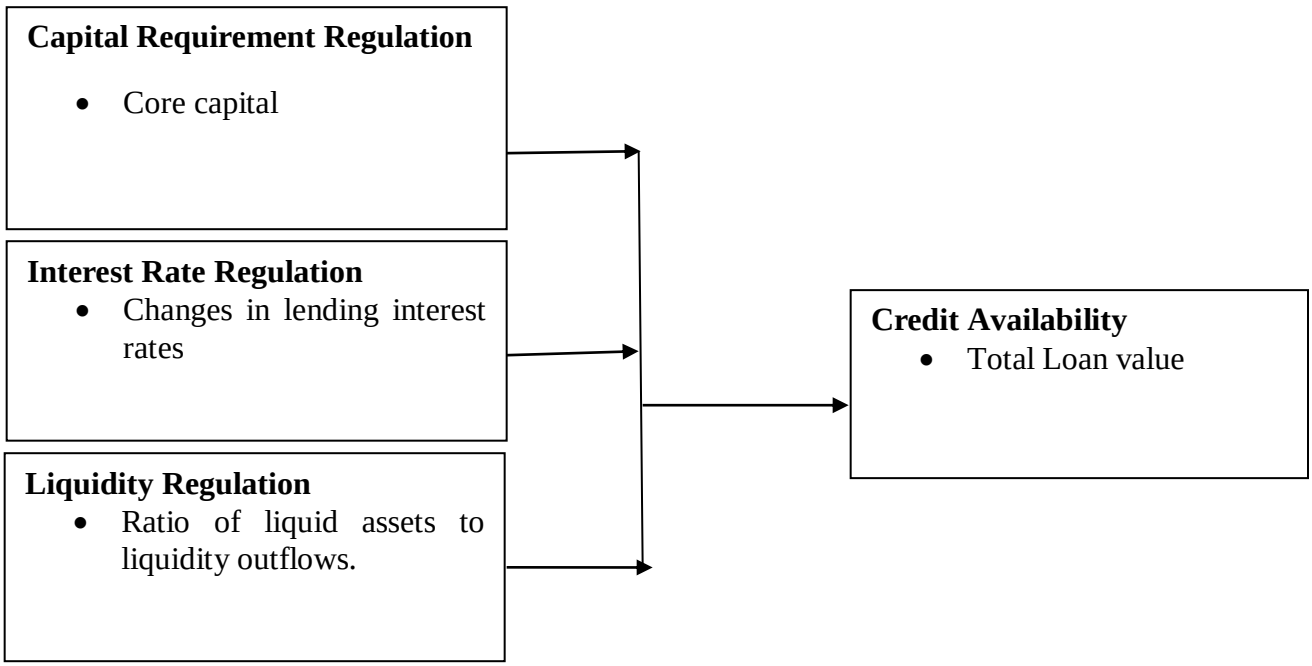

Figure 2.1 : Conceptual Framework

2.5 Operationalization of Variables

This section provides specific dimensions and elements through which the variables in the study were measured. The table 2.1 below represents the variables, their indicators, measures, scale, and type of analysis used.

Table 2.1: Operationalization of Variables

Objectives	**Variables**	**Indicators**	**Measures**	**Scale**	**Type of Analysis**
Credit availability	Credit availability	Loan value	Total Loan value	Ratio	Descriptive statistics
To investigate the effect of capital requirement regulation on credit availability by Commercial Banks in Kenya	Capital requirement	Core capital	Core capital (share capital+ reserves)	Ratio	Descriptive statistics
To examine the effect of interest rate regulation on credit availability by Commercial Banks in Kenya	Interest rate regulation	Lending interest rate	Average annual lending interest rate (Total monthly lending rates/12)	Ratio	Descriptive statistics
To determine the effect of liquidity regulation ratio on credit availability by Commercial Banks in Kenya	Liquidity regulation ratio	Amount of liquid assets and liquid outflows	Ratio of liquid assets to liquidity outflows	Ratio	Descriptive statistics

2.6 Research Hypothesis

Ho_1: *Capital requirement regulation has no significant effect on Commercial Banks credit availability in Kenya.*

Ho_2: *Interest rate regulation has no significant effect on Commercial Banks credit availability in Kenya.*

Ho_3: *Liquidity ratio regulation has no significant effect on Commercial Banks credit availability in Kenya.*

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter provides the instruments used for collecting and analysing data. It emphasized the arrangement of various kinds of approaches in producing results and analysing the same data.

3.2 Research Design

A good research design ensures that data collected is appropriate in providing answers to the question(s) as definitely and accurately as possible (Creswell & Clark, 2007). Kothari (2004), provides that a good quality research design should yield much information and enhance an opportunity for taking into account diverse features of the problem. The appropriate research design is determined by the context and the nature of the study.

