

**THE EFFECT OF INTEREST RATE CAPPING ON MORTGAGE  
FINANCING OF COMMERCIAL BANKS IN KENYA**

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**DECLARATION**

I, Elijah Gakuo hereby declare that this is my original work and has not been submitted for presentation and examination for any award of Degree in this university or any other university.

Signature ..... Date.....

**Elijah Gakuo**  
**D63/7675/2017**

This research project has been submitted for examination with my approval as the University of Nairobi supervisor.

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## **DEDICATION**

This project is dedicated to my beloved wife Ann Mumbi who has always inspired, supported and encouraged me to be strong in spite of many obstacles in life, my lovely children Ryan Gakuo and Kimberly Mumbi for their understanding and unconditional love that motivates me every day to set higher targets and finally to my late dad Stephen Gakuo, my late mum Alice Gakuo who motivated and supported my education up to Bachelors level, my brother Simon Gakuo and my sister Ann Gakuo for their overwhelming support morally and financially.

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

<b>CBK</b>	Central Bank of Kenya
<b>IV</b>	Instrumental Variables
<b>MMT</b>	Modern Monetary Theory
<b>ROA</b>	Return on Assets
<b>ROE</b>	Return on Equity
<b>U.S</b>	United States
<b>UK</b>	United Kingdom

## ABSTRACT

Interest rates play a vital role in steering economic growth of a country and performance of commercial banks. Interest rate is an essential tool applied by commercial banks to control inflation and drive economic growth of country in a manner that promotes healthy competition and consumer protection. Capping of interest rate is an approach that is utilized by the government to control the finance industry. This study was set out to determine the effect of interest rate capping on mortgage financing among commercial banks in Kenya. The study adopted a descriptive research design to establish hypothetical relationship that exists between variables as anchored by Theory of Interest, Modern Monetary Theory and Liquidity Preference Theory. The population of this study includes 43 commercial banks that were operational in the study period. Monthly sources of data were utilized for 30 months from June, 2015 to December, 2017. This data was obtained from annual reports of CBK and data analysis was done using descriptive statistics and paired t-test. The study found that interest rate capping resulted into an increase mortgage financing and bank deposits. Similarly, it led to a significant reduction in bank overdraft and lending rates while decreasing operational efficiency. Paired t-tests results established that bank overdraft and lending rates were statistically significant while mortgage financing, operational efficiency and customer deposits were insignificant. The study recommends the need to uphold interest rate cap on commercial banks in Kenya; this is so because today, more people can access loans and other credit facilities to grow their businesses and personal development. This has contributed positively towards economic growth. This study was limited to time since the effect between capping and mortgage financing was carried within a very short time span: 15 months before and 15 months after. There is need to conduct a longitudinal study that can accommodate a long-time duration in order to be able to establish the nature of existing relationships between variables more accurately. In future, researchers should consider investigating the effect of interest rate caps on macro-economic variables like GDP and inflation.

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background of the Study**

Interest rate capping is likely to impact on the market, bring about negative bias that might prompt financial institutions to lend low risk customers resulting into inefficiencies in financial intermediation (Dominic, 2010). Ramsey (2013) argues favoring some clients at the expense of others might inhibit some customers in dire need of financial services from enjoying these services since they are regarded as high-risk customers. Financial institutions might maintain their profitability after interest rate caps by venturing into other income sources for example non-funded income (Garman & Grable, 2012).

The theories that anchor this study include Theory of Interest, Modern Monetary Theory and Liquidity Preference Theory. Hardouvelis (2011) explains that Theory of Interest explains interest rate movements and how these movements impact on performance of commercial banks (Jones & Roley, 1983). The theory further explains how interest rates affect money supply and inflation as well as the implication of this to inflation. Modern Monetary Theory; this theory posits that an investor needs to understand how other stakeholders such the government and bank regulator and affect institutions. This helps to shape investment decisions and to predict the market. Thus, an investor is able to make the right investment choice (Gonner, 2001). Liquidity Preference theory notes that the forces of demand and supply results in a change in interest rates. Davidson, (1978) this theory is useful in determining the level of interest rate in an economy.

CBK (2017) indicate that commercial banks have already adjusted their models of business leading to a decline in financial intermediation. Commercial banks are directing their lending to the government and stable corporate borrowers thus excluding risky and small borrowers. While the banking sector seems to have accommodated these changes, competition has increased and profitability has declined particularly among the Tier three banks. Impact of interest capping on economic growth is slowly being felt but this will take a little longer to materialize. The amended law on interest rate capping was effected on September 2016. This set the limits on lending and deposit rates. The maximum lending rate was set at a maximum of 4 percent Central bank base rate while deposits held in interest earning account, the least rates of interest was set to at least 70% of a similar rate (CBK, 2017).

### **1.1.1 Interest Rate Capping**

Hancock (2008) posits that interest rate capping is defined as the provision of flexible mortgage rates which regulates the extent to which interest rates can increase. They are periodical interest rate caps that regulate increases in every adjustment phase. Many loans consist of lifetime caps which limit and dictate the percentage at which rates of interest can grow in the life of a loan. Interest rate caps can be applied by governments because of various political and economic reasons; the most common is providing support to a given industry or a section of an economy. In a situation where the government deems a market to have failed in a given industry, an interest rate cap is seen as an effort to ensure more concentration on financial resources on a sector and ensure that the market players are protected from unfair competition practices from commercial banks.

This is also referred to as interest rate ceilings which are justified by financial institutions that make excessive profits through charging excessive rates of interests to their customers. It is however necessary for government to intervene in order to shield vulnerable customers from exorbitant interest rates. It is normally assumed that credit demand is price inelastic when interest rates are high. However, financial institutions take advantage of the information asymmetry to the detriment of the customers' welfare. Gizaw, Kebede and Selvaraj (2015) observed that use of hostile loan collection practices create a negative to the lenders. Thus, this should be done with caution and professionalism.

### **1.1.2 Mortgage Financing**

According to the World Bank (2011), mortgage financing refers to a type of loan provided for the purpose of purchasing real estate. The mortgage itself is a legal claim on the property or home, which serves in securing the promise of paying the debt. In recent years, commercial banks have begun providing mortgage financing, an area which was initially a niche for mortgage financing firms. The importance of efficient housing finance system is evidenced in the ability to meet the individuals housing needs and equally in reinforcing the development of the finance, construction as well as other related industries of an economy. According to Erbas and Walley (2005), based on international experience, the availability of residential mortgages improves on the quality of housing, urbanization, poverty alleviation, and infrastructure.

In the developing economies, there are advanced housing finance systems where there is an established order in which surplus funds are channeled to areas of needs, mostly the mortgage markets.

