## EFFECT OF INTEREST RATE CAPPING ON THE FINANCIAL PERFOMANCE OF COMMERCIAL BANKS IN KENYA

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# A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN FINANCE, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

**DECEMBER, 2018** 

## DECLARATION

This research project is my original work and has not been submitted for examination in any other university.

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

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Dr. Lishenga

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#### DEDICATION

Special dedication of this research project goes to the Almighty God Whose grace has been sufficient upon my life and for giving me the opportunity to finish what He helped me start. To my late dad Mr. Joseph Njuguna Ndiki for always giving me the best in terms of opportunities, and the freedom to choose the path of life. His words still ring through my ears "You are not yet educated until you become a professor". His belief in my capabilities gave me immense confidence in my undertakings and pursuits in life.

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## ABBREVIATIONS AND ACRONYMS

AQ	Asset Quality
СВК	Central Bank of Kenya
FGLS	Feasible Generalised Least Square
NACOSTI	National Council of Science and technology
NIM	Net Interest Margin
OLS	Ordinary Least Square
OLS	Ordinary Least Square regression
ROA	Return on Assets
ROE	Return on Equity

#### ABSTRACT

The study sought to analyze the effect of interest rate capping on the financial performance of commercial banks in Kenya. The study employed descriptive research design. The target population was 43 Kenyan commercial banks. From the results of correlation analysis, the asset quality and financial performance of commercial banks in Kenya are negatively but significantly associated. Management efficiency and financial performance of commercial banks in Kenya was found to be positively and significantly associated. The correlation results found that bank size and financial performance of commercial banks in Kenya are positively and significantly associated. Finally, leverage had a negative and significant association with financial performance of commercial banks in Kenya. The model summary revealed that the independent variables: asset quality, management efficiency, bank size and leverage were found to be reliable indicators of financial performance of commercial banks in Kenya pre interest rate capping. Asset quality, management efficiency, bank size and leverage explain 47.1% of variation in the financial performance of commercial banks before interest rate capping. However, after interest rate capping asset quality, management efficiency, bank size and leverage explain 15.63% of variation in the financial performance of commercial banks. Regression results showed that asset quality has a negative and statistically significant relationship with financial performance of commercial banks, management efficiency has positive and statistically significant relationship with financial performance of commercial banks. Further, regression results indicated that the influence of asset quality, management efficiency, bank size and leverage on financial performance of commercial banks before interest rate capping was higher as compared to the influence after interest rate capping. This implies that interest rate capping leads to decline in financial performance of commercial banks. It was the conclusion of the paper that for asset quality to be sustained there should be prudent processing of loans which should meet the compliance of laid down rules by the regulator to minimize poor asset quality which affects both the soundness of the banking system but also the financial performance. The study further concludes that efficient banks will increase their competitiveness, scale much quicker, thereby ensuring a greater market share. In line with the findings highlighted, the study concluded that bank size has a positive and significant relationship with financial performance of commercial banks. It was also concluded that banks that have an appetite for high leverage stand a greater risk of going bankrupt if they fail to finance their debts, which may also curtail their ability to attract financing in the future. The study recommends that commercial banks commercial banks ought to diversify their product portfolio in order to increase revenue streams and supplement their income from their mainstay business. They should also maximize their resource allocation in order to improve their profitability. Product diversification should be on products that are not affected by the capping law. It also recommends that banks engage in volumisation strategy banks should mine their existing clients thoroughly by ensuring that clients are utilizing all products in the various suites. This full utilization of the various products in different suites will generate more fees for the banks. It is also recommended that commercial banks should also progressively phase out the brick and motor model they have been riding on over the years. The setting up of physical branches is a capital intensive process that drains up the banks' capital which is much needed elsewhere. The study recommends that future research should introduce a moderating variable to the model. The moderator could be the regulatory environment. Future research should also consider having a regional perspective. It should especially focus on countries that have capping effected but on specific industries.

#### **CHAPTER ONE: INTRODUCTION**

#### **1.1 Background Information**

Financial controls such as capping of interest rates has been reducing over the last few decades as industrialization and development continues to take root in countries. Liberalization of financial policies has been a key feature for developing countries as the realization that a liberalized market opens up the markets. An argument made by proponents of the liberalization policies is that it makes the financial markets more accessible and impacts positively on productivity, growth and the reduction of poverty in countries (Bekaert *et al*, 2011).

The financial crisis of 2007-2008 opened up the debate of controls on interest rates in order to protect consumers. The view by politicians and policy makers who saw it as a tool for consumer protection against commercial banks avarice has gained currency in countries across the world. Interest rate caps were introduced in Kyrgyz Republic, Zambia and El Salvador, in the first two countries they were introduced in 2013 and 2012 in the last. Japan which already had caps in place only made them more restrictive after the 2007-2008 financial crisis.

There has been both economic and political motives for the advancement of interest rate caps in countries, some of the reasons advanced are existence of market failure in the economy, propping up and supporting a specific industry, and in some instances where there is need to have financial resources concentrated in a certain industry (Aboagye *et al*, 2013). Information asymmetries that result from market failure make it difficult for commercial banks to separate between safe and risky clients from moral hazard and adverse selection. In this instances it has been argued interest rate caps are useful mechanism for providing credit in the short-term to strategic industries until they are sustainable (Moore and Craigwell, 2013).

Demirgic- Kunt *et al*, (2012) have argued in countries where commercial banks have immense market power limiting the price of credit to consumers particularly the vulnerable the interest rate cap regime can be justified. There is empirical evidence to suggest that interest rate caps were successful in the Korea Republic in the period of 1956- 1994. It has been argued that the liberalization of the financial market in the republic of Korea did not increase financial access significantly.

There has been a counter argument against the use of interest rate cap as a tool for financial control by others (Weth, 2012), they argue it is an inefficient tool for helping people and businesses access credit especially in the long run. It has been argued the above policy reduces transparency, narrows product diversity, competition and limits access to credit. Those against caps argue that it is not the most effective and efficient way for policy makers to address the challenges faced in the market.

Those who advance the counter argument against of capping of interest rate aver that if they are set at unprofitable levels commercial banks and microfinance institutions end up withdrawing from certain segments such as rural areas because of the cost barriers which they view as prohibitive at the low penetration levels. This will lead low income borrowers who have minimal options to turn to unlicensed money lenders who will probably charge them at a higher rate (World Bank, 2015).

## 1.1.1 Interest rate Capping

Interest rate cap refers to a ceiling or floor set on interest rate to be charged on loans or paid for deposits. The interest rate is allowed to move freely up to the capped rate above or below which it cannot move. It is a form of financial control imposed by regulators for different reason s especially in cases where market failure exists. The capping can be imposed to specific segments of the market such as agricultural industry or the manufacturing in some cases blanket caps are imposed on lending all sectors.

Barketer *et al*, (2014) in their paper on interest rate controls described capping as a form of financial control that was employed in situations where market failure exists. They argued that capping though punitive to financial institutions it had a positive impact on businesses and the economy. In their study they surveyed commercial banks in five counties where interest rate capping had been effected and found varying levels of successes and failures once the capping had been effected.

There has been sharp criticism over interest rate capping with critics pointing out that it is just a populist political policy with no substantive evidence of its advantages. Critics argue that in countries where interest rate capping has effected there has been negative ramifications. Critics argue that most of those policies are ill timed, poorly thought out and driven with political and populist agenda (Chirwa, 2013). According to the World Bank (2015) consumers have been found to be the biggest losers when such policies are implemented.

Interest rate capping for all its shortfalls has been credited as an effective tool against commercial bank avarice. It has helped slowdown the constant increase of the cost of credit and protect the consumers against the exploitative tendencies of commercial banks. It has helped bring discipline

to the otherwise unruly banking sector that has for long been accused of pushing the boundaries and stretching the limits of laws and regulation.

#### **1.1.2 Financial Performance**

Ndungu and Ngugi (2015) aver that an indication of the profitability of a firm relative to its asset base is a measure of financial performance. Khawaja and Musleh (2014) define it as the ability of a firm to sustain its revenue and growth. An industry that can sustainably post profitable results over a long duration of time can withstand the negative shocks in an economy. Profit is considered a key metric for financial performance measurement in all industries (Aura *et al*, 2013).

Among the ratios applied to determine commercial bank financial performance are; Return on Asset, Return on Equity and the Net Interest Margin (NIM) (McShane and Sharpe, 2015). Ratio Analysis, Trend Analysis and the Cross sectional analysis are some of the techniques used for analysis of financial performance. ) (McShane and Sharpe, 2015) argued that the above metrics give an objective assessment of the company's financial performance because they eliminate the effect of size in their calculation.

McShane and Sharpe, 2015 in their argument stated that two different firms with different size can be easily compared using ratios. There are 5 categories of ratios: liquidity, turnover, profitability, leverage, and valuation ratios. The assessment and analysis of banks needs the use of specific ratios. Among them are efficiency, profitability, operational, asset quality, and size. Banks earn profits from interest charged on loans less any interest they pay to acquire those funds and fees charged for their services and account holders.