The study adopted a descriptive research design in analysing the effect of banking regulations on commercial banks credit availability in Kenya. Descriptive research acts as a forerunner to quantitative research designs with the objective of providing some valued indicators on what variables are good to test quantitatively. It is therefore acceptable that descriptive design is the most suitable research design for this study. Notably, descriptive research are beneficial in relating features of a sizeable population. More so, it's easier to procure a high reliability since all to do is to present the subject matter with a consistent stimulus that guarantees eradication of spectator's subjectivity to a larger extent (Mugenda & Mugenda, 2003).

3.3 Target Population

Population is the whole group of individuals, things or events that the researcher is interested is studying (Kothari, 2004). Study population is the complete collection of units, which a researcher desires to draw conclusions from. In building a research design one of the major steps is to define the population as related to the study objectives. There are 43 commercial banks in Kenya (CBK, 2016). The target population of the study were the 43 commercial banks in Kenya. However, the study majored on the banks that have been in operation in Kenya for the last 5 years, that is, 2012 to 2016 as provided in the CBK list of 2016.

The study used census method in studying the 43 commercial banks in Kenya. A census provides a study of everything, element or every individual or everything, in a given population. It is referred to as complete enumeration, another name for complete count.

3.5 Data Collection Tool

Creswell and Clark (2007), argues that prior to research, a researcher ought to develop a data collection instrument, which is meant to measure, quantify or observe the data under investigation. In the current study, published literature and financial reports formed secondary source of data collection for capital requirement, interest rates, liquidity and credit availability of commercial banks in Kenya for the period 2012-2016. See the data collection sheet in Appendix II. The core capital was measured by the sum of share capital and reserves, interest rate by total monthly lending rates per annum, liquidity ratio regulation was measured by ratio of liquid assets to liquidity outflows while the credit availability was measured by the total loan value.

3.6 Data Analysis

The descriptive measures provided the analysis of the data collected. Descriptive statistics is defined as a method used in data presentation and consolidation. These methods include tabulations, graphs, diagrams and some numerical procedures, all in the purpose of briefing the substance in a system, which exhibits its distinguishing features that support analysis. The descriptive statistics was employed to quantitatively relate the significant characteristics of the variables using standard deviation, frequency and mean.

The quantitative data was analysed using the SPSS software. This was useful in ascertaining the effect of banking regulations on credit availability of commercial banks in Kenya. The following regression model was applied in the study.

$$\mathbf{Y = \beta o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \mathcal{E}}$$

Where Y = Credit availability regulation (measured by the total loan value)

X_I = Capital requirement regulation (measured by core capital)

X_2 = Interest rate regulation (measured by the lending rate)

X_3 = Liquidity regulation (measured by liquid assets to liquidity outflows)

β_0 = Value of credit available when the other predictor variables (X_1, X_2 and X_3) are zero.

β_1, β_2, and β_3 are the change being introduced in Y by each of the predictor variable, they are also known as the regression co-efficients.

$\mathcal{E}$ refers to the error term that accounts for all other variables affecting credit availability but are not factored in the model.

This study used ANOVA in testing the significant level of the independent variables on the dependent variable. This was done at 95% level of significance and the ANOVA was

used to test whether there is any significant change or variance between the variables. Tests on the assumptions of regression model, namely multi-collinearity, heteroskedasticity, and normality were performed.

3.7 Ethical Consideration

The researcher employed great caution when gathering data to ensure protection of rights and privacy. The study referenced the sources of the information used. For confidentiality purposes, the data gathered was used only for intended purpose. Furthermore, the presentation of the study findings were done without any manipulation or influence by the researcher.

CHAPTER FOUR:

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

The chapter presents the analysis of the research and the research findings. The study objective was to determine the effect of banking regulations on commercial banks credit availability in Kenya and focused on the year 2012 to 2016. The study presented the results on the tests of assumption, descriptive statistics and regression analysis.

4.2 Tests of Linear Regression Assumptions

There are several key assumptions made by the multiple linear regression analysis. These include linearity assumption, normality assumption, no multi-collinearity assumption, no auto-correlation assumption and homoscedasticity assumption. The study performed statistical tests on the regression assumptions. This included test of normality, linearity, homogeneity and multi-collinearity.

4.2.1 Multi-collinearity Test

The application of linear regression assumes that there is no multi-collinearity among the independent variables. When the correlation among the independent variables are too high then multi-collinearity occurs. Multi-collinearity refers to the independent variables, which are correlated with other independent variables in the regression model. Severe multi-collinearity can cause complications since it facilitates the increase in the variance of coefficient estimates which enables the estimates to be very sensitive to any slight changes in the regression model. Greene (2003) states that what is not affected is the model prediction, but the model interpretation and conclusions derived from, the standard errors, the associated z-tests or the size of the regression coefficients may be deceptive because of the possible confounding effects of multi-collinearity. Where there is existence

of multi-collinearity, Mason and Perreault (2011) exhibit that the coefficient estimates may irregularly change in reaction to minor changes in the regression model or the data. Nevertheless, the resolution to ultimately drop an item further depends on the next step, where the variance inflation factor (VIF) is pertained in accordance to Greene (2013) and Baum (2006). VIF helps detect multi-collinearity by ascertaining the extent to which the variance is inflated. According to Baum (2006), VIF greater than 10 signals harmful multi-collinearity.