Ho Hahm (2014) notes that irrespective of the recognized social and economic importance of housing finance, the sector is still under-developed in developing economies as a result of instability in employment and inflation. Generally, the structure of mortgage loans is on a long-term basis, where periodic payments for a period of ten to thirty years is calculated based on time value of money. According to Gizaw, Kebede and Selvaraj (2015) during this period, the mortgage beneficiary slowly pays the principal component of the amount loaned through amortization. Dolde (2016) asserts that the introduction of a fixed as opposed to a variable mortgage rate would serve as a new example of a mortgage instrument.

Within the banking industry that makes a significant contribution to the Kenyan economy, mortgage financing serves as a crucial business line. For growth and prosperity, commercial banks rely on revenue from mortgages (Bienert, 2016). The mortgage market in Kenya when compared to other Sub-Saharan African countries is more evolved but there is also still room for improvement. The World Bank (2011) claims that an efficient supply of land required for housing together with a functional secondary market for the sale of houses is a critical component of an efficient mortgage system.

### **1.1.3 Commercial Banks in Kenya**

The commercial banking sector consists of 43 institutions (39 commercial banks and 1 mortgage finance institution) that are privately owned and Kenya Government has controlling interest in the rest of the commercial banks (3), 24 of the 39 banks having private ownership including 1 mortgage institution have a local ownership (majority shareholders are from Kenya), while fifteen have foreign ownership (CBK, 2016). Commercial banks are regulated and licensed according to the Banking Act provisions and regulations including the prudential guidelines.

As major players in the banking industry, commercial banks are subjected to regulatory obligations that govern their prudential position and their market conduct to safeguard financial system stability (CBK, 2016). Central Bank of Kenya (CBK) has a role to maintain liquidity, solvency and effective functioning of a market-based financial system. CBK ensures that banking sector laws and regulations are relevant to the working environment by conducting regular reviews. These involve the Banking Act (Cap 488) and CBK Act (Cap 491). Commercial banks have faced an incredible growth as a result of adoption and use of banking technologies, change in customer needs and stiff competition.

Financial performance of commercial banks is affected by various environmental changes such as regulations and technological changes. The bill on interest rate capping was assented on 24<sup>th</sup> of August, 2016 by President of the republic of Kenya. This bill was intended to amend section 33A, banking Act through an addition of a section (33B) so as to accommodate interest ceilings. It also aimed at enlightening borrowers to be careful on

the kind of interest rate that they get from deposits and how this affects financial institutions that execute lending roles and offer higher interest rates compared to those offered by the law. Further, section 33B subsection 1(b) of the Banking amendment bill indicate that Kenyans who hold savings account with other banks are entitled to a predetermined rates on interest on deposit with CBK base rate being their rate of reference, this clause have set minimum rates of interest which a bank is expected to pay for savings deposit at 70% of the base rate provided by CBK. This is an indication that CBR of 10%, minimum level of interest rate payable for savings account is 7% while the maximum interest rate on loans is 14% which constitutes 400 basis points that surpasses the CBR (Aligonby, 2016).

The primary goal of this legislation is to control banks from setting high rates of interest on loans and low rates of interests on deposits. More specifically, the law maintains that none of the banks provides a loan with a charge exceeding 400, basis point as rate of interest over and above the set base rate by CBK.

## **1.2 Research Problem**

Changing the rates of lending and deposits as essential components of intermediation have an overall effect on financial performance. In order to sustain profitability in the wake of anticipated reduced income from loans and deposits, the non-interest income is the only element that is left to navigate around. Loan advancement is expected to increase due to affordable credit in the market which will in turn increase their earnings. Zarruk (2008) argues that an increase in the rates of interest affects the entire system of banking since it has significant effect on loans which is one of the primary bank assets.



However, the sensitivity of a bank's assets and liability is an accurate measure of how fluctuations in the rates of interest volumes impact on the banking sector (Samuelson, 2011). Interest rate capping has affected banking stakeholders. Commercial banks are now forced to look for more innovative ways to compensate for the loss of interest income from loans (CBK, 2016). In order to survive, few banks have made great strides in the banking sectors to reinvent themselves and remain competitive and relevant. For example, Commercial Bank of Kenya Limited has recently launched a digitized product (CBK loop) that allows customers to conduct their banking transactions without necessary visiting the bank. Some banks are adopting strategies such as downsizing to minimize operational costs and retain their profits.

Wensheng et al. (2003) concluded there was a relationship between interest rate capping and financial performance from investigating the effect that interest capping had on commercial banks' ROA. Garman and Grable (2012) explored the effect of interest rate caps on bank profitability in U.K and the results showed that interest rates were positively linked to profitability. Ashim and Ranjula, (2013) found that interest rate is positively related to bank performance.

Kipng'etich (2012) concluded that, from exploring the contribution that interest rate had on ROA of Kenyan banks, there was a relationship between the rate of interest and financial performance. Karimi (2015) tested the link amid lending rates and commercial bank's financial performance in Kenya and a positive connection was found present between financial performance and interest income. Kamau (2016) tested the link between spread of interest rates and financial performance of microfinance banks deposit

taking. The results depicted that spread of interest rates was significantly linked to financial performance. These studies have largely dwelt on the effect of interest rates on financial performance of commercial banks and a limited focus has been given to the effect of interest rate capping on mortgage financing of commercial banks in Kenya. This study therefore sought to find an answer to the question: What is the effect of interest rate capping on mortgage financing of commercial banks in Kenya?

### **1.3 Research Objective**

The objective of this study was to determine the effect of interest rate capping on mortgage financing of commercial banks in Kenya.

### **1.4 Value of the Study**

Policy makers might utilize the findings realized in this study to set policies that enable banks to easily adopt and comply with capping regulations. This will give room for more borrowers to access credit facilities and expand their businesses. This might impact positively on the economic growth.

The study builds the understanding on the effect of interest rate capping on mortgage financing. Banking executives will appreciate the impact of capping in enabling customers to borrow money and prevent low income earners who are perceived to be risky in accessing credit. Policy makers might find this research valuable in regulating hidden charges that makes loans more expensive even after the capping.

This study will contribute to the body of knowledge; students will acquaint themselves with the theories that support this research and their applicability. They will build their understanding on the determinants of mortgage financing and how interest rate caps impact on mortgage financing. As a basis for future research, the researchers may use the results obtained in this study.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter gives a discussion of the literature in line with the objective for this study. It covers a theoretical basis for this research, the factors affecting mortgage financing and empirical studies.

#### **2.2 Theoretical Framework**

This section discusses the theories anchoring this study that include Theory of Interest, Modern Monetary Theory and Liquidity Preference Theory. The discussion covers the pioneers of the theories, theoretical development, application and relevance of the theories to the study.