A commercial bank's list of liabilities will include funds borrowed from other financial institutions, interest they are paying from the commercial paper they have issued in the market,

and loan deposits from institutions and individuals in their accounts. Their assets are the items that attract revenue to their institution they include securities held by the bank, and loan advances to both individuals and institutions.

There are internal or bank specific factors that are unique to the bank that affect its performance. This are mostly reflected by decisions made internally. This factors will be different from one bank to another. This bank specific factors include the size of deposits and liabilities, interest's rate charged, cost efficiency, capital, the state and complexity of the information technology used, the risk management regime, quality of banks assets, and capital among others. CAMEL 4 framework is used to proxy bank specific factors (Moulyneux and Thornton, 2015)

#### **1.1.3 Effect of Interest Rate Capping on Financial Performance**

Commercial banks' main business is lending and revenue streams from lending to clients provide their key source of income. The amount of interest a commercial bank charges affects a bank's revenue in two ways. If the interest rates rise the income a bank earns on its assets increases. The acceleration of revenue is hinged on the acceleration of interest rates. The second key factor that affects banks revenue is the amount of loans and securities it holds at any one time, when interest rates increase the income earned from loans will be significantly higher than marketable securities which will force banks to hold more loans in its asset base than commercial papers (Were, 2015).

An increase on rate of interest will prompt a higher Net Interest Margin which is a key marker of monetary execution of banks. A higher Net intrerest Margin will prompt higher benefits. When interest rates increase there is a corresponding increase in banks interest expense to the deposits it holds. The increase in interest expense is usually not large enough to offset the gain from the interest income. Commercial banks have been accused of reluctantly refusing to increase the interest it pays to its depositors even when they eagerly and speedily increase the interest rate they charge to their customers (Ngugi, 2015).

When interest rates are capped commercial banks are forced to lend within the allowed limit. The capping of interest rate means commercial banks have to pay a certain percentage as minimum amount for its interest earning deposits and a charge a certain percentage maximum amount to credit it is advancing. This reduces its Net Interest Margin as the amount it pays for its deposits and the amount it charges for its loan advances is fixed and regulated. This in turn affects the performance of commercial banks.

Capping of rate of interest contrarily influences the operation of commercial banks as the spread (the amount the bank charges for its credit advances and the amount it pays for its interest earning deposits is reduced). This forces the banks to operative within a limited band thus almost dictating its expected performance. With the advent of interest rate capping banks have been forced to look for alternative ways to grow and diversify their income streams. They have invested heavily in government bands and treasury bills which have a lower market interest rate than individual loans but less risky.

The above strategy helps them cut back on their risk exposure but not necessarily improve their financial performance. With the capping of interest rates banks have been forced to introduced fees and commissions to their customers in the services they offer in order to improve their financial performance. This strategy has helped commercial banks slightly improve their financial performance but not to the same levels it was before the capping of interest rates.

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While commercial banks charge fees and commissions for the services they are offering, this fees and commission are auxiliary and at times minute compared to the amount of interest they earn from advancing loans. The fees and commissions are charged on account held and transactions effected through their platform (Ngugi, 2015). Thus the income from fees and commissions is insufficient to help commercial banks recover from the capping of interest rates which has significantly affected their financial performance.

#### **1.1.4 Kenyan Banking Industry**

Kenya has been mentioned and recognized among one of the most robust nations in banking and finance innovation. The banking industry in Kenya dwarfs other East and Central African countries, it also has the highest penetration rates in the region. The country had 46 commercial banks as at June 2015. Compared to its peers it has the highest number of banks measured against its population. Nigeria with a population of over 180 million people has only 22 banks while South Africa has 19 banks compared to its population of 55 million people.

The bank which is a public institution is established under the CBK ACT 231 of the Constitution of Kenya. The Central Bank of Kenya is the industry regulator. It's the sole regulator of the Banking industry in Kenya it also sets the monetary policy in the country in order to achieve price stability. The bank acts as a banker, adviser and fiscal agent for the government of Kenya. The banks also provides oversight of payment, clearing and settlement systems in the country (CBK, 2011).

The Kenya Bankers Association is the industry lobby for the Kenyan banking industry. Among its functions is to promote economic growth and industry development by engaging the regulator and the government. The association also lobby's and champions industry innovation and development

by coordinating its members and patnering with other stakeholders. Its current membership stands at 46 commercial banks. The association has been at the forefront at opposing the capping of interest rate which they view as a blunt tool to enforce regulation by the government.

The Kenyan banking industry is heavily concentrated at least 10 banks control 70% of the market with seven of them being local banks. According to a CBK report (2011) six banks control 52.4% of the entire industry. The Kenyan market has been described as oligopolistic by many given the tight control that few banks have on the entire market. This has led to cartel like behavior that has brought it under the sharp focus of regulators and policy makers. The influence of the oligopolistic behaviors has been cited as the cause of prohibitive credit in the Kenyan Market.

#### **1.2 Research Problem**

The relationship between interest rate capping and banks' financial performance has continued to elicit debate. The major income source for commercial banks is interest charged on loans and its capping is viewed as a serious threat to the continued existence of the banking industry. The proponents of capping argue it is a necessary evil in the face of oligopolistic and cartels like behavior of banks in many countries. While the critics view it as a blunt tool for achieving a noble cause. The above camps have continued to grow with studies been cited in equal measure about the merits and demerits of each argument.

The introduction of capping goes against the well founded theories on interest rate advanced by scholars on interest rate movement and expectation. Maynard Keynes in the liquidity preference theory argued that people hold money for different motives key among them is the speculative motive where individuals speculate on the future movement of interest rates. With the capping of interest rate this well founded theory is ignored since capping of interest rates eliminates the speculative intent of people holding cash or investing in term deposits in financial institutions.

The capping of interest rates also goes against the market segmentation theory advanced by Culbertson (1957). Culbertson argued that there is market segmentation between the different markets. He argued that both the long term and the short term market are independent of each other and there is no causal relationship between them. The capping of interest rates ignores this fundamental fact since capping applies to both the short term and long term credit market. It in essence deems the different market expectations irrelevant.

In a study carried by the World Bank (2015) on the impacts of interest rate capping on commercial banks' financial performance in Eastern Europe and South America, they found that the profits of commercial banks significantly reduced when rate caps were employed. In their study they noted that banks rationed funds in a bid to reduce exposure on risky businesses that would have to pay low returns if the interest rates were capped in turn banks excessively bought government securities as they were seen as a safe source of funding though at marginal interest rate. This in turn reduced their risk exposure and profit simultaneously (Njuguna, 2015).

Khawaja and Musleh, (2015) in their study on the effect of interest rate capping on the financial performance of commercial banks in Latin America countries which have heavily relied on interest rate capping to as a form of regulating the commercial banks found a strong correlation between the capping of interest rates and poor financial performance of commercial banks. They observed that after the introduction of interest rate capping in Ecuador, Mexico, Chile, Colombia, and Brazil the profits of commercial banks in the respective countries dropped significantly.

Afanasieff *et al*, (2015) in his study of countries that have effected interest rate capping in Africa found out that there was a drop in commercial banks' profits in the year the caps were effected and after a period of time the banks' profits Return on Assets were normalized. In his study he focused on Ethiopia, Egypt and Zambia. Although his study covered more than one country it failed to

adequately cover a longer time period in order to come up with conclusive results on the subject. Aurello only covered the two years preceding the rate caps and the two years after the rate caps were effected.

While a lot of studies have been carried out at global level on rate of interest and commercial banks' financial performance, there is scant literature on the effect of interest rate capping on the financial performance of commercial banks in the Sub Saharan Region. The relevant literature available on the subject focuses on how the capping on interest rates affects the consumers and its effect on financial inclusion. Few researchers have focused on how capping affects the financial performance of commercial banks.

The capping of interest rate is a new phenomenon in the East and Central African market. This markets particularly Kenyan have unique features such as extensive mobile banking which are not replicated elsewhere in the world and it was the intention of the researcher to establish if the capping of interest rates affected the performance of Kenyan commercial banks given their unique operational structure.

#### **1.3 Research Objective**

The objective of this research was to study the effects of interest rate capping on the financial performance of Kenyan commercial banks.

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

The government through its legislative organs will find it useful as they seek to craft laws that will guide the operations in the banking sector particularly on the interest rate regime. The Central Bank of Kenya which is the regulatory authority for banks in Kenya as they seek to make policy decisions and advise to the treasury on matters relating to the interest rate regime and its overall effect on the banking sector.

Shareholders who are key stakeholders in listed banks will find the study to be of great significance as they seek to make decisions regarding their portfolio allocation and whether to continue to hold their investments in the banking sector under the new interest rate regime. The study will also be useful to academic practitioners and researchers as they seek to build on the body of knowledge in this field and conduct further research that may delve deeply on the subject and provide additional solutions to it.