Table 4.2: Summary of Collinearity Statistics

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**Collinearity Statistics**		
	B	**Std. Error**	**Beta**			**Tolerance**	**VIF**	**Correlations**
(Constant)	1.314	.633		2.074	.045			
Capital Regulation	.786	.130	.492	6.048	.000	0.324	3.086	0.767
Interest rate Regulation	.620	.155	.322	3.990	.000	0.486	2.057	0.666
Liquidity Regulation	.675	.166	.326	4.056	.000	0.534	1.872	0.665

The Variance Inflation Factor evaluates the seriousness of multi-collinearity in a standard slightest squares relapse investigation. VIF's more prominent than 10 are an indication of multi-collinearity; the higher the estimation of VIF, the more extreme the issue. Outcome on table 4.2 above shows that all variables (VIF) are less than 10 i.e. Capital Regulation (3.086), Interest rate Regulation (2.057) and Liquidity Regulation (1.872), this implies that there was no collinearity with the variables thus all the variables were maintained in the regression model.

4.2.2 Heteroskedasticity

Linear regression models assume that the error terms are normally, identically and independently distributed with mean zero and constant variance. Heteroskedasticity assumes that the dependent variable manifest an equal state of variance across the various range of independent variables. In multivariate analysis an example of the assumptions needed is the assumption of heteroskedasticity. Even though the contravention of homoscedasticity might minimize the analysis accuracy, the ungrouped data result is not that fatal (Tabachnick & Fidell, 2007). To assess the equality of variances for capital regulation, interest rate regulation and liquidity regulation Levene test was employed. The assumption of regression analysis provides that the population variances from which different samples are taken or drawn are equal. From table 4.3 below, the Levene's test shows that the result of the P-value is less than the conventional 0.05 critical value. This suggests that the differences obtained in the sample variances are probable not to have happened as a result of random sampling from a population whose variance is equal. Hence, it is concluded that there is a significant difference between the variances in the sample population.

Table 4.3: Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
1.626	2	42	.043

4.2.3 Normality test

Main reason for normality test is to determine if the data sample collected is from a normally distributed population. The normality assessment can be done by using a graphical or numerical procedure. The numerical procedures are provided by the inferential statistics such as Kolmogorov-Smirnov and Shapiro-Wilk. The Kolmogorov-Smirnov test is considered appropriate for samples larger than 2000 while Shapiro-Wilk

test is regarded suitable for samples ranging from 40 to 2000. In this study, the usable sample was 43 commercial banks and hence Shapiro-Wilk test was used. The typicality was tried utilizing the Shapiro-Wilk test that also boast of energy to recognize take off from ordinariness resulting from both skewness and kurtosis or either of them. In the event that the range of measurement is from zero to one, then figures that are higher than 0.05 show the information is ordinary (Razali & Wah, 2011). The Shapiro-Wilk test provides an assessment if any case information is typically circulated against theory that, H_0: The sample seem to follow a Normal distribution and H_a: The sample seem not to follow a Normal distribution.

When the alpha value is less than the p-value, then one accepts the null hypothesis and reject the alternative hypothesis. Table 4.4 below shows the results of the Shapiro-Wilk normality test.

Table 4.4: Shapiro-Wilk

	Statistic	df	Sig.
Capital Regulation	0.887	42	0.001
Interest rate Regulation	0.834	42	0.000
Liquidity Regulation	0.924	42	0.003

Source: Author (2017) **Key: df = degrees of freedom, sig = significance level**

4.2.4 Test of Linearity

When performing multiple regression, it is normally assumed that the nature of relationship between the response variable and the predictor variable is linear. In cases of violation of this assumption, the multiple regression normally attempts to fit a straight line to sample data that do not completely follow a straight line. To assess linearity, the primary concern is to observe the scatterplot of the standardized residuals with the standardized predicted values.