##### **2.2.1 Theory of Interest**

This theory was put forward by Fisher (1930) who explained existence of a relationship between inflation and real interest rates which he referred to it as a Fisher effect; he further argues that a rise in the supply of money results into inflation. Fisher (1930) further argues that nominal rates of interest at any time are equivalent to sum total of interest rate and the anticipated inflation rate. Nominal rates of interest can be broken down into two essential components that include real rate of interest and expected inflation rate. The theory of interest indicates that foreign currency with high rates of interest may decline in value because high nominal interest rates act as a clear reflection of anticipated inflation rate. Changes that arise from spot exchange rate between two nations are equivalent to differences in nominal rates of interest (Flannery, 2011).

The Fisher's rate of interest provides a basis, in which monetary policy needs to focus on managing the expectations of inflation so as to maintain interest rate stability and promote investment and savings. Fisher (1930) tested the link between nominal rates of interest and inflationary rates using annual data in the U.S and U.K for a period spanning between 1890 and 1927 in U.S, and 1820 and 1924 in U.K and the findings showed that inflationary expectations did not reflect on interest rates instantly.

In the U.S, a correlation of 0.86 was found amid long-term interest rates and changes in prices (after lagging for over 20 years period). While in UK, for a period of 28 years, the study found a correlation coefficient value of 0.98 between interest rates and change in price. The demand for credit is affected by high interest rates and this has negative effect on the growth of the economy (Solnik, 2000).

### **2.2.2 Modern Monetary Theory (MMT)**

The MMT explains the interactions that exist between banks, governments and bank regulators. Some economists argue having a deeper understanding of reserve accounting is critical for helping an investor to understand available options for monetary policy. These theory proponents such as Randal Wray (2009), maintains that commercial banks hold accounts with central banks which limits the banks from the management of their reserves and any other amounts that is readily available in the short-term that is held by a specific bank. When the government utilizes public funds, treasury usually debits its cash operating accounts at central bank then deposits these funds into a private commercial bank account (commercial banking system). These funds are treated as an addition to the cumulative commercial bank reserves.

The theory opines that both taxes and bond provision are not the most appropriate source of fund for treasury. However, it is utilized as a tool for reserve in price stabilization as well as interest rates (Tymoigne, 2013). In many economies, the central banks hold the reserves of commercial banks and they must maintain a positive balance by close of business. In several economies, the reserve requirement are amounts that are set aside as a percentage of liabilities maintained by banks on behalf of its customers. During close of business, commercial banks need to examine their reserve accounts. The accounts with deficit have an option to borrow funds needed from central bank, in which case they might be charged a lending rate. In a balanced system, where reserves are adequate for commercial banks to satisfy the requirements, short-term interbank rates of lending may be between discount rate and support rate. Both Central bank and treasury are largely involved in managing reserve operations in order to maintain the rates of interest (Palley, 2012).

### **2.2.3 Liquidity Preference Theory**

This theory explains money demands, it is regarded as liquidity. This theory was developed from the works of John Maynard Keynes in 1936. The underlying premise of his book was explaining how demand and supply for money determined interest rate. Dimand (2008) argues that all, while considering all other things to be equal investors will go for liquid investments as opposed to illiquid assets. Investors prefer cash, as such; they will prefer investments that can easily be liquidated. As a consequence, investors will expect a premium because of tying up their cash in an investment that is illiquid. The premium will increase since investments that are illiquid will have long maturity period.

A critic such as Rothbard (1962) maintains that fallacy of mutual determination is contained in liquidity preference theory of interest. Keynes argues that the liquidity preference determines interest rate. Practically, Keynes perceives interest rate as a determinant of liquidity preference. Rothbard (1962) argues that Keynesians handle interest rates, as determinants of liquidity preference and not the manner in which they believe interest rates can do. They maintain that interest rates are some sort of mysterious force that imposes itself on other components of an economic system.

The significance of this theory to this study is that when a firm is liquid it can grasp opportunities by making investments that can promise better returns. Investors and firms are encouraged to save their money so as to accumulate interests, however according to Keynes (1964), what they get after saving is not interest but a reward to part with their money. This is because by buying bonds, these monies are reinvested in lump sum then investors get some proceeds as interests. Banks prefer to hold money (being liquid) or liquid assets as opposed to illiquid assets due to the numerous benefits that accrue when they are liquid. For instance, when banks have more deposits it can offer mortgages to its customers when rates are low and only to gain high rates of interest upon fluctuation of interest rates. As such, banks will gain from interest income and accumulate more funds to offer loans in future. Similarly, banks are ready to pay premiums to get liquid assets. On the other hand, banks will consider paying less than market value for illiquid assets. Liquid banks are more efficient in their operations since they can meet their financial obligations on time and this minimizes unnecessary costs from delays and inefficiencies, and this contributes positively towards the firm's financial performance.

## **2.3 Determinants of Mortgage Financing**

There are various factors that affect mortgage financing; these include customer deposits, bank overdraft, operational efficiency, inflation and GDP.

### **2.3.1 Customer Deposits**

Customer deposits are liabilities to the bank since it is money collected from customers. According to Jayaratne and Strahan (2012), profitability of banks have a direct positive relationship with the bank deposits. Banks that have large deposits are able to provide mortgage facilities to their customers compared to banks with low deposits. World Bank (2014) also found out that a rise in bank deposit has a direct correlation with increase in loans. It was discovered that when bank deposits increased bank capital also increased.

An increase in bank capital in turn created an opportunity for banks to generate more income through increased loan facilities among other services. Therefore, an increase in deposits led to increase mortgage finance facilities. Vittas (2012) asserts that bank deposits have a direct positive relationship with the mortgage financing. In contrast, a study conducted by Rahaman and Akhter (2015) revealed that bank deposits affected mortgage financing negatively due to increased costs of borrowing. A conclusion was drawn that over dependence on deposits and savings deposits led to a decline in earnings. Banks that report high deposits have access to more funds that can be used to finance mortgages (Welman, Kruger, Mitchell & Huysamen, 2012).



### **2.3.2 Bank Overdraft**

Bank overdraft is regarded a flexible facility on the current account of the bank which is repayable on demand. Bank overdraft is when a customer is allowed to overdraw his or her bank account to a certain amount. Bank overdraft affects mortgage financing making it impossible for a customer to finance mortgage (Ostadi & Monsef, 2014). It is a sign of lack of capacity by the customer to finance loans. Bank overdraft is a type of financing whereby the business pays interest only on the amount of overdraft facility used. However, it is critical to note that a bank overdraft is useful for short-term sources of finance and it's designed to cater for temporary cash shortages. In case a business finds itself utilizing expensive overdraft month after the other, then there is need to consider a cheaper and as such long-term type of loan is a better source of financing (Garman & Grable, 2012).

Firms might be exposed to cases of overdraft particularly when servicing loans this might lead to liquidity problems. Ostadi and Monsef (2014) argue that most banks that recorded high rates of overdrafts had high number of non-performing loans. Banks that have a large capacity for mortgage financing can easily generate and process loans without overdraft cases (Staikouras & Wood, 2011)

### **2.2.3 Operational Efficiency**

Ostadi and Monsef (2014) indicate that banks are expected to maintain a minimum level of liquid assets. This is intended to ensure that the banks are liquid so as cater for their financial compulsions. Banks assume a status of high liquidity to consolidate enough funds to be able to fund mortgage facilities to customers.