#### **CHAPTER TWO: LITERATURE REVIEW**

#### **2.1 Introduction**

The literature important to this investigation is extensively examined in this chapter. It adopts the conceptual framework and incorporates works of previous scholars on the subject.

#### **2.2 Theoretical Review**

## 2.2.1 Liquidity Preference Theory

The hypothesis was created by Maynard Keynes, in the book General Theory in the year 1936 Keynes lays out the liquidity preference theory. Keynes (1936) argues in the theory that people hold money for three motives; the transaction motive, the speculative motive, and the precaution motive. In the above three motives Keynes argues that individuals holds money to finance their expenditure plans, because of the uncertainty of future events or because of speculation on the future direction of interest rates.

In his book he argues all other things remaining constant individuals would prefer to hold cash (liquidity). Lekachman and Keynes (1964) posit that interest rate is used as a reward for parting with liquidity. They argue that the supply and demand of money will lead to changes in interest rates. The central bank fixes the money supply and the quantity of money in circulation does not depend on the interest rate. As per Keynes there is one rate of interest otherwise called the balance rate of interest interest where the amount of cash requested in an economy is equivalent to the amount of cash provided in a similar economy.

#### **2.2.2 Market Segmentation Theory**

The theory posits that the long and short term securities markets are independent of each other and there is no causal relationship between them. The forces of demand and supply in the different maturity segments in the market will determine the rates of that particular market. It was Culbertson who first developed the theory in 1957. In his paper he argued that investors in the different segments have strict maturity preferences. In this scenario banks will prefer to operate in the shorter horizon while pension funds will prefer the long term horizon because of the long term maturity of their liabilities.

The above scenario points to the existence of different market segments each having the forces of demand and supply dictate its interest rate. The yield curve will be constructed by the equilibrium points being connected. The theory reinforces the argument that the securities in the different markets are poor substitutes of one another because they are of different markets. Lasher (2013) argued that there are different demand and supply forces in each market making the interest rates in each market to be independently determined.

### **2.2.3 Expectations Theory**

The expectation theory was developed by Lutz in 1940. The premise that guides the theory is that the expectations of future conditions will determine the interest rates. When the future rate of interest is expected to be high investors will hold onto long term securities, while if they expect the future interest to be low they will hold short term securities (Russel, 2014). There are other conditions that will influence the demand for securities such as expected inflation levels, expected political conditions, among others. Short term securities will be bought by investors if they expect the short term interest to be higher than the long term interest. While long term securities will be bought if the expected future rates are anticipated to be higher than the ones for short term securities Auerbach (2013). This theory is based on the premise that investors have perfect knowledge on the future short term interest rates, zero taxes, and zero transaction costs and investors are assumed to be profit maximizers.

It is argued that one can safely conclude that the interest rate in the long term is on average the expected future rates of short term bonds. Ignoring the compound interest factor, this average will be the simple average. Because the long term interest rate is an average of the short term interest rate if the interest rates in the short term rise the long term interest rate will also rise. Thus the two will move in the same directions (Bekaert, 2015)

#### **2.3 Determinants of Financial Performance of Banks**

As per Randall (2015) the determinants of monetary execution of commercial banks are classified into two; inward and outer factors. Policy objectives and decisions by banks management are considered to major influences of internal factors (Siddiqui, 2015). Industry related matters, general macroeconomic variables and the legal environment are considered to be the external factors that influence a bank's financial performance. Among the internal factors are interest rate policy, size of banks, information technology deployed, risk level employed and management efficiency.

## 2.3.1 Interest Rate Capping

A huge bit of income from commercial banks is generated from interest rates. A higher interest rate margin by commercial banks leads to a higher reported profit (Ngugi, 2015). Banks maximize on their interest rate spread in order to boost their performance. A larger spread guarantees them

more revenue thus increasing their profits. In periods when the market interest rates were exceedingly low due to macro-economic conditions banks reported lower profit margins as compared to periods that the market interest rates were high (Aliko, 2015).

In a study conducted in Mauritius by Aliko (2015) among commercial banks on determinants of bank performance he found out that interest rates capping, asset quality, management efficiency and the general macro-economic conditions determined commercial bank performance in that order respectively. In that review interest capping was observed to be the most critical factor in the execution of business banks. In a similar study but restricted to listed commercial banks Mwega (2014) found that interest rate capping, management efficiency, asset quality and the general macro-economic conditions determined the performance of commercial banks in that order respectively.

In a paper published by the Kenya Bankers Association (2017) they found out that banks performance are most sensitive to interest rate changes than any other variable that affects its performance. In their study they sampled Tier one, and Tier two banks in Kenya, they restricted their data collections to the operations of the banks in Kenya and ignored income from subsidiaries in other Eastern Africa countries. Although they found other variables such as management efficiency, loan book quality and size of banks assets to have an influence on the financial performance, financial performance was most sensitive to the interest rate capping.

In a study carried by the World Bank (2015) on the impacts of interest rate capping on commercial banks' financial performance in Eastern Europe and South America, they found that the profits of commercial banks significantly reduced when rate caps were employed. In their study they noted that banks rationed funds in a bid to reduce exposure on risky businesses that would have to pay low returns if the interest rates were capped in turn banks excessively bought government

securities as they were seen as a safe source of funding though at marginal interest rate. This in turn reduced their risk exposure and profit simultaneously (Njuguna, 2015).

The capping of interest rate has inevitably led to poor financial performance of commercial banks (Aurello, 2015). Banks have posted significant losses or profit drop in the face of new laws on interest rate capping in many countries around the world. There has been withdrawal and closure of bank branches in parts of the country due to the negative impact that interest rate capping has ad on the performance of commercial banks. Banks have opted to cut down on their costs because their revenue has been impacted by the new interest rate capping laws in the country.

Khawaja and Musleh, (2015) in their study on the effect of interest rate capping on the financial performance of commercial banks in Latin America countries which have heavily relied on interest rate capping to as a form of regulating the commercial banks found a strong correlation between the capping of interest rates and poor financial performance of commercial banks. They observed that after the introduction of interest rate capping in Ecuador, Mexico, Chile, Colombia, and Brazil the profits of commercial banks in the respective countries dropped significantly.

## 2.3.2 Asset Quality

Mannasoo (2013) posits that the commercial banks' financial efficiency is determined by asset quality. The report released by the industry regulator the Central Bank of Kenya in 2015 the asset quality of Kenyan banks has steadily improved since 2006. Advancing loans being the major income generating activity of banks, an increase in non-performing loans signals poor performance while a decrease signifies improving performance.

Commercial banks usually adopt prudent credit appraisal in order to reduce the risk of defaults. Commercial banks have in this era adopted technological tools and software's that help in appraising loan applicants and credit scoring them according to their risk levels. These tools have been extended to mobile applications since loan advances through this platform have become a major revenue source and disbursement tools of banks. This measures are geared towards improving the asset quality of commercial banks and improving their performance in the long run.

#### **2.3.3 Management Efficiency**

The measure of management efficiency is a subjective process and is usually qualitative. An evaluation of the control systems, management systems, and the culture of the organisation can easily help determine the efficiency of the management (Nampewo, 2015). Calculation of key financial ratios can also help gauge the efficiency of the management. Some of the ratios are the loan growth rate, earnings growth and total asset growth (Nampewo, 2015). This is used as a proxy to measure the ability of the management of deploying the banks resources efficiently in order to maximize income.

An increase in any of the above ratios signifies the management's ability to deploy resources effectively to the benefit of shareholders. Shareholders are in a better position to appraise their agents on the above parameters since they are bank specific and are not subject to influence by any external factors. The above metrics are considered objective in analyzing and appraising bank's managers. According to Ongeri (2015) recent trends in the country have seen commercial bank executives being dropped due to perceived non-performance after the board of directors used the above metrics to appraise their performance.

#### **2.3.4 Bank Size and Leverage**

Leverage beyond a certain limit will impact on financial performance of a firm due to the high interest costs associated with high leverage levels (Malenya and Muturi, 2013). Still in their research they identified firm age and firm size which have positive effects on the financial performance of firms. This was because of the economies of scale enjoyed by large firms as opposed to small firms.

Chuthamas *et al* (2015) in their paper argued that leverage significantly affects firm performance as cheap credit acts as a cheap source of capital while expensive credit hinders firm growth and better financial performance as the firm will be bogged down by heavy interest cost. In their study that covered both small sized firms and big firms in Thailand they found out that small firms reported lower RoA and RoE due to the high cost of credit while large firms reported superior RoA and RoE due to cheap credit.

Barketer *et al* (2013) argued that a banks size has an effect on its financial performance. They argued that large banks attracted cheap source of funding and competitively advanced it to borrowers at high margins while small banks were forced to pay expensively for their deposits because of the perception that creditors have of them as being risky therefore requiring a high return for the risk undertaken.