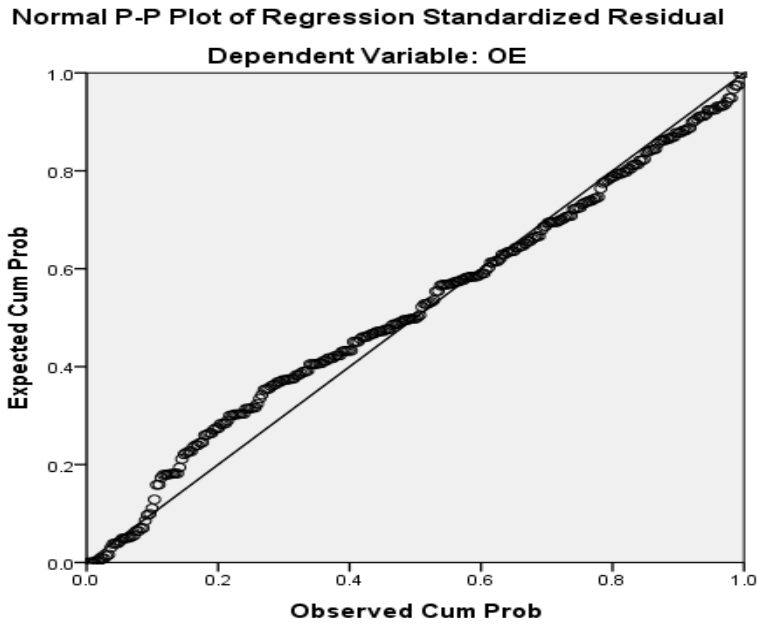

Figure 4.2: Linearity Scatterplot

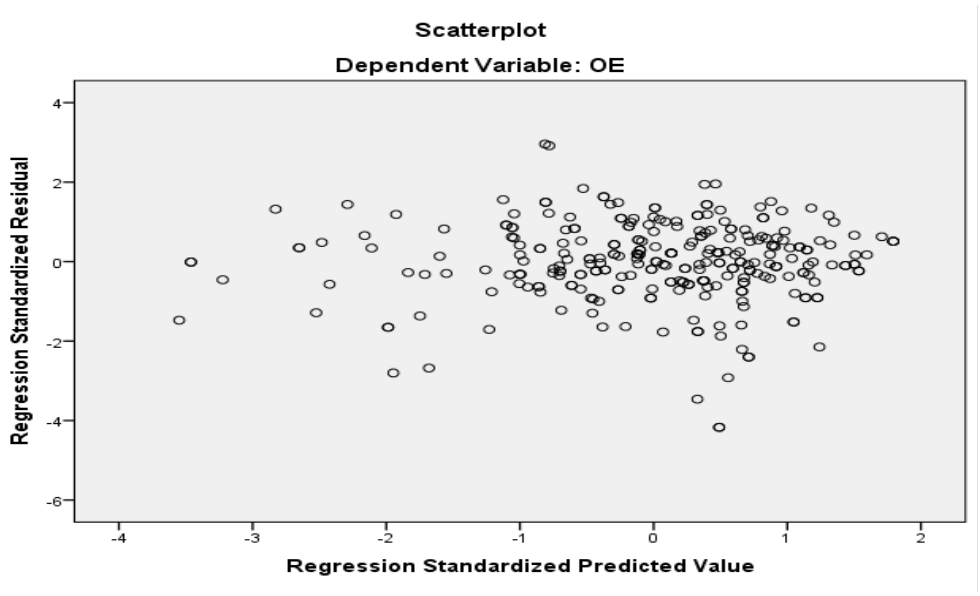

Figure 4.3: Residuals Scatterplot

From the two graphs above (figure 4.2 and 4.3) the nature of relationship of the standardized predicted values to that of the residuals appears to be roughly linear around zero. Hence, the conclusion that ensues is that the relationship that exist between the dependent variable and the independent variables is zero because the standardized residuals appear to be scattered randomly around zero. From the graph the residual tendency is centred on zero besides that the variance is randomly and uniformly scattered

around zero. We therefore conclude that the assumption of linearity is adhered to if the specified predictive model is fully run.

4.3 Descriptive Statistics

4.3.1 Descriptive Statistics on Core Capital

Table 4.5 : Descriptive Statistics on Core capital

Year	Minimum	Maximum	Mean	Std deviation
2012	13.30	17.64	15.28	1.25
2013	13.42	17.46	15.37	1.26
2014	13.16	17.38	15.37	1.21
2015	10.48	19.92	15.45	1.61
2016	13.28	19.90	15.79	1.40

It is eminent from the findings, that year 2016 recorded the value with the highest core capital as depicted by a mean value of 15.79 and year 2012 recorded the value with the lowest core capital with a mean of 15.28, in addition standard deviation values depicted variability in core capital in the five year period with 1.61 as the highest deviation in year 2015 and 1.21 lowest deviation in year 2014.

4.3.2 Descriptive Statistics on Interest Rate Regulation

Table 4.6: Descriptive Statistics on Interest Rate

Year	Minimum	Maximum	Mean	Std deviation
2012	17.00	25.50	21.16	1.85
2013	17.17	24.30	20.65	1.40
2014	18.50	22.80	20.96	1.20
2015	18.30	23.50	20.49	1.12
2016	11.10	13.90	12.48	0.79

It is noted from the findings, that year 2012 recorded the value with the highest percentage interest rate as provided by a mean value of 21.16 and year 2016 recorded the value with the lowest percentage interest rate at 12.48. The standard deviation values depicted variability in percentage interest rates in the five year period with 1.85 being the deviation's highest value in year 2012 and 0.79 being the lowest deviation in year 2016. This indicates that before the implementation of the interest capping rates by the government in 2016, the lending rates were relatively high.