Commercial bank regulators expect commercial banks to hold a certain level of liquid assets. This is aimed at ensuring that commercial banks have adequate liquidity to deal with bank runs particularly when default risks are high. A bank becomes liquid if it is able to accumulate enough cash and finance its borrowers comfortably and ensure that loans are paid back on time. When a bank records increases in non-performing loans its default rate also rises, banks might be forced to raise more funds through the process of borrowing or disposing some liquid assets which might create an impression to investors that the bank could be disposing bad assets. Thus, attract lower prices for liquid assets which might expose the bank to loss of income from the sale of liquid assets (Staikouras & Wood, 2011).

#### **2.3.4 Macro-economic Factors**

Macro-economic factors also affect mortgage financing. This section will discuss how interest rate and gross domestic product affects mortgage financing among commercial banks. The rate of interest is paid by a debtor as a result of using borrowed funds from a lender. There exist different kinds of mortgages which include fixed interest contracts that are usually due after a sale. Fixed rate types of loans are assumed by the buyer through a floating a rate of instrument (Ostadi & Monsef, 2014). When rates of interest rise, it results into a loss of economic value of assets in savings and loan portfolio varies from one mortgage to another. Cashflow got from mortgage remains constant for fixed interest rate contract as far as it is prepaid. When rates of interest increase; the client gains from nominal capital since the loan is less than market rates of interest. Hence such a client is more likely to prepay. Decline in savings and loans are driven by two critical factors namely interest rate differential involving a fixed duration and endogenous

lengthening of a duration. When the rates of interest exceed the contracted rate, mortgage holders may be compelled to give-up their loans below market rates when the house is being disposed. There exists a huge similarity between a mortgage asset and annuity.

Mortgage holder gets a fixed stream of interests during the contract. Value of assets is easily affected by changes (fluctuations) of interest rates. Changes in rates of interest (rate of discount) for instance from 10% to 11% might alter the nominal value of a mortgage (30-years) with a significant margin of approximately 10% (Staikouras & Wood, 2011).

Inflation rate is controlled by the rate of interest rate. Interest rate affects the ability of an individual to purchase residential property. This affects the cost of mortgage rates and financing that in turn affects property. This rate has an impact on the return on substitute investments and changes in price (Alper & Anbar, 2012). Inflation minimizes the value for money making it difficult for individuals to afford a living. Inflation takes place when financial and economic changes, expected or actual, trigger demand for products and services to rise above the current level of supply at existing rates. Real interest rate is computed in response to supply and demand that is found at the financial market. The bank charges the customer the nominal rate of interest for the mortgage and this adds on annual percentage rate of inflation (Ashim & Ranjula, 2013).

GDP is a measure of products and services which are produced in an economy. The housing sector makes a significant contribution to the overall production activities of a country in many ways. Low GDP is a clear indication that the purchasing power of the population might decline and thus real estate demand will certainly decline as a result

mortgage financing will decline. Equally, when the level of GDP increases, the purchasing power also increases and this increases the demand for real estate leading to an increase in mortgage financing. When an economy stagnates, real estate industry also gets affected. However, housing demand is based on the income of the population.

Kashyap and Jeremy (2014) argue that high levels of economic growth (GDP) leads to an increase in income which results into an increase in spending particularly on housing (mortgages), this raises demand levels. Rasiah (2010) did an investigation on the effect of economic growth on mortgage financing in Lagos Nigeria and a positive correlation between GDP and mortgage financing was discovered.

## **2.4 Empirical Studies**

Garman and Grable (2012) investigated the variations in performance of agricultural farms with changes in interest rates. The study, which was conducted in Amsterdam, Holland, indicated that financial performance of the firms and interest rates has an inverse correlation. The study relied on credible secondary data based on the currency; it was only collected from sources within five years from 2008. Regression model was used in analyzing the data, leading to conclusion that when the interest rates were low borrowers borrowed more money to make investments since the cost of borrowing was low. This study was carried out in a different context (agricultural sector) other than the banking sector.

Njongoro (2013) examined the effect of mortgage interest rates on growth of mortgage financing in Kenya, a descriptive research design was used to study a population included 44 commercial banks. Secondary sources of data were obtained from annual reports from

CBK. Descriptive statistics results discovered that mortgage outstanding and rates of interest increased in the period of study. Regression analysis depicted a strong and inverse relationship was established between mortgage interest and growth of mortgage financing. A strong and inverse relationship was found between mortgage interest and growth in mortgage financing. Mortgage interest rate and non-performing loans were deemed as non-predictors of mortgage growth.

Ashim and Ranjula, (2013) investigated the effects of high interest rates by commercial banks in improving profitability, altering the company's mission, and reducing the repayment rates. For six years from 2003, instrumental variables (IV) were employed to investigate the endogeneity issues. The study relied on data collected from global database of 310 commercial banks in 71 countries. The findings indicate that the financial performance of banks is influenced by interest rates. The rates also affect the loan repayment rates.

Kar and Swain (2014) did an investigation of whether commercial banks interest rates had an impact on financial performance. Regression analysis was used to analyze data from a sample of 50 banks and the findings of the analysis indicated that there was a positive link between interest rates and financial performance of microcredit firms. These studies (Ashim and Ranjula, 2013; Kar and Swain, 2014) were done in global settings whose situations are dissimilar.

Wensheng et al. (2013) explored the level of interest rate shocks impacts performance of the banking sector. The effect on the quality of assets in turn affects the net interest margin and the provisioning charges. Empirical data for the period between 1992 and 2002 reveals that rise in risk premium decreases the net interest margin.

The response is because the variation in risk premium has a greater effect on interest rate charged on deposit compared to the lending interest rate. During the period of study, there was minimal impact on the margin when domestic interest rate was varied along with the US interest rate. This narrowed down on shocks of interest rates however this study is explicitly looking at how capping of interest rates affects commercial banks' financial performance.

Karanja (2015) studied how commercial banks in Kenya profitability is affected by mortgage financing. A census survey was carried out for the 44 commercial banks in Kenya. The population of this study comprised of financial managers and credit managers from the mortgage financing institutions in Kenya. Primary sources of data were gathered using questionnaires and secondary sources of data was got from annual reports of commercial banks. Regression analysis and correlation analysis was carried out and the findings showed that mortgage financing improved bank profitability. Mortgage financing was positively linked to bank profitability.