#### **2.4 Empirical Review**

In a study covering countries in Latin America that have interest rate caps in place the World Bank (2015) in their paper reported significant poor financial performance of commercial banks in Ecuador, Mexico, Chile, Colombia and Brazil. They found significant drop in the profits of listed banks after governments in the respective countries introduced interest rate controls. The controls

varied from country to country with different countries advancing different reasons and mechanisms to impose interest rate controls.

Aurello (2016) did a study in Mauritania on the impacts of interest rate capping and commercial banks' financial performance listed in the Securities Exchange, 8 banks were used in the sample of listed banks the study covered the period of 2003 to 2013. Mohamed argued that by capping interest rate the commercial banks were performing dismally as opposed to when the free market forces were allowed to apply.

Aurello (2016) argued that the imposition of interest rate caps not only led to poor commercial banks' financial performance but has had significant negative effects on consumers. He argued in Equador it led to the flourishing of illegal lending which exploited consumers due to the opaque manner they operated in. He argued in Mexico and Chile the lending to the vulnerable and the poor slowed down with the imposition of caps making those countries lag behind their peers in Latin America in financial inclusion.

Coutts (2015) in a study on commercial banks' financial performance in Mauritius, Ethiopia and Egypt found that the first two countries had a weak financial sector due to the interest rate caps. In Mauritania where the government imposed a fixed margin above a benchmark, financial inclusion as well as bank performance was low. He pointed out that Mauritania had among the weakest financial sector in Africa and this in turn affected the economy of the country. In Ethiopia the ceilings were removed in 1998, there was however an effective ceiling for micro finance institutions imposed for political reasons he argued that the banking system in Ethiopia is fairly closed and relies heavily on government support.

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In the same study Coutts (2015) found that despite Egypt imposing interest rate caps on civil and commercial credit at 7% it had a strong banking system and their commercial banks' financial performance were among the best in the region. He argued that despite the country imposing a 7% ceiling on commercial and civil credit, commercial banks determined interest rates for other loans. He argued that the banking system in Egypt is largely market based and that imposition of interest rate caps was not blanket but was specific to certain sectors in the economy. This he argued didn't influence the financial performance of commercial banks negatively as banks still relied on market principles to set interest rates.

In Japan the banking industry has consistently enjoyed strong financial performance over the years despite the country having forms of interest rate capping (Yokoshima, 2013). The reason for the strong financial performance has been attributed to a dual regulatory system where banks and consumer finance houses are treated differently. The bank regulatory regime has stepped up maximum rates for different sizes of bank credit. The rates are 15% for loans of over Y1 million to 20% for loans under Y 100,000. This approach he argued safeguarded the consumers as well as provided banks with flexibility in their credit program to customers.

In another study covering Mauritania, Zambia, Ethiopia and Egypt Aziz *et al* (2015) investigated the effect of interest rate caps on the financial performance of banks in the above countries. They used ROA as the accounting measure of return. Their study established a strong and a positive correlation between interest rate capping and poor financial performance. In their study they found significant drop in commercial banks' financial performance once interest rate caps were applied. They argued government control of the market was not the best way of promoting access to credit and promotion of financial inclusion. A study carried out in Kenya by Irungu investigating the impact of interest rate spread on commercial banks' financial performance. This study covered all the 42(forty two) licensed Kenyan banks at the time of the study. It was found out that for every basis rise in interest rate it resulted to a percentage rise in commercial banks' performance.

A study by Nampewo (2013) on the determinants of commercial banks' performance in which he used all the licensed Kenyan commercial banks. This study results indicated interest rate spread, bank size, management efficiency and macro-economic factors as the determinants of commercial banks' performance. The study results revealed strong and positive correlation between interest rate spread and commercial banks' performance. There was also a positive correlation between bank size, management efficiency and macro-economic environment and commercial banks' financial performance.

Mustafa and Sayera, (2015) in their study on the Kenyan commercial banks on the effect of lending rates on their financial performance found a weak positive relationship between the two variables. In his findings he found out that interest rates income was only 14.4 % of the commercial banks' income and any rise in interest income will not significantly raise the profit of commercial banks in the study he recommended banks to diversify their sources of income in order to raise their financial performance.

In another study during the same period Kamau (2015) investigated the determinants of licensed commercial banks' financial performance in Kenya found contrasting results to Oketch. The findings in this study showed interest rate spread, bank size, asset quality and management efficiency as the four very important factors that influence the commercial banks' performance.

A study carried out in Kenya by Kipngetich using a regression model to determine the relationship between interest rates the Return on Equity, the study used interest rate as the independent variable and the financial performance as the dependent variable. This study found out that the two variables had a very strong and positive correlation. In the study Kipngetich used all commercial banks licensed by the regulatory authority the Central Bank of Kenya. The study was carried over a five year period with half year results from the financial institutions being used as the source data.

A study carried out by Mang'eli (2013) using descriptive research design studying the relationship between interest rate spread and the financial performance of Kenyan financial institutions found that the spread of interest rate affected commercial banks' financial performance. Mang'eli argued that regulation on interest rate was bound to affect the performance of the financial institution negatively. He argued that it will be prudent for the regulatory agency to let market forces dictate the setting of interest rate and not arbitrary decisions by the monetary policy committee.

#### **2.5 Conceptual Framework**

In fig. 2.1 the conceptual framework interest rate capping is the independent variables. The control variable is the bank's total asset. The dependent variable is the financial performance of the bank measured in terms of Return on Asset

The hypothesis of this study is that interest rate capping has a strong correlation with banks' financial performance. The information derived from the audited and published banks' financial statements was used to calculate the Return on Asset (RoA).



### **Fig. 2.1: Conceptual Framework**

### 2.6 Summary of Literature Review

The theories reviewed in this chapter were: expectations theory liquidity preference theory, as well as Market segmentation theory. The theories are explored in great detail in order to understand the principles espoused and the arguments that support them. Maynard Keynes developed the Liquidity preference theory and it posits that for three reasons people hold money; the transaction reason, the speculative reason, and the precaution reason. In the above three motives he argues individuals will hold money to finance their expenditure plans, because of the uncertainty of future events or because of speculation on the future direction of interest rates.

Market Segmentation theory posits that the long and short term securities markets are independent of each other and there is no causal relationship between them. The forces of demand and supply in the different maturity segments in the market will determine the rates of that particular market. The expectation theory is based on the premise that the expectations of future conditions will determine the interest rates. When there is a future expectation of an increase in the rates of interest investors will hold onto long term securities, while in case they expect the future interest to be low they will hold short term securities (Russel, 2014).

Empirical review of studies has been done covering countries in Europe Asia, USA and Africa. The studies offer conflicting conclusions on the effects of interest rate capping and commercial banks' financial performance. This study aims at filling the gap that exists on the literature about the effects of interest rate capping and commercial banks' financial performance.

#### CHAPTER THREE: RESEARCH METHODOLOGY

#### **3.1 Introduction**

The design and methodology of this study is set out in this chapter. The sources of data used, their method of collection and how the analysis was carried out is detailed in this section.

#### **3.2 Research Design**

A descriptive research design was used in the paper, Cooper and Schindler (2013) in their paper argued that this design relates and measures the cause and effect relationship among variables under study. This approach was suitable since the research objective was to establish the effect of interest rate capping on the financial performance of Kenyan commercial banks. Secondary data was collected for the study, this data was collected from the banks websites, The Nairobi Securities Exchange website and investment banks reports.

#### **3.3 Population of the Study**

Commercial banks approved by the regulator formed the population of the study. The research restricted itself to the banks licensed by the end of 31<sup>st</sup> October 2017. The research used the census approach and sampled the entire population in the study since it was scalable and feasible. A population has been defined as a set of objects or individuals with common observable characteristics (Mugenda & Mugenda, 2013).

#### **3.4 Data Collection Method**

Data can be collected in many ways. The tool and instrument to be used depends on the characteristics of the subject, the topic of research, the research problem, the objectives, and the expected results (Ngechu and Ngumi, 2014). This is because of the specific nature of the tools and instruments that collect the data. The data collected covered the period from 1<sup>st</sup> April 2015 to 31<sup>st</sup>
December 2017. The quarterly results over the period were analyzed. This was done because of the relative short time the law had come into effect, the quarterly results helped the researcher expand data points.

### **3.5 Data Analysis Technique**

SPSS was used for the analysis of the data. Pre and post-interest rate capping performance ratios were computed for the entire set of banks during the selected period and their means, variances and standard deviations used for descriptive statistics. The pre and post interest rate capping performance ratios was being compared to see if there is any statistically significant change in financial performance of the banks using paired sample t-test. Also Pearson Correlation coefficient test and regression was employed to assess the significance level.

### **3.5.1 Analytical Model**

The study made use of multiple linear regression to investigate the degree to which total variation in dependent variable (financial performance) is influenced by variations in the independent variable. This was applied in testing significance of independent variables in determining the variations in the dependent variable in both the pre and post-interest rate capping periods

 $Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + X_4 + \varepsilon.....3.1$ 

In which

Y = Performance as measured by ROA

a = constant (The part of commercial bank performance that is influenced by other factors apart from rate of interest capping).