4.3.3 Descriptive Statistics on Liquidity Levels

Table 4.7: Liquidity levels

Year	Minimum	Maximum	Mean	Std deviation
2012	23.80	75.20	42.66	11.40
2013	21.10	81.00	41.57	12.49
2014	23.90	80.00	45.43	13.38
2015	22.90	89.70	44.57	12.85
2016	14.54	90.10	45.54	13.38

Source; Research findings, 2017

It can be noted from the findings that year 2016 provided the value with the highest liquidity level as depicted by a mean value of 45.54 and year 2013 provided the value with the lowest liquidity level at 41.57 in addition, standard deviation values depicted variability in liquidity levels in the five year period with 13.38 being the highest deviation in year 2016 and 11.40 lowest deviation in year 2012.

4.3.4. Descriptive Statistics on Total loans value

Table 4.8: Descriptive Statistics on Total loans value

Year	Minimum	Maximum	Mean	Std deviation
2012	11.72	19.17	15.81	1.57
2013	11.53	19.24	15.98	1.53
2014	11.55	19.46	16.38	1.81
2015	11.59	19.66	16.55	1.78
2016	11.62	19.77	16.66	1.79

Source; Research findings, 2017

As provided by the findings, year 2012 recorded the value with the lowest total loans as indicated by a mean value of 15.81 while the year 2016 recorded the highest value in total loans of commercial banks at 16.66, at the same time standard deviation values depicted variability in the value of total loans of commercial banks in the five year period with 1.81 being the highest deviation in year 2014 and 1.53 lowest deviation in year 2013. The study findings reveals a significant increase in the value of total loans during the five year period.

Linearity Results

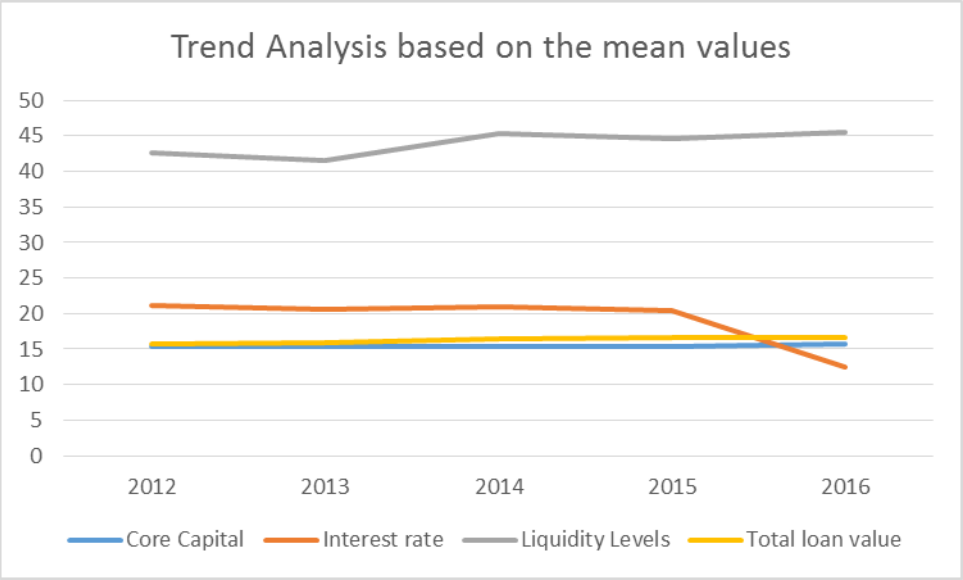

Figure 4.4 Linearity Results

From the graph above it appears that year 2016 provided the value with the highest core capital and year 2012 provided the value with the lowest core capital. On the other hand, the year 2012 recorded the highest value for percentage interest rates while the year 2016 recorded the lowest value for percentage interest rates. Finally, the year 2016 recorded the highest value for liquidity level while the year 2013 recorded the lowest value.

4.4 Inferential Statistics

4.4.1 Pearson Correlation Analysis

Pearson correlation analysis was also conducted to determine the association (linear) between the independent and dependent variables. It helped in determining the strength of association among the variables in the model. It provided an explanation of which variable best explains the relationship between capital requirement regulations, interest rate regulation and liquidity ratio regulation and credit availability by commercial Banks in Kenya.

Table 4.9: Correlations

		Credit. Availability	Capital. Regulation	Interest regulation	Liquidity regulation
Credit. Availability	Pearson Correlation	1	.767**	.666**	.665**
	Sig. (2-tailed)		.000	.000	.000
	N	43	43	43	43
Capital. Regulation	Pearson Correlation	.767**	1	.429**	.423**
	Sig. (2-tailed)	.000		.004	.005
	N	43	43	43	43
Interest rate regulation	Pearson Correlation	.666**	.429**	1	.408**
	Sig. (2-tailed)	.000	.004		.007
	N	43	43	43	43
Liquidity regulation	Pearson Correlation	.665**	.423**	.408**	1
	Sig. (2-tailed)	.000	.005	.007	
	N	43	43	43	43

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

Source: Research data, 2017

On the correlation of the study variables, a Pearson moment correlation was conducted. From the finding in the table 4.9, the study found that credit availability is strongly and positively correlated to capital regulation as shown by correlation factor of 0.767, the strong and positive relationship was established to be statistically significant since the significant value was 0.000 and this is less than 0.05. The research findings were found to be in tandem with that of Huber, et al (2008), who established that there is a strong and positive correlation between positive credit availability and capital regulation.