Nyanchoka (2015) explored the effect that interest rates had on mortgage uptake of financial institutions in Kenya. A descriptive design was employed involving a sample of 44 firms offering mortgage financing. The research covered a period between 2004 and 2013. Published and quarterly data was utilized from National Bureau of Statistics and

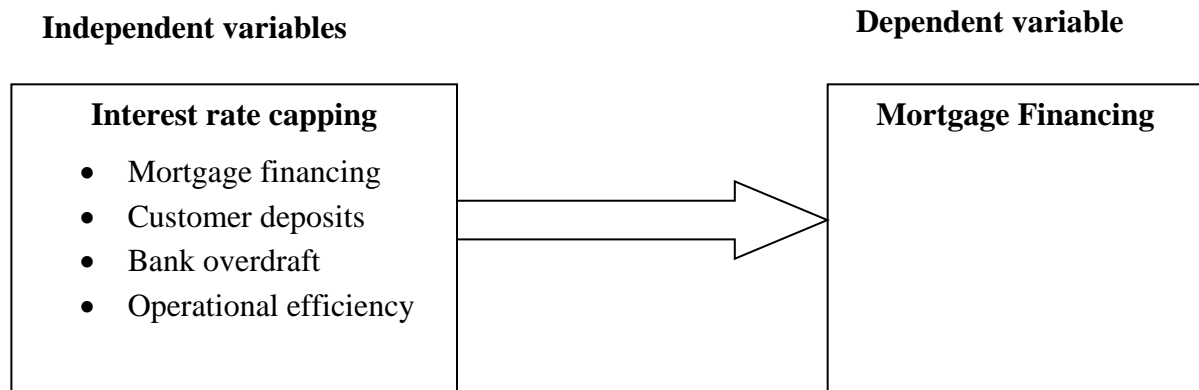
CBK. Descriptive statistics and inferential statistics were used in analysis. It was found that money supply, rate of interest and inflation was significantly linked to mortgage uptake, GDP was insignificantly related. It was concluded that rates of interest impacted negatively on mortgage uptake; an increase in rates of interest resulted into a decline in mortgage uptake.

Okang'a (2015) tested the effect that mortgage interest rates had on growth of mortgage financing among Kenyan financial institutions. The study employed a descriptive research design. Study population was 44 commercial banks including housing finance bank. The study spanned for a period of 3 years (2012-2014). Descriptive statistics and regression analysis was carried out. Regression analysis showed a weak and positive relationship between mortgage interest rates and growth in mortgage financing.

Ng'ang'a (2017) examined the impact of interest rate capping on financial performance of commercial banks in Kenya. Descriptive research design was relied to study a population of 42 commercial banks using secondary sources of data for period of 5 years and the regression analysis and descriptive statistics was used to carry out the analysis. The study found that interest rate spread was negatively linked to ROE. Non-performing loans and operating efficiency was inversely related to ROE.

## **2.5 Conceptual Framework**

Conceptual framework outlines the link between interest rate capping (independent variables) and mortgage financing (dependent variable). It was hypothesized that interest rate capping would have an effect on mortgage financing of commercial banks in Kenya.



**Figure 2.1 Conceptual Framework**

## **2.6 Summary of the Literature Review**

The literature review is anchored on the following theories theory of interest, modern monetary theory and liquidity preference theory. The theories demonstrate existence of the relationship between interest rate capping and mortgage financing; this is also supported by empirical studies but there lacks clarity and consensus on the link between interest rate capping and mortgage financing: Wensheng et al. (2013) found that interest rate capping was positively linked to performance. Okang'a (2015) found a weak and positive association between mortgage interest rates and growth in mortgage financing and Nyanchoka (2015) revealed that interest rates were inversely linked to mortgage uptake. Secondly, although studies have been done on interest rate capping and mortgage financing, several studies have dwelt on the link between interest rate capping and financial performance (Ashim & Ranjula, 2013; Karanja, 2015; Nyanchoka, 2015; Ng'ang'a, 2017). It is against this backdrop that this research found it necessary to establish the effect of interest rate capping on mortgage financing of commercial banks in Kenya.



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter provides the methodology that was used to realize the objective for this study. Research methodology is described as a method of collecting and analyzing data to answer the research question. It covers the following sections research design, target population, data collection and data analysis.

#### **3.2 Research Design**

This study used a descriptive research design. Cooper and Schindler (2008) explains that a descriptive research design is an overall strategy chosen by the researcher to combine several elements of a study in a consistent and logical approach by ensuring that the research questions are addressed. This form of design was applied in establishing the nature of current and existing conditions. In this study, the researcher used this design to establish the relationship between interest rate capping and mortgage financing among commercial banks.

#### **3.3 Target Population**

Population is defined as a sum total of items having similar characteristics. A target population comprises of people and objects that the researcher seeks to generalize study findings (Mugenda & Mugenda, 2003). The target population for this study included commercial banks and mortgage finance institutions that had been operational within the

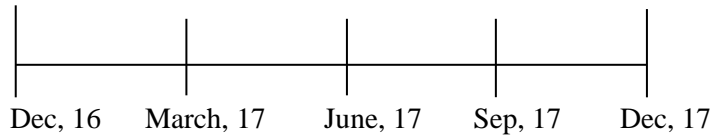
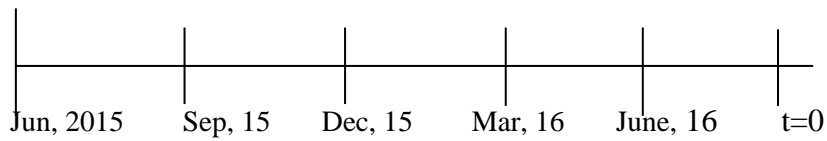
study period. A census was used since the population was small and hence no sampling was conducted.

### **3.4 Data Collection**

Secondary data was used. Monthly data was obtained from CBK websites from June, 2015 to December, 2017. The choice of this type of data was because the study was quantitative in nature. The advantage of this kind of data is because it is easy to access and verify. Continuous data was used in a period of 30 months between June, 2015 to December, 2017. This period covered the time prior to the introduction of interest rate capping and the period after introduction of interest rate capping, November 2016 to December, 2017.

### **3.5 Data Analysis**

Descriptive statistics and Paired t-test were done to demonstrate the analysis and comparison of the period before and after capping of interest rates. Capping of interest rate was handled as an event, and so some aspects of event methodology study were applied for example the event day is when capping of interest rate was effected, and this will be denoted by  $t=0$ . Change in independent variables (mortgage financing, customer deposits, bank size, liquidity management, inflation and GDP) in the five quarters before and after capping was effected, analysis was done and the results compared. These two periods were statistically tested using t-test assuming 5% significant level.



### **3.5.1 Diagnostic Tests**

#### **3.5.1.1 Normality Tests**

Normality tests were conducted to test whether a data set was normally distributed. The test was meant to detect the likelihood that random variables that underlie the data set were normally distributed.