Performance of Commercial bank is the dependent variable that is determined by various performance measures indicated as  $X_1$ ,  $X_2$ ,  $X_3$  and  $X_4$ .

 $X_1$  = Asset quality as measured by non-performing loans ratio

 $X_2$  = Management efficiency as measured by the ratio of operating expenses to total revenue

 $X_3$  = size of the bank as measured by natural logs of total assets

 $X_4$  = Leverage as measured by ratio of total liabilities to total assets

E = Disturbance Term

### Table 3.1: Operationalization of the Study Variable

Variable	Measurement
Financial performance	ROA calculated as the ratio of bank's net income in a given
	period to the total value of its assets.
Management Efficiency	Operating expenses to total revenue
Leverage	Total liabilities/Total assets
Asset quality	Non – performing loans/Total loans
Bank Size	Natural logarithm of average book value of total assets.

#### Source: Author (2018)

Analysis of Multiple regression was applied to test whether interest rate capping has any effect on financial performance. Statistical tests will be carried out at 95% significance level implying that the investigation takes into account an error of 5%.

### **3.5.2 Diagnostic Tests**

This segment examines the significance of diagnostic tests to guarantee there is no classical linear regression model assumptions before endeavoring to evaluate equations. Evaluating equations,

when these assumptions are disregarded will make the danger of landing at one-sided, wasteful and conflicting parameters gauges. Thus, diagnostic tests were led with the end goal to guarantee regression analysis assumptions are not violated

### **3.5.3.1 Multicollinearity**

In the study correlation matrix was applied in testing multicollinearity in which the cut-off point for severe multicollinearity is 0.8 (Cooper & Schindler, 2013; Gujarati, 2013). Lack of accounting for perfect multicollinearity leads to regression coefficients that can't be determined and infinite standard errors while existence of imperfect multicollinearity leads to large standard errors. Huge standard errors alter the accuracy and precision of rejection or failing to reject the null hypothesis. In estimating, lack of multicollinearity isn't the problem but rather its severity. Severe multicollinearity occurs when correlation coefficient is greater than a 0.8.

#### 3.5.3.2 Autocorrelation

The Wooldridge test for serial correlation was used in the study to test if autocorrelation in the linear panel data is present. Serial autocorrelation is a normal challenge in the analysis of data, thus one has to account for it so as to get the correct model specification. Wooldridge (2012) said that biased standard errors as well as inefficient parameter estimates arise from lack of identifying as well as accounting for serial correlation in the idiosyncratic error term in a panel model. In this test the null hypothesis is that the data has no serial autocorrelation. If serial autocorrelation is discovered in the study data, then the FGLS estimation procedure is applied.

### **3.5.3.3 Heteroskedasticity**

Heteroskedasticity can be defined as an assumption of Classical Linear Regression Model (CLRM) which requires testing and accounting for in data if present. The Classical Linear Regression Model adopts that the error term is homoscedastic, in other words, it possesses a constant variance. In case the error variance isn't constant, then the data has heteroscedasticity. If a regression model is run without heteroscedasticity being accounted for, then unbiased parameter estimates will be realized but the invalid standard errors. Panel level heteroscedasticity was tested for in this study. This was done using the Likelihood Ratio (LR) test which was proposed by Poi and Wiggins (2011). The null hypothesis used in this test was that the error variance is homoscedastic. In case the null hypothesis is declined, then it is concluded that the study data has heteroscedasticity and running a FGLS model can account for this.

### 3.5.3.4 Panel Unit Root Test

Now that panel data contain time series as well as cross-section, stationarity of the time series has to be tested since the time series estimation of data is founded on the assumption that the variables are stationary. (Gujarati, 2013) purports that estimating models without considering the non-stationary nature of the data causes false results. The researcher used the Fisher-type test of unit root in panel data now that it has many advantages; it performs either Dickey-Fuller or Phillips-Perron test for each panel it allows for unbalanced panels with gaps, and reports four different tests. This test had the null hypothesis that all panels have unit root. An alternative hypothesis can be that at least one panel doesn't have unit roots or some panels don't have unit root (Choi, 2011). In case any of the variables has unit root, the researcher will difference it and run equation 3.1 by use of the differenced variable

### **3.5.3.5** Test for Fixed or Random Effects

A determination is made on whether to run a fixed effects or a random effects model when using analysis of panel data. On the bases of the Hausman specification test, a decision is made on the type of model to run. Mainly, this test is based on efficiency and consistency of the fixed and random effects estimators which depend on the correlation between the individual effects and the regressors. The Hausman specification test tries to establish whether there is a notable correlation between the unobserved firm-specific random effects and the regressors. In case no such correlation is present, then the random effects model might be more powerful. On the other hand, if such a correlation exists, then the random effects model would be inconsistently estimated and the fixed effects model would become the model of choice (Greene, 2017).

Therefore in case the Hausman test establishes that the fixed effects model is suitable, then, in the study estimation the test for inclusion of time-fixed effects is done. It tests whether the dummies for all years are equal to zero and in case they are, time fixed effects in the specification of the model to be estimated is not required. F-test in accordance with Greene (2017) was used to test whether the dummies for all years are equal to zero.

If the Hausman test opts to choose the random effects model as the more suitable one, then it would be necessary to test whether the data have panel effects in order to establish if to run a simple Ordinary Least Square (OLS) regression or the random effects model. The study used the Breusch-Pagan Lagrange multiplier test proposed by Breusch and Pagan (1980) to select between the random effects model and the simple OLS model. The null hypothesis of this test was that there are no panel effect, in other words, variance across the entities is zero.

### **CHAPTER FOUR: RESEARCH RESULTS AND DISCUSSION**

### **4.1 Introduction**

Project findings are provided in this section together with discussion of the results. Findings are presented according to objectives of the study. Descriptive as well as inferential statistics was performed and the findings were presented in the form of tables.

### **4.2 Descriptive Statistics**

The results of the descriptive statistics are provided in this section, the results are presented below.

### Table 4.1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	390	0.009625	0.058077	-0.9199	0.1414
Asset quality	390	0.124629	0.1250736	0.0000	0.8942
Management Efficiency	390	0.47525	0.3295251	0.1081	4.6526
Bank Size in KES million	390	95000	118000	1694.73	555000
Leverage	390	0.824848	0.0722676	0.0891	0.9397

From the results outlined in the table, it can be seen that the mean of return on assets, which is an adequate indicator of financial performance for commercial banks, was 0.009625. The minimum and the maximum of ROA were -0.9199 and 0.1414 respectively. Its standard deviation was 0.058077which shows that profitability did not remain constant but varied throughout the measurement period. The findings are consistent with Ndungu and Ngugi (2015) who averred that profitability of a firm in relation to its assets base is one of the measures of financial performance. The ratio of profits relative to a firm assets base is R.O.A. . Therefore, R. O. A. shows the effect of administration's choices and its actions together with the company's industry situation within a period of time. ROA is an intuitively understanding measure of performance because it is a reflection of the efficiency top administrators in managing the assets under them.

The descriptive results also indicated that the average management efficiency measured as operating expenses to total revenue was 4.755249. The minimum and the maximum of operational efficiency were 0.01097and 0.991743 respectively. Its standard deviation was 0.213613 which indicated that average operational efficiency varied during the period under investigation. The outcome is also in line with Ogboi and Unuafe (2013) that operational efficiency has a positive and notable impact on bank's financial performance.

The results show that the average mean of bank size measured as total assets was KES 95000 million. The minimum and the maximum of bank size were KES 1694.73 million and KES 555000 million respectively. Its standard deviation was KES 118000 which showed that average bank size changed in the period under investigation. Findings are also in line with Malenya and Muturi, 2013) that firm size has positive effects on the financial performance of firms. This is because of the economies of scale enjoyed by large firms as opposed to small firms.

There are mixed evidences available in the studies on the correlation relating leverage and financial performance. Findings are also in agreement with Chuthamas *et al* (2015) in their paper argued that leverage significantly affects firm performance as cheap credit acts as a cheap source of capital while expensive credit hinders firm growth and better financial performance as the firm will be bogged down by heavy interest cost. Leverage permits banks to raise the potential returns on investments or on a position to an extent that is not attainable with if banks were investing their own funds (World Bank, 2009). When the a firm's price of debt is lesser than the company's rate of return on its assets, then shareholders' return in form of EPS and return on equity increase and hence, leverage will have favorable impact on profitability. Chen (2001) found out a negative association between leverage and profitability. Conversely, Kim (2005), Khiari et al. (2005)

examined the positive tie amid leverage and business financial objective delivery. Leverage is calculated by finding the ratio of total debt to equity (debt/equity ratio).

### 4.3 Paired T-test

The pre and post interest rate capping performance ratios was being compared to see if there is any statistically significant change in financial performance of the banks using paired sample t-test. The Paired t-test is pshown in Table 4.2. The p value is 0.0073<0.05 and therefore we conclude that there is statistically significant change in financial performance before interest capping and after interest capping. The results are in agreement with Kavwele, Ariemba and Evusa (2018) that Interest rate capping was shown to have an adverse effect on the financial performance of commercial banks. This negative impact was felt primarily on the interest income, which diminished significantly, to an extent that non-interest income could not compensate for this decline. This had a resultant negative impact on profits which also declined significantly.