Again, the study found a strong and positive correlation between credit availability and interest rate regulation as indicated by correlation coefficient of 0.666; this was further established to be statistically significant at 0.000 confidence level, finally the research study found a strong and positive correlation between liquidity regulation and credit availability as provided by correlation coefficient of 0.665, this too was established to be statistically significant at 0.000 confidence level.

4.4.2 Regression Analysis

A multiple regression analysis was conducted to find the effect among the independent variables. To compute, enter and code the measurements of the multiple regressions, the Statistical Package for Social Sciences (SPSS V21.0) software was employed. Below table 4.10 is a presentation of the model summary.

Table 4.10: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.899[a]	.809	.794	.944163

a. Predictors: (Constant),.Liquidity Regulation, Interest Regulation, Capital Regulation

Source: Research data, 2017

To evaluate the model fit the study used coefficient of determination. The coefficient of multiple determination (adjusted R^2), provides the percentage of the variance in the dependent variable that is uniquely or jointly explained by the independent variables.

From the result, the model has an average coefficient of determination (R^2) of 0.809, which implies that 80.90% of the variations in credit availability by commercial banks in Kenya are explained by the independent variables provided in the study (liquidity regulation, interest rate regulation, and capital regulation).

The study also tested the significance of the model by use of ANOVA technique. The findings are indicated in table below.

Table 4.11: **ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	146.861	3	48.954	54.915	.000[b]
	Residual	34.766	39	.891		
	Total	181.627	42			

Source: Research data, 2017

The ANOVA statistics, reveals that the regression model independent variables were statistically significant ($p<0.05$) in influencing the dependent variable. This is an indication that liquidity regulation, interest rate regulation, and capital regulation all have a significant effect on credit availability by commercial banks in Kenya.

Below table 4.12 presents the findings of the coefficients.

Table 4.12: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.314	.633		2.074	.045
Capital Regulation	.786	.130	.492	6.048	.000
Interest rate Regulation	.620	.155	.322	3.990	.000
Liquidity Regulation	.675	.166	.326	4.056	.000

Dependent Variable: Credit Availability

Source: Research data, 2017

As per the regression output presented in table 4.12 above, the equation becomes;

$$\mathbf{Y= 1.314+ 0.786X_1+ 0.\ 620X_2 + 0\ .675X_3 + \varepsilon}$$

From the regression model obtained above. The study exhibits that a unit change in capital regulation, with the other factors being constant the credit availability by commercial banks in Kenya would change by a factor of 0.786, a unit change in interest rate regulation, with the other factors being constant the credit availability by commercial banks in Kenya would change by a factor of 0.620 and a unit change in liquidity regulation, with the other factors being constant the credit availability by commercial banks would change by a factor of 0.675. The regression analysis was conducted at 5% significance level. The obtained probability values were compared with α=0.05 to found out if the model's independent variables were significant. In cases where the probability value was less than α, then the independent variables were significant and vice versa. From the study, all the independent variables applied were found to be statistically significant as their related probability values were all less than α=0.05. Based on the findings we reject the null hypothesis that Capital Requirement Regulation, Interest Rate Regulation and Liquidity Ratio Regulation do not affect commercial banks credit availability in Kenya. Therefore, the study accepts the alternative hypothesis that Capital Requirement Regulation, Interest Rate Regulation and Liquidity Regulation Ratio affect commercial banks credit availability in Kenya.

4.5 Discussion of the Findings

The section has provided the findings discussions from the research study based on the study objectives.

4.5.1 Capital Requirement Regulation

The study investigated the effect of capital requirement regulation on credit availability by Commercial Banks in Kenya. The regression coefficient of 1.314 indicates the value of credit availability change when capital requirement regulation is zero. The regression

coefficient of 0.786 obtained implies that a unit increase in capital requirement regulation variable would lead to a 0.786 increase in credit availability. This means that capital requirement regulation positively influences credit availability of Commercial Banks in Kenya. Findings of the research agree with Franks, Sharma and Dayaratna (2004), who established that there is strong positive relationship between credit availability and capital regulation.

From the findings based on the Pearson moment correlation the study established that there is a strong and positive correlation between credit availability and capital regulation as indicated by correlation factor of 0.767, the results were found to be statistically significant at 0.000. The study findings agree with Huber, et al (2008), who established that there is a strong and positive correlation between positive credit availability and capital regulation.