#### **3.5.1.2 Multicollinearity Tests**

Multicollinearity is a situation where 2 or more explanatory parameters in a regression model are highly and linearly related. VIF range from 1 upward. When VIF increases, it implied that the regression outcome was less reliable. A VIF that exceeded the value of 10 meant that correlation was high hence a cause for alarm. Some scholars recommend for a more conservative level of 2.5 or above.

#### **3.5.1.3 Heteroskedasticity Tests**

Heteroscedasticity is defined as a systematic change in spread of residuals over a given range of measured values. The researcher used Breusch-Pagan test, this test was designed to establish any linear kind of heteroskedasticity. This test is chi-squared tests; when the

test statistic had a p-value of less than 5%, null hypothesis of homoscedasticity was rejected and heteroskedasticity assumed.

### **3.5.2 Tests of Significance**

The researcher conducted t-test to determine the observations before-and-after on study variables. Paired t-test was carried out to test if there was any significance difference between study variables before and after capping of interest rates.

## CHAPTER FOUR

### DATA ANALYSIS, RESULTS AND DISCUSSIONS

#### 4.1 Introduction

Descriptive statistics enables the researcher to have a clear picture concerning the pattern and trend of study variables over a period of study and this makes it easy to present data in a manner that is easy to interpret and comprehend. With descriptive statistics, the researcher can easily generalize the study population. This chapter provides a discussion of diagnostic tests based on statistical assumptions of regression analysis and descriptive statistics on interest rate capping and mortgage financing.

#### 4.2 Tests of Normality

Normality tests were carried to establish whether data set was well-modeled in a normal distribution and to compute the possibility for a random variable that underlie the data set to be distributed normally. The results are shown in table 4.1.

**Table 4.1: Normality Tests**

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Mortgage Financing ratio	.310	5	.131	.871	5	.272
Bank overdraft	.242	5	.200*	.889	5	.351
Customer deposits	.354	5	.039	.756	5	.053
Operational Efficiency	.283	5	.200*	.874	5	.282
Lending Rates	.215	5	.200*	.899	5	.403
Mortgage Financing ratio after	.202	5	.200*	.933	5	.619
Bank overdraft after	.418	5	.054	.642	5	.059
Customer deposits after	.199	5	.200*	.907	5	.448
Operational Efficiency after	.226	5	.200*	.948	5	.725
Lending Rates after	.468	5	.061	.562	5	.09

The results in table 4.1 show that all the study variables are normally distributed since their level of significance (p-values) exceeds 0.05, (0.272, 0.351, 0.053, 0.282, 0.403, 0.619, 0.059, 0.448, 0.725 & 0.09, respectively).

### 4.3 Descriptive Statistics

Descriptive statistics involves measures of central tendency; mean and standard deviation, maximum and minimum as well as skewness. Mean is a central value of a set of numbers, it measures central tendency which is used to describe typical values. Standard deviation is the spread of values in a sample and skewness measures whether the data is symmetry or not.

**Table 4.2: Descriptive Statistics**

Capping	Variable	Mean	Standard Deviation	Skewness	Minimum	Maximum
0	Mortgage financing	.1450	.04461	.760	.10	.21
0	Customer deposits	52843.0078	2799.13503	-.857	49104.23	55297.81
0	Operational efficiency	.6356	.05128	.448	.58	.71
0	Lending rates	16.9361	1.03504	-.108	15.57	18.15
0	Bank overdraft	17.124	1.249	-0.308	15.43	18.28
1	Mortgage financing	.2071	.05187	-.594	.12	.27
1	Customer deposits	53546.9644	3507.11065	.043	48153.65	58755.96
1	Operational efficiency	.6015	.03393	-.673	.54	.64
1	Lending rates	13.6000	.16242	-2.504	13.24	13.69
1	Bank overdraft	13.849	1.085	1.791	16.51	13.27

The results in the above Figure 4.2 shows that before capping of interest rate, mortgage financing recorded the highest ratio at 0.21 and a minimum of 0.10 with a standard deviation of 0.04461. However, after capping of interest rate, mortgage financing increased, it attained the highest ratio of 0.27 from 0.12 with a higher mean of 0.2071.

These imply that more mortgages were issued by banks and mortgage financing institutions after capping.

Prior to capping of interest rate, the mean value of customer deposits was KES 52843.0078. After capping of interest rate, the mean value of customer deposits rose to KES 53546.9644; a margin of KES 703.9566, this was an indication that customer deposits increased because banks were forced to provide an interest rate of at least 7.5% of savings to customers.

Prior to interest rate capping, the mean value of operational efficiency was 0.6356. Operational efficiency increased with a significant margin of 0.13 during this phase. However, after capping, the mean value of operating efficiency declined to 0.6015 but it increased during this phase with a margin of 0.10, this decline in operational efficiency after capping of interest rates might have been attributed to increased costs of processing loans.

Prior to capping of interest rates, the lending rates had a mean of 16.9361. After capping, the lending rates declined significantly to a mean of 13.600, during this period an insignificant increase in lending rate was recorded from 13.24 to 13.69.

Before interest rates capping, bank overdraft attained a mean of 17.124 and a standard deviation of 1.249. However, after capping of interest rates, bank overdraft declines significantly to 13.849 with standard deviation of 1.085. This was an indication that commercial banks became stricter in ensuring that credit policies were complied with when providing credit facilities and loans.

#### 4.4 Paired Sample T-test

A paired t-test is applied to compare two means of population where there are two samples; the observation from one sample is compared to observations in another sample. This test is carried out to determine the observations before-and-after on similar study variables. A paired t-test was applied to test whether there was any significance difference among variables after interest rate capping.

**Table 4.3: Paired Samples T-test**

		Paired Differences						
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	Sig. (2-tailed)
					Lower	Upper		
Pair 1	Customer deposits after - Customer deposits	-1543.6664	4594.6602	2054.7945	-7248.6907	4161.3579	-.751	.494
Pair 2	Bank overdraft after - Bank overdraft	-3.0600	2.4573	1.0990	-6.1111	-.0088	-2.784	.040
Pair 3	Mortgage Financing ratio after - Mortgage Financing ratio	.00400	.08849	.03957	-.10587	.11387	.101	.924
Pair 4	Lending Rates after - Lending Rates	-2.7710	2.2413	1.0024	-5.5540	.0120	-2.764	.001
Pair 5	Operational Efficiency after - Operational Efficiency	-.0286	.0601	.0269	-.1033	.0461	-1.064	.347

The results depict that bank overdraft and lending rates were statistically significant in the two periods (before and after interest rate capping), since their p-values was below 5% (0.040 & 0.001, respectively). These variables recorded the highest mean value (3.0600 & 2.7710, respectively). These imply that interest rate capping had an effect on mortgage financing. The findings further discovered that mortgage financing, customer deposits and operational efficiency were insignificant since their p-values were greater



than 5%, (0.924, 0.494 & 0.347, respectively). These variables were not affected by capping of interest rates.