				Std.	[95%	
Variable	Obs	Mean	Std. Err.	Dev.	Conf.	Interval]
Return on assets pre inte capping Return on assets post	erest 193	1.492098	0.116791	1.622512	1.26174	1.722457
interest capping	193	0.447067	0.580974	8.071143	-0.69884	1.592978
diff	193	1.045031	0.567963	7.89039	-0.07522	2.165279
mean(diff) = mean(pre						
ROA	- post ROA		t =	1.8400		
Ho: mean(diff) $= 0$	degrees	C	of free	adom = 1	92	
Ha: mean(diff) < 0	Ha: mean(diff	e) != 0	Ha:	mean(diff)	>0	
Pr(T < t) = 0.9663	Pr(T > t) = 0.0	0073	Pr(	$(\Gamma > t) = 0.03$	337	

### Table 4.2: Paired T-test

### **4.4 Correlation Analysis**

Correlation illustrates the association between variables (Levin & Rubin, 1998). Correlation indicated the relationship between the predictor variables and outcome variable. Table 4.3 and Table 4.4 shows the outcome of the correlation analysis. Correlation analysis was conducted pre interest capping and post interest capping.

### 4.4.1 Pre-interest Rate Capping Correlation

Correlation analysis was conducted pre interest capping. Results are shown below

	ROA	Asset quality	Management efficiency	Bank size	Leverage
ROA	1.000	<b>k</b>	¥		
Asset quality	-0.483	1.000			
	0.000				
Management					
efficiency	0.426	0.464	1.000		
	0.000	0.000			
Bank size	0.530	-0.229	-0.111	1.000	
	0.000	0.001	0.126		
Leverage	0.011	0.310	0.113	0.359	1.000
	0.882	0.000	0.119	0.000	

**Table 4.3: Pre-interest Rate Capping Correlation** 

The results also indicated that asset quality and Kenyan commercial banks financial performance (Measured as ROA) are negatively but significantly related (r=-0.0906, p=0.0739). The outcomes are in concurrence with Vong et al., (2009) who surveyed the contribution of bank-specific factors to the banks' profitability in Macao covering 1993-2007 and established that asset quality

negatively influences the performance of the commercial banks. Asset quality is measured by evaluating the level that a firm's assets are susceptible to risk, and the size of that risk in relation to its operations. In order to guarantee asset quality, commercial banks should carefully vet loan applications, regularly inspect their viability, while ensuring that banking regulations are adhered to all the way.

Management efficiency and Kenyan commercial banks' financial performance was found to be positively and significantly related (r=0.426, p=000). The findings are in agreement with Afriyie (2011) who researched on how credit risk affected the profitability of Ghana Banks covering the period 2006 to 2010 and indicated that operational efficiency has a positive and significant effect on rural banks' profitability. Management efficiency is the key determinant for long-term solvency for any business.

The correlation results found that the size of a bank and financial performance of Kenyan commercial banks are positively and significantly related (r=0.530, p=000). The findings are in agreement with Buyinza (2010) who analyzed the profitability of banks in SSA countries covering the period 1999 up to 2006 and found that the size of bank is positively and significantly related to profitability. The size of a firm is one of the major factors that determine a firm strength in terms of assets as well as employment and infrastructure. McMahon (2001) found that the span of a firm prompts better execution of the business i.e. the bigger the firm the higher the level of achievement. The results found that leverage and financial performance of Kenyan commercial banks are negatively and significantly related (r=-0.011, p=0.882). These results are in line with Ogboi and Unuafe (2013) who researched on the relationships between credit risk and bank's profitability in Nigeria and concluded that adequate capital is a determinant of a bank's financial viability.

control they could become insolvent. Nonetheless more empirical evidence supports the notion that leverage risks decreases Company's performance. It is a financial ratio that shows the percentage of firms' assets that is financed with debt.

# 4.4.2 Post-interest Rate Capping Correlation

Correlation analysis was conducted post interest capping. Study discoveries are appeared in the table beneath.

	ROA	Asset quality	Management efficiency	Bank size	Leverag e
ROA	1.000	* *			
Asset quality	-0.030 0.680	1.000			
Management efficiency	0.205 0.004	0.078 0.279	1.000		
Bank size	0.184 0.010	-0.161 0.024	-0.059 0.411	1.000	
Leverage	0.350 0.000	0.367 0.000	-0.629 0.000	0.224 0.002	1.000

### **Table 4.4: Post-interest Rate Capping Correlation**

The results also indicated that asset quality and Kenyan commercial banks financial performance (Measured as ROA) are negatively but insignificantly related post capping of interest rate (r=0.030, p=0.0739). The outcomes are in concurrence with Vong *et al.*, (2009) who assessed the contribution of bank-specific factors to banks' profitability in Macao covering 1993-2007 and established that asset quality negatively influences commercial banks' performance.

Management efficiency and Kenyan commercial banks' financial performance was found to be positively and significantly related (r=0.205, p=004). The findings are in agreement with Afriyie (2011) who researched on how credit risk affected the profitability of Ghana Banks covering the period 2006 to 2010 and indicated that operational efficiency has a positive and significant on rural banks' profitability. Management efficiency is the key determinant for long-term solvency for any business.

The correlation results found that the size of a bank and financial performance of Kenyan commercial banks are positively and significantly related (r=0.184, p=010). McMahon (2001) discovered that the size of a firm leads to better performance of the business i.e. the larger the firm the higher the level of success.

The results found that leverage and financial performance of Kenyan commercial banks are negatively and significantly related (r=0.350, p=000). These results are in line with Ogboi and Unuafe (2013) who carried out a study on the relationships between credit risk and bank's profitability in Nigeria and concluded that adequate capital has a positive and notable effect on a bank's financial performance. Commercial companies can succeed by taking satisfactory leverage risks or if the risk is out of control they could become insolvent.

### **4.5 Diagnostic Tests**

Diagnostic tests were carried out before the regression model was run. In this case, the tests conducted were the panel unit root tests (Stationarity test), multicollinearity test, autocorrelation, Heteroscedasticity and test for fixed or random effects.

### **4.5.1 Multicollinearity Test**

Multicollinearity can be defined as a statistical situation where two or more predictor variable in a multiple regression model are highly correlated. It's undesirable situation where the correlations among the independent variables are strong. A set of variables is said to be perfectly multicollinear in case there is one or more exact linear relationship among some of the variables.

VIF	1/VIF
2.05	0.487792
1.48	0.677366
1.33	0.750329
1.26	0.795979
1.53	
	VIF 2.05 1.48 1.33 1.26 1.53

 Table 4.5: Multicollinearity Test

Source: Research Data, 2018

VIF value was used where values less than 10 for VIF means that there is no multicollinearity. For multiple regressions to be applicable there should not be strong relationship among variables. VIF Statistics was used to measure multicollinearity. From the findings, all the variables VIF values are <10 as indicated in Table 4.3 indicating that there is no statistically significant multicollinearity among the independent variables (Leverage, Management efficiency, bank size and asset quality).

### 4.5.2 Autocorrelation Test

Correlation of error terms across time periods were checked by conducting a serial correlation test. The Wooldridge test for serial correlation was used to test for the existence of autocorrelation in the linear panel data which is a major challenge in panel analysis of data and it has to be accounted for so as to get the correct model specification. Below are the results.

#### Wooldridge test for autocorrelation in panel data

H0: no first-order autocorrelation

F(1, 389) = 2.840

Prob > F = 0.1095

Source: Research Data, 2018

The null hypothesis is that there is no first order serial /auto correlation. The p value of 0.1095> 0.05 shows that the study doesn't reject the null hypothesis. We then conclude that serial correlation doesn't exist.

### 4.5.3 Heteroscedasticity Test

The study checked for panel level heteroscedasticity by use of the Likelihood Ratio (LR) as indicated in the Table 4.5 below. This test used the null hypothesis that the error variance was homoscedastic. A chi-square value of 64.51 was produced by the likelihood-ratio test with a 0.0000 p-value. The chi-square esteem was statistically significant at 1 percent level and in this manner the invalid speculation of consistent fluctuation was rejected meaning the nearness of heteroscedasticity in the examination information as suggested by Poi and Wiggins (2001). To deal with this issue the examination utilized the FGLS estimation method.

### Table 4.7: Heteroskedasticity Test

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity Ho: Constant variance Variables: fitted values of ROA

chi2(1) = 64.51Prob > chi2 = 0.0000

### 4.5.5 Stationarity using ADF Test

In nature most economic variables are mainly non-stationary and prior to running a regression analysis. The Unit root tests were therefore carried out by use of the Augmented Dickey-Fuller (ADF) test to determine if the variables were stationary or non-stationary. This was done to prevent false regression results from being obtained by using non-stationary series. The table 4.6 below indicates that some variables were stationary (i.e. absence/presence of unit roots) at 1%, 5% and 10% levels of significance. Therefore, there was no need of differencing some of the variables.