4.5.2 Interest Rate Regulation on Credit Availability

The study investigated the effect of interest rate regulation on credit availability by Commercial Banks in Kenya. The regression coefficient of 1.314 indicates the value of credit availability change when interest rate regulation is zero. The regression coefficient of 0.620 obtained implies that a unit increase in the interest rate regulation variable would lead to a 0.620 increase in credit availability. This means that interest rate regulation positively influences credit availability of Commercial Banks in Kenya. The findings are in line with Lydiah (2013), who investigated the effect of interest rates on demand for credit by small medium enterprises in Nairobi County, in Kenya and found that interest rates regulation affect the demand for loans by SMEs from lending establishments.

Further, the study found a strong and positive correlation between credit availability and interest rate regulation as indicated by correlation coefficient of 0.666; this too was

established to be statistically significant at 0.000 confidence level. The findings are in line with Michael (2008) who studied the impact of interest rates and term regulations on credit availability for joint centre for housing in United States and found that interest rates had a strong positive correlation with credit availability and supply.

4.5.3 Liquidity Regulation on Credit Availability

The study investigated the effect of liquidity regulation on credit availability by Commercial Banks in Kenya. The regression coefficient of 1.314 indicates the value of credit availability change when liquidity regulation ratio is zero. The regression coefficient of 0.675 obtained implies that a unit increase in the liquidity regulation ratio variable would lead to a 0.675 increase in credit availability. This means that liquidity regulation ratio positively influences credit availability of Commercial Banks in Kenya. The findings agree with the findings by Achou and Tenguh (2008), which establishes that the relationship between liquidity regulation and credit availability is significant in the aspect of loan performance.

Similarly, the correlation between liquidity regulation and credit availability was found to be strong and positive as depicted by correlation coefficient of 0.665, this again was established to be statistically significant at 0.000 confidence level. The findings confirm the work of Olokoyo (2011) in Nigeria who found that liquidity regulation ratio had a positive correlation with credit availability and bank lending in Nigeria for a period from 1980 to 2005.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter provides the study findings, the study conclusions and the study recommendations. Presentation has been done according to the objective of the study that was to establish the effect of banking regulations on commercial banks credit availability in Kenya.

5.2 Summary of Findings

The section has provided the summary of the study findings based on the study objectives.

5.2.1 Capital Requirement Regulation

The study investigated the effect of capital requirement regulation on credit availability by Commercial Banks in Kenya. The correlation model result shows that there is a strong positive correlation coefficient between capital requirement regulation and credit availability by Commercial Banks in Kenya. The regression model result predict that a unit increase in capital requirement regulation would enhance credit availability by Commercial Banks in Kenya by a factor of 0.786.

Commercial banks adoption of minimum capital requirement in Kenya would facilitate strengthening of the capital soundness and stability of the Kenyan banking system by enhancing local commercial banks to reconsider their capital positions through boosting of the same.

The research also noted that imposing high capital requirement, may lead to Kenyan banks being restricted by the pressures resulting from competition that would arise as a

result of competition on bank loans, bank deposits and also due to equity and debt investments sources. Therefore, banks are likely to reduce their lending, increase their charge on loans and also reduce interest on deposits as a way of restoring an acceptable return on capital. On the same note, banks ability to expand credit and also contribute to the growth of the economy may be hampered as they become more constrained. Moreover, the study found that the imposition of higher capital requirement at times hinders the availability of credit since it may provide an avenue of acting as a barrier to entry for new commercial banks and this would be too prohibitive on the side of the small banks when it comes to operations. The findings were found to be in tandem with the research outcome of Caprio and Levine (2004) and Beck et al. (2006), on regulatory policies, which restrict entry and banks' normal activities that they are associated negatively with bank credit availability.

5.2.2 Interest Rate Regulation on Credit Availability

The research investigated the effect of interest rate regulation on credit availability by Commercial Banks in Kenya. Results from the correlation model show a strong positive correlation coefficient between interest rate regulation and credit availability by Commercial Banks in Kenya. The regression model result predict that a unit increase in interest rate regulation would lead to enhancing of credit availability by Commercial Banks in Kenya by a factor of 0.620.

Results obtained further show that interest rate regulation by the government affects credit availability by Commercial Banks in Kenya, thus interest rate regulation impact on the level of credit availability by Commercial Banks in Kenya. The study also found that increasing the interest rate reduces the return thus the credit availability, this result from the fact that borrowers shy away from high interest charged by the Commercial Banks

and turn to other formal and informal institutions. This explains why the lower the interest rates the more the returns by the commercial banks. When interest rate is altered it affects everyone who wants to borrow money. The findings are in line with Lydiah (2013), who found that effective interest rates have significant influence on credit availability.