#### **4.5 Discussion of Findings**

The results discovered that before interest rate capping, mortgage financing ratio attained a mean of 0.1450, this mean increased to 0.2071 after capping. These imply that banks provided more financing for mortgage after capping. These results are consistent to Murimi (2017) who found that interest rate capping resulted into an increase in mortgage financing among commercial banks. The findings discovered that capital adequacy increased with a slight margin from 2309 to 2349. This might have been attributable to reduced levels of the bank's risk of insolvency from losses which originated from high rate of loan defaulters. These findings are in line with the suggestions of Meja (2017) who found that interest rate capping led to an increase in capital adequacy.

Prior to interest rate capping, the mean value of customer deposits was KES 52,843, then after capping the mean value of customer deposits increased to KES 53,547. These findings are consistent to the views of Othigo (2017) who concluded that customer deposits increased after capping. Commercial banks' operational efficiency deteriorated with a significant margin from 0.6356 to 0.6015 upon capping of interest rate. These results conform to the observations of Ng'ang'a (2017) who found that operational efficiency declined after capping was effected. Lending rates decreased immediately after capping of interest rate was effected. The mean value of lending rates among commercial banks before capping was 16.936, these rates declined to a mean value of 13.600. These

findings are in agreement to a study by Meja (2017) who established that lending rates declined significantly after capping was effected.

Bank overdraft also declined significantly among commercial banks after capping was effected, from a mean value of 17.124 to 13.849. These findings are supported by the observations made by Kashyap and Jeremy (2004) who founded that non-performing loans declined after interest capping was effected. In view of this, commercial banks have become vigilant in implementing credit policies to minimize risks of default.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter provides comprehensive findings on descriptive statistics and inferential statistics and their interpretation. These findings have been discussed in line with the research objective which was determining the effect of interest rate capping on mortgage financing of commercial banks in Kenya. The sections discussed under this chapter include major findings, recommendations, limitations and areas for further research.

#### **5.2 Summary of Findings**

Prior to capping of interest rate, mortgage financing recorded a mean value of 0.1450 which increased to 0.2071. This was an indication that commercial banks increased their financing on mortgage loans since after the capping of interest rates, they worked harder to provide mortgage loans in order to cover for lost revenues through the interest income. These findings abide to the observations of Ng'ang'a (2017) who found an increase in gross loans and advances issued to customers, however, non-performing loans declined significantly. It was further revealed that capital adequacy increased upon interest rate capping. This was attributed to reduced levels of bank insolvency and minimized default risk. When interest rate was effected, the mean value of capital adequacy increased to 0.245 from 0.228. These findings are in consonance with the observations of Meja (2017) who discovered that capital adequacy increased after interest rate capping.

The findings observed that customer deposits increased moderately after interest rate capping. The mean value of customer deposits was found to be KES 52,843, after capping of interest rate, customer deposits rose to KES 53,547. However, a study by Staikouras and Wood (2011) found that customer deposits declined following the introduction of interest rate capping. Commercial banks operational efficiency declined with a moderate margin 0.0341 after capping of interest rates. These results abide to the views of Meja (2017) who found that commercial banks level of operating efficiency declined significantly after capping. These might have been attributable to increased cost of processing loans among other stringent credit requirements by commercial banks.

Lending rates declined with a significant margin immediately capping was effected. The average rate of lending of commercial banks before capping was 16.9361. However, after capping, lending rates decreased to 13.6000. These findings are supported by (Meja, 2017; Ng'ang'a, 2017). Moreover, bank overdraft declined with a significant margin of 3.275; due to effective use of credit policies by commercial banks to deal with lost interest incomes from capping of interest rates. These results conform to a study carried out by Kashyap and Jeremy (2004) who unraveled the existence of a significant decline in non-performing loans upon the adoption of interest rate capping.

The findings of Paired t-test depict that lending rates and bank overdraft had significant differences in the study period (pre-and-post interest rate capping). These observations are supported by Meja (2017) who established that lending rates and loan quality attained significant differences before and after capping of interest rates. The findings further revealed that customer deposits, mortgage financing and operational efficiency were

insignificantly related within the study period. In view of this, a study by Murimi (2017) discovered that operational efficiency and customer deposits attained insignificant differences prior and after capping.

### **5.3 Conclusion**

The study concludes that generally, interest rate capping has impacted positively on mortgage financing, bank deposits, lending rates and bank overdraft. Descriptive statistics results show that mortgage financing and capital adequacy increased within the study period, this imply that most commercial banks maintained adequate levels of capital which they issued to customers as mortgage loans. It was further discovered that customer deposits increased during the study period, this was a sign that customers had confidence in banks; which might have been attributed to increased bank profitability even after capping of interest rate. Operational efficiency and lending rates declined significantly after the cap was effected. This is because demand for loans increased resulting into inefficiencies from loan processing due to strict credit procedures and regulations put in place to ensure unworthy credit customers were disqualified from loans and other credit facilities. Moreover, the findings showed that bank overdraft declined significantly after capping due to bank strict measures effected by commercial banks on credit policies to compensate lost revenues from interest incomes.

The study further concluded that lending rates and bank overdraft showed significant differences prior and after capping of interest rates. Customer deposits, mortgage financing and operational efficiency showed insignificant differences during the study period.

#### **5.4 Recommendations**

The study recommends that the interest rate capping should be upheld. Although there were complains that interest rate capping would impact negatively on commercial banks performance, today banks have tried to maintain their profitability and overall performance. Many bank customers can access loans and credit facilities to grow and expand their businesses and this has impacted positively on economic growth.

Interest rate capping resulted into a huge decline in interest income from loans. It highly recommended that commercial banks should invest more in modern technologies such as information communication technology and research in order to provide superior products and services that continuously satisfy customers evolving needs and remain competitive in the market. This will boost commercial banks efficiency and overall bank performance.

#### **5.5 Limitations of the Study**

The study utilized secondary sources of data that consist of general-purpose reports which are historical and easily to manipulate. This kind of data is not accurate and reliable and this might impact negatively on the quality and reliability of findings.

The research used a descriptive research design accompanied by research questions. The major shortcoming for this research is that although the researcher established the direction and the nature of existing relationships between variables, it was difficult to establish the 'cause and effect' relationship between variables.

This research utilized a descriptive kind of research design with a clearly defined research question. This type of research design main weakness is that it cannot establish causality between variables. Even though with descriptive research design, the researcher was able to establish the nature of existing relationships among variables, the causal effects of this study were not explored.

This study spans for a period of 30 months; it is advisable for future researchers to do a longitudinal study that covers for a period of say, 5 years. This way, the researcher will be able to establish the nature of existing relationships between the variables accurately.