Variable name	ADF test	1% Level	5% Level	10% Level	Prob	Commen t
Profitability (ROA)	-3.753547	-4.234972	-3.540328	-3.202445	0.0312	Stationary
Asset quality	-4.262276	-4.234972	-3.540328	-3.202445	0.0093	Stationary
efficiency	-4.522157	-4.234972	-3.540328	-3.202445	0.0520	
Bank size	-3.98997	-3.55267	-2.91452	-2.59503	0.0043	Stationary
Leverage	-2.78574	-2.25267	-1.53674	-1.04693	0.0381	Stationary

Table 4.8: Unit Root Tes
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### 4.5.5: Hausman Random Test for Random and Fixed Effects

Hausman test was applied in making a decision between fixed and random effects model for model. Table 4.7 presents this and it illustrates the findings of the Hausmans test. In the Hausman test the null hypothesis was that the random effects model was used as opposed to the fixed effects model. A 1.09 chi-square was reported in Hausman test with a 0.9855 p-value which implies that

at 5 percent level, the chi-square value obtained was statistically insignificant. The null hypothesis was thus not rejected by the researcher, that random effects model was preferred to fixed effect model for return on assets as endorsed by Greene (2008).

Table 4.9: Hausman Rand	om Test for rand	dom and fixed effects
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Column1	(b)	( <b>B</b> ) ( <b>b-B</b> )		<pre>sqrt(diag(V_b-V_B))</pre>			
	fixed	Random	Difference	S.E.			
Asset quality	-0.058562	-0.0629822	0.00442	0.00742			
Management efficiency	-0.027458	-0.028134	0.000676	0.001307			
Bank size	0.007855	0.007356	0.000499	0.000893			
Leverage	0.232333	0.2389956	-0.00666	0.011326			
b = consistent under Ho and Ha; obtained from xtreg B = inconsistent under Ha, efficient under Ho; obtained from xtreg Test: Ho: difference in coefficients not systematic $chi2(4) = (b-B)'[(V_b-V_B)^{(-1)}](b-B) = 1.09$							

Prob>chi2 = 0.9855

(V\_b-V\_B is not positive definite)

Source: Stata 14 computations

4.6 Model Specification

Panel model regressions were conducted pre and post-interest rate capping. The pre and post-

interest rate capping models are presented in Table 4.10 and 4.11 respectively.

# 4.6.1 Pre-interest Rate Capping Model Specification

From the Hausman test done, a random effects panel regression model was found to be the most

suitable estimation model. Pre-interest rate capping model was generated. The model is presented

in Table 4.9.

ROA	Coef.	Std. Err.	Z	P>z	[95% Conf.	Interval]
Asset quality	-0.0448	0.012431	-3.60	0.000	-0.06916	-0.02044
Management efficiency	0.02733	0.006392	4.27	0.000	0.03985	0.0148
Bank size	0.013797	0.001827	7.55	0.000	0.010216	0.017378
Leverage	-0.01611	0.019301	-0.83	0.404	-0.05394	0.021719
_cons	0.06157	0.015798	3.90	0.000	0.09253	0.03061
R-sq:	within =	0.4455				
	between	= 0.9998				
	overall =	= 0.4710				
Wald chi2(4) = $167$	7.38					
Prob > chi2 = 0.00	000					

 Table 4.9: Pre-interest Rate Capping Model Specification

Source: Research Data, 2018

The regression results found that asset quality, management efficiency, bank size and leverage were sufficient variables in explaining the banks' financial performance. This is supported by R square of 0.4710. This means that asset quality, management efficiency, bank size and leverage explain 47.10% of the variation in commercial banks' financial performance. The results are in agreement with Khawaja and Musleh, (2015) in their study on the impacts of interest rate capping on commercial banks' financial performance in Latin America countries which have heavily relied on interest rate capping to as a form of regulating the commercial banks found a strong correlation between the capping of rates of interest and poor commercial banks financial performance.

Further, F statistic outcomes in the table 4.10 below reveal that the overall model was statistically significant. The findings imply that the independent variables (asset quality, management efficiency, bank size and leverage) are good predictors of financial performance of commercial banks in Kenya. The results were backed up by Wald statistics of 167.38 and a p value (0.000) which is less than the 0.05 significance level. The results are in agreement with Randall (2015) who said that the determinants commercial banks' financial performance grouped into two; internal factors and external factors and established that internal factors include bank size, asset

quality, management efficiency, as well as leverage. Based on the results above, the model estimated was as:

 $Y = 0.2224593 - 0.0629822X_1 + 0.028134X_2 + 0.007356X_3 + 0.2389956X_4$ 

In which:

Y = Financial performance of commercial banks

 $X_1 = Asset quality$ 

 $X_2 =$  Management Efficiency

 $X_3 = Bank size$ 

 $X_4 = Leverage$ 

Regression of coefficients results in Table 4.10 indicated that asset quality has a negative and significant relationship with financial performance of commercial banks ( $\beta$  =-0.0448, p=0.000). This implies that a unit rise in asset quality would result to a corresponding decrease in financial performance of commercial banks by -0.0448 units.

Management efficiency has a positive and noteworthy association with money related execution of business banks ( $\beta$ = 0.02733, p=0.000). This implies a unit enhancement in administration productivity would prompt a resulting increment in money related execution of business banks by 0.028134 units. The outcomes concur with Okoth and Gemechu (2013) who conveyed an exploration on the components that enormously influence business banks in the nation Kenya and demonstrated that operational proficiency had a noteworthiness impact on how banks performed. Further, regression of coefficients findings in Table 4.10 indicates that the bank size has a positive and significant relationship with financial performance of commercial banks ( $\beta$ =0.013797, p=0.000). This means that a unit increase in bank size measured as total assets would lead to a subsequent increase in financial performance of commercial banks by 0.013797 units.

The findings of the study also indicated leverage has a negative but insignificant relationship with financial performance of commercial banks before interest rate capping ( $\beta$ =-0.01611, p=0.0404). The results contrast Adams and Buckle (2000) who established significant and positive relationship between leverage and financial performance of commercial banks. Renbao and Wong (2004) expressed that use past the ideal level could result in higher hazard and low estimation of the firm.

On the estimated regression model above, the constant = 0.06157 shows that if selected dependent variables (asset quality, management efficiency, bank size and leverage) are rated zero, return on assets policy of commercial banks would be 0.06157.

### 4.6.2 Post-interest Rate Capping Model Specification

From the Hausman test done, a random effects panel regression model was found to be the most suitable estimation model. Random model post interest arte capping was generated. The model is displayed in Table 4.11.

ROA	Coef.	Std. Err.	Z		P>z	[95% Conf.	Interval]
Asset quality	-0.09658	0.041372		-2.33	0.020	-0.17767	-0.0155
Management efficiency	0.0000443	0.000064		0.69	0.489	-0.0000812	0.00017
Bank size	0.006889	0.010649		0.65	0.518	-0.01398	0.02776
Leverage	0.399668	0.10017		3.99	0.000	0.203338	0.595997
_cons	0.3602	0.080531		4.47	0.000	0.51803	-0.20236
R-sq:	within $= 0.1$	531					
between $= .9678$							
	overall $= 0.1$	1563					
Wald chi2(4) = $35$ .	56						

 Table 4.11: Post-interest Rate Capping Model Specification

# Prob > chi2 = 0.0000 **Source: Research Data, 2018**

The regression results found that variables such as asset quality, management efficiency, bank size and leverage are reliable indicators that can be analyzed in order to determine the impact that interest rate capping has had on the financial outlook of commercial banks in Kenya. This view is augmented by the discovery of an R square of 0.1563 between the variables. This essentially shows that asset quality, management efficiency, bank size and leverage explain 15.63% of the total change in financial results of commercial banks.

Moreover, F statistic findings in Table 4.11 revealed that the overall model was statistically significant. The findings suggest that the independent variables (asset quality, management efficiency, bank size and leverage) are reliable indicators of financial performance of commercial banks in Kenya. A Wald statistic of 35.56 and a p value (0.000) which falls significantly below the 0.05 significance level lends further credence to this view. The findings also reflect the conclusions of Randall (2015) who categorized into two the determinants of financial performance of commercial banks; internal and external determinants. He established that internal determinants comprise of asset quality, management efficiency, bank size and leverage. According to the outcomes over, the evaluated model becomes:

 $Y = 0.3602 - 0.09658X_1 + 0.0000443X_2 + 0.006889X_3 + 0.399668X_4$ 

Where:

Y = Financial performance of commercial banks

 $X_1 = Asset quality$ 

 $X_2 =$  Management Efficiency

 $X_3 = Bank size$ 

#### $X_4 = Leverage$

Regression of coefficients results in Table 4.10 demonstrate that asset quality has a negative and significant correlation with commercial banks' financial performance ( $\beta = -0.0448$ , p=0.011). This implies that when asset quality increases by one unit, the financial performance of commercial banks decreases by -0.0448 units.

Management efficiency has a positive and significant correlation with financial performance of commercial banks ( $\beta$ = 0.02733, p=0.000). This implies that when asset quality increases by one unit, the financial performance of commercial banks increases by 0.028134 units. The results agree with Okoth and Gemechu (2013) who carried a research on the factors that greatly affect commercial banks in the country Kenya and indicated that operational efficiency had a significance effect on how banks performed.

Further, showing the coefficients regression indicates that the size of a bank has a positive but insignificant relationship with banks' financial performance ( $\beta$ =0.013797, p=0.000). This means that a unit increase in bank size measured as total assets would translate to a rise in commercial banks' financial performance by 0.013797 units.

The results of the study demonstrated that leverage has a negative and significant correlation with financial performance of commercial banks ( $\beta$ =-0.01611, p=0.0404). In effect, a unit rise in leverage could result in a decrease in commercial banks' financial performance by -0.2389956 units. The results agree with Charumati (2012) who established a positive correlation between leverage and financial performance. However, the results contrast Adams and Buckle (2000) who established significant and positive relationship between leverage and the financial performance of commercial banks. Renbao & Wong (2004) said that leverage beyond the optimum level can

lead to a higher risk and low value of the firm. This is due to the fact that capital plays an important part in reducing cases of bankruptcy in commercial banks or the loss of depositors' funds, and firms with an appetite for debt might be tempted to take unnecessary risks to maximize returns to shareholders, at the expense of creditors (Kamau, 2009).

On the estimated regression model above, the constant = 0.06157 shows that if selected dependent variables (asset quality, management efficiency, bank size and leverage) are rated zero, return on assets policy of commercial banks would be 0.06157.

#### **4.7 Discussion of Research Findings**

The study was launched to determine the impact that interest rate capping have on the financial results of commercial banks in Kenya. Independent variables for this study were asset quality, management efficiency, bank size and leverage. The relationship of independent variables to dependent variables was investigated with a focus on two aspects; strength and direction.

Pearson correlation coefficients established that an undesirable and statistically significant correlation exists between asset quality and Commercial banks financial performance. Regression results presented a negative relationship between asset quality and Commercial banks financial performance. Asset quality is measured by evaluating the level that a firm's assets are susceptible to risk, and the size of that risk in relation to its operations. In order to guarantee asset quality, commercial banks should carefully vet loan applications, regularly inspect their viability, while ensuring that banking regulations are adhered to all the way. Poor resources quality impacts the money related execution and the soundness of the saving money framework as a determinant profitability.

The study also showed that there exist a positive connection between administration proficiency and the banks' budgetary execution. In today's highly competitive business environment, administration effectiveness is a critical accentuation. Productivity alludes to the level of a procedure (or set of procedures) regardless of whether it identifies with the level of accomplishment of preparing inside an association, the cost adequacy of a market, or the disintegration of wage by cost.

Further, results uncovered that there a positive relationship between the size of a bank and its money related execution.

The firms that are large possess a bigger capacity for resource outlay, more staffs and robust information systems that translate to better performance. The result is in support of the basis for economies of scale, in which bigger organizations may perform better since they can accomplish working cost proficiency by expanding yield and streamlining on the unit cost of generation and in addition process improvement.

The study also demonstrated a negative correlation between leverage and Commercial banks financial performance. Leverage indicates the degree to which the bank is utilizing its resources. Banks that are much leveraged are in danger of liquidation on the off chance that they can't make installments on their debts; later on they might not be able to find new moneylenders. It isn't always bad to have leverage as in some cases, it can boost the investors' ROE and utilize borrowing tax advantage for their benefit.

The model summary revealed that the independent variables: asset quality, management efficiency, bank size and leverage were found to be satisfactory variables in explaining financial performance of Kenyan commercial bank pre interest rate capping. Asset quality, management

efficiency, bank size and leverage explain 47.1% of changes in commercial banks' financial performance before interest rate capping. However, after interest rate capping asset quality, management efficiency, bank size and leverage explain 15.63% of changes in commercial banks' financial performance. The R square dropped drastically from 47.1% to 15.63% implying that capping interest rates has a subsequent negative impact on the performance. The results agree with Matundra (2018) that interest rate capping was negatively and statistically related to the bank's profits.

# CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

### **5.1 Introduction**

Summary of the research findings of this paper are presented in this chapter the conclusions arrived to and the recommendations to the management of commercial banks are also provided in this section. The policy recommendations provided will be useful to the management of commercial banks in their bid to improve commercial bank performance. Suggestions for further research is also recommended for future researchers.

### **5.2 Summary**

This papera sought to analyze the effects of interest rate capping on Kenyan commercial banks' financial performance. The paper employed descriptive research design. Forty three commercial banks in Kenya formed the target of the study. Descriptive analysis, correlation analysis and panel regression analysis were used in analyzing data.

Descriptive results indicated that the average mean of financial performance measured as return on assets was 0.009625. The average asset quality measured as ratio of non-performing loans to total loans was 0.124629. The descriptive results also indicated that the average management efficiency measured as operating expenses to total revenue was 4.755249. It was also established that the average mean of bank size measured as total assets was KES 95000 million. Leverage measured as a ratio of total liabilities to total assets had an average mean of 0.824848. The pre and post interest rate capping performance ratios was being compared to see if there is any statistically significant change in financial performance of the banks using paired sample t-test. The Paired ttest indicated that there is statistically significant change in financial performance before interest capping and after interest capping. From the results of correlation analysis, the asset quality and financial performance of these banks (Measured as ROA) are negatively but significantly associated. Management efficiency and financial performance of Kenyan commercial banks was found to be positively and significantly associated. The correlation results found that the size of a bank and financial performance of Kenyan commercial banks are positively and significantly associated. Finally, leverage had an undesirable and notable relation with the financial performance of banks in Kenya.

The model summary revealed that the independent variables: asset quality, management efficiency, bank size and leverage were realized to be adequate in explaining financial performance of commercial banks in Kenya. Asset quality, management efficiency, bank size and leverage explain 47.1% of changes in the performance before interest rate capping. However, after interest rate capping asset quality, management efficiency, bank size and leverage explain 15.63% of changes in commercial banks' financial performance. The R square dropped drastically from 47.1% to 15.63% implying that interest rate capping has a negative influence on commercial banks' performance.

Regression results revealed that asset quality has a negative and statistically significant relationship with commercial banks' financial performance. Additionally, management efficiency has positive and statistically significant relationship with financial performance of commercial banks. Further, regression results showed that the size of a bank has positive but statistically insignificant relationship with commercial banks' financial performance. Finally, regression results revealed that leverage has a negative and statistically significant relationship with commercial banks' financial performance.

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### **5.3 Conclusion**

The study thus concludes that asset quality has a negative and significant relationship with financial performance of commercial banks. Asset quality comprises the evaluation of the level that a firm's assets are susceptible to risk, and the size of that risk in relation to its operations. In order to guarantee asset quality, commercial banks should carefully vet loan applications, regularly inspect their viability, while ensuring that banking regulations are adhered to all the way.

As a factor of benefit, poor resources quality influences the keeping money framework's monetary execution and additionally its soundness. The study further concludes that management efficiency has a positive and significant relationship with commercial banks' financial performance. More efficient companies will compete better, grow in scale and develop, hence leading to increased degree of concentration of market. Management efficiency is the key determinant for long-term solvency for any business.

From the results above, a conclusion was made that the size of a bank has a positive and significant relationship with the performance. Banks effectiveness as well as efficiency represented by profitability is strongly related to total assets. A conclusion was also made that leverage has a negative and statistically significant relationship with commercial banks' financial performance. Unit increase in leverage leads to a decline of financial performance of commercial banks. Banks with high leverage might be at risk of bankruptcy in case they can't pay on their debt; they also risk losing new willing lenders in the future.

This study concludes asset quality, management efficiency, bank size and leverage were found to be adequate variables in explaining financial performance of Kenyan commercial banks. Asset quality, management efficiency, bank size and leverage jointly explain 45.87% of changes in the commercial banks' financial performance.

### **5.4 Recommendations**

Interest rate capping has been found to negatively impact the financial performance of commercial banks, policy makers therefore need to reevaluate the interest rate capping law and consider the long term effect that it could have on credit access to households and small and medium businesses who will bear the brunt of lack of access to credit facilities due to commercial banks tighter lending requirements.

A recommendation is given by the paper that commercial banks ought to diversify their product portfolio in order to increase revenue streams and supplement their income from their mainstay business. They should also maximize their resource allocation in order to improve their profitability. Product diversification should be on products that are not affected by the capping law.

With the lending margins becoming thinner commercial banks should engage in volumisation strategy. The Kenyan market being loan driven with loan annuity income accounting for over forty percent of gross revenue and over seventy percent of all funded revenues of