5.2.3 Liquidity Ratio Regulation on Credit Availability

The research investigated the effect of liquidity regulation on credit availability by Commercial Banks in Kenya. The correlation model result shows a strong positive correlation coefficient between liquidity regulation and credit availability by Commercial Banks in Kenya. The regression model result predict that a unit increase in liquidity regulation would enhance credit availability by Commercial Banks in Kenya by a factor of 0.675. The research findings are in agreement with those of Achou and Tenguh (2008) that shows that there is some significant relationship between liquidity regulation and credit availability when it comes to loan performance.

The research noted that enforcing liquidity ratio regulation can lead to a credit boom. The findings of the study are in tandem with literature by Chang-Soo et al., 2008) that tightening of prudential standards may be done through dynamic and forward looking capital requirements and/or provisioning. The measure of liquidity applied in this study was the liquid assets to liquidity outflows. The findings also conform to argument by Sufian and Chong (2009) that lack of ostrich liquidity management policy lowers credit availability.

5.3 Conclusion

Based on the results, the study revealed that an increase in capital regulation leads to a positive increase in credit availability, thus the study concludes that capital requirement regulation had positive influence on credit availability by Commercial Banks in Kenya.

The research revealed a strong positive correlation coefficient between interest rate regulation and credit availability by Commercial Banks in Kenya, regression model also predicts that a unit increase in interest rate regulation would enhance credit availability. The study therefore concludes that interest rate regulation had positive influence on credit availability by Commercial Banks in Kenya.

Further, the research revealed a strong positive relationship between liquidity regulation and credit availability. The study noted that enforcing liquidity ratio regulation can lead to credit availability by Commercial Banks in Kenya; the research study concludes that standard liquidity ratio regulation has positive influence on credit availability by Commercial Banks in Kenya

5.4 Recommendations

Overall results provide a pointer to the main role of capital regulation on bank credit availability in Kenya, CBK policies acts as the main determinants of credit availability and overall performance of the commercial banks. Due to this, reforms on the capital regulation should ensure the establishment of more competition within the banking sector to enhance credit availability.

The government and other policymakers should enhance better interest rates policies that will make commercial Banks in Kenya achieve better performance. The interest rates policies currently in place should make the cost of borrowing loans from commercial banks in Kenya more affordable to most borrowers. The government should look for ways to strengthen the shilling against the other currencies. In order to remain sustainable the financial institutions in Kenya should be able to invest from equity capital and avoid unnecessary borrowing. The CBK in collaboration with financial institutions needs to induce liquidity regulation policies that will help to keep debt to equity ratio low. This

will help to ensure standard level of liquidity are maintained and avoid instances where the creditors happen to have funded bank more than investors have, a move which is considered to be risky.

5.5 Study Limitations

The study only focused on liquidity regulation, interest rate regulation, and capital regulation and their effect on credit availability, other factors may affect credit availability but the study focused only on the three variables.

The study was only limited for a period of five years, to draw better conclusions, similar study can be done for a longer period of time to find the long-term effects.

5.6 Recommendations for Further Research

The research study's objective was to determine the effect of banking regulations on commercial banks credit availability in Kenya. It therefore recommends that similar researches involving other macroeconomic factors like, inflation rate and government deficit be conducted.

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APPENDIX I: LIST OF COMMERCIAL BANKS IN KENYA

1. Citibank
2. Equity Bank
3. Standard Chartered Bank
4. Barclays Bank of Kenya
5. NIC Bank
6. Kenya Commercial Bank
7. National Bank of Kenya
8. Diamond Trust Bank
9. Co-operative Bank of Kenya
10. CFC Stanbic Bank
11. I&M Bank
12. Bank of India
13. Bank of Baroda
14. Family Bank
15. Prime Bank
16. Commercial Bank of Africa
17. Bank of Africa
18. Consolidated Bank
19. Chase Bank
20. Fina Bank
21. Eco Bank
22. HFCK
23. Habib A.G. Zurich
24. Victoria Commercial Bank
25. Credit Bank
26. Habib Bank (K) Ltd
27. Oriental Commercial Bank
28. K-Rep Bank
29. Imperial Bank

30. ABC Bank
31. Development Bank of Kenya
32. Middle East Bank
33. Equatorial Commercial Bank
34. Trans-National Bank
35. Dubai Bank
36. Fidelity Commercial Bank
37. City Finance Bank
38. Paramount Universal Bank
39. Giro Commercial Bank
40. Guardian Bank
41. Southern Credit Bank
42. Gulf African Bank
43. First Community Bank

Source: The Banking Survey by CBK 2016, pp. 191

APPENDIX II: DATA COLLECTION SHEET

Variables	**Measure**	**Source**	**2012**	**2013**	**2014**	**2015**	**2016**
Capital requirement (billions)	Core capital (share capital+ reserves)	Financial reports					
Interest rate (%)	Average annual lending interest rate (Total monthly lending rates/12)	Financial reports					
Liquidity regulation ratio (%)	Ratio of liquid assets to liquidity outflows	Financial reports					
Credit availability(billions)	Total Loan value	Financial reports					