### **5.6 Suggestions for Further Research**

It is important for future researchers to consider investigating the long-term effect of interest rate capping on mortgage financing of commercial banks. This will help to inform commercial banks and finance practitioners on the long-term effect of interest rate capping and its sustainability on mortgage financing. This will help to shape the opinion of commercial banks and government on whether to maintain or abandon the law on interest rate capping.

Interest rate capping also affects the economy. It is necessary for future researchers to do a research on how capping affects macro-economic factors such as gross domestic product and inflation and the implication that these have on the overall economy.

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## APPENDICES

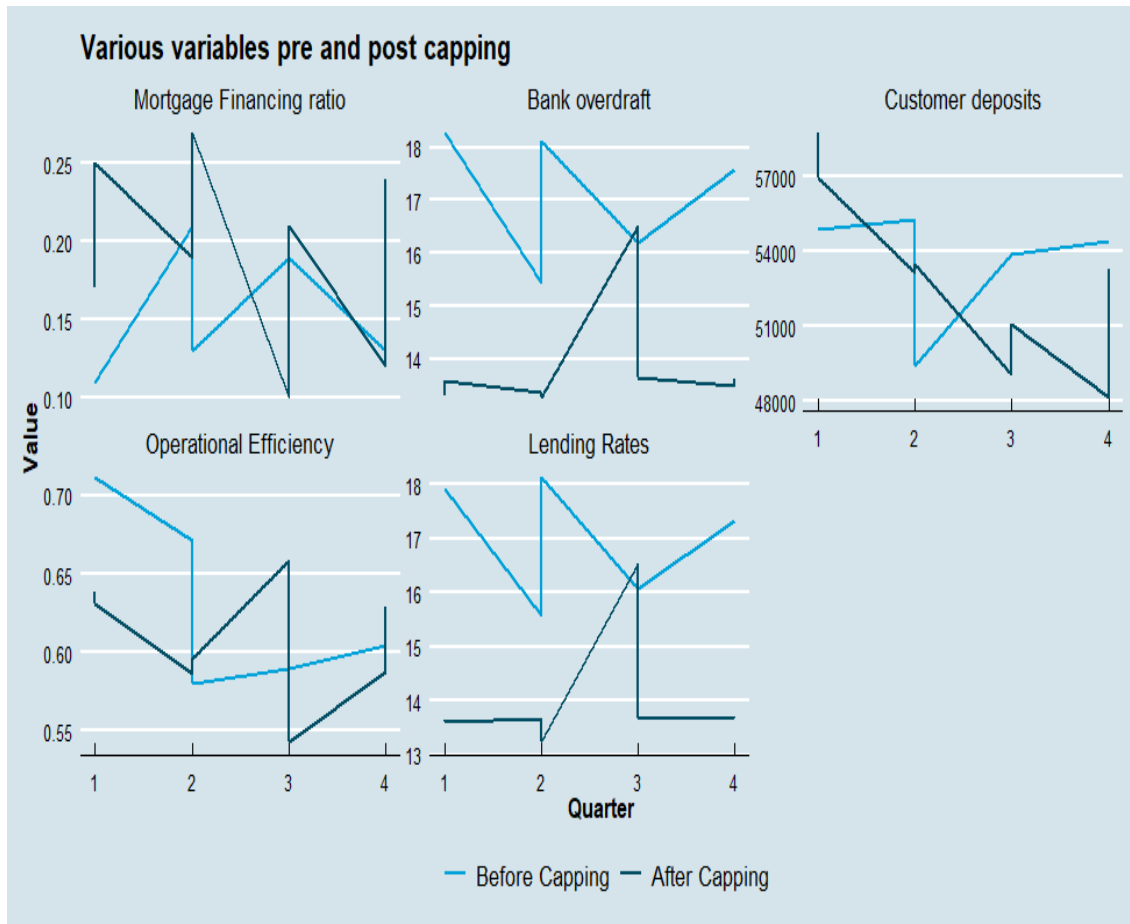
### **Appendix I: List of Commercial Banks and Mortgage Finance Institutions in Kenya**

1. African Banking Corporation Limited
2. Bank of Africa Kenya Limited
3. Bank of Baroda (K) Limited
4. Bank of India
5. Barclays Bank of Kenya Limited
6. Charterhouse Bank Limited
7. Chase Bank (K) Limited
8. Citibank N.A Kenya
9. Commercial Bank of Africa Limited
10. Consolidated Bank of Kenya Limited
11. Co-operative Bank of Kenya Limited
12. Credit Bank Limited
13. Development Bank of Kenya Limited
14. Diamond Trust Bank Kenya Limited
15. DIB Bank (Kenya) Limited
16. Ecobank Kenya Limited
17. Spire Bank Limited
18. Equity Bank Kenya Limited
19. Family Bank Limited
20. Fidelity Commercial Bank Limited
21. First Community Bank Limited
22. Guaranty Trust Bank (K) Limited
23. Guardian Bank Limited
24. Gulf African Bank Limited
25. Habib Bank A.G Zurich
26. Habib Bank Limited
27. Imperial Bank Limited
28. I & M Bank Limited

29. Jamii Bora Bank Limited
30. Kenya Commercial Bank Limited
31. Middle East Bank (K) Limited
32. National Bank of Kenya Limited
33. NIC Bank Limited
34. M-Oriental Bank Limited
35. Paramount Bank Limited
36. Prime Bank Kenya Limited
37. Sidian Bank Limited
38. Stanbic Bank Kenya Limited
39. Standard Chartered Bank Kenya Limited
40. Trans-National Bank Kenya Limited
41. UBA Kenya Bank Limited
42. Victoria Commercial Bank
43. HFC Limited

**Source: CBK, 2018**

## Appendix II: Study Variables Line Plots



### Appendix III: Secondary Data

<b>Interest rate capping</b>	<b>Mortgage Financing ratio</b>	<b>Bank overdraft</b>	<b>Customer deposits</b>	<b>Operational Efficiency</b>	<b>Lending Rates</b>
6/1/2015	0.21	15.43	55297.808	0.671	15.571
9/1/2015	0.19	16.21	53914.296	0.59	16.083
12/1/2015	0.13	17.58	54396.089	0.604	17.347
3/1/2016	0.11	18.28	54885.119	0.712	17.927
6/1/2016	0.13	18.12	49460.508	0.58	18.147
<b>9/1/2016</b>	<b>0.1</b>	<b>16.51</b>	<b>49104.226</b>	<b>0.659</b>	<b>16.54</b>
12/1/2016	0.12	13.49	48153.647	0.588	13.687
3/1/2017	0.17	13.3	58755.958	0.638	13.653
6/1/2017	0.19	13.37	53120.712	0.586	13.66
9/1/2017	0.21	13.65	51100.944	0.543	13.68
12/1/2017	0.24	13.61	53285.224	0.629	13.677
3/1/2018	0.25	13.59	56914.724	0.631	13.607
6/1/2018	0.27	13.27	53497.543	0.596	13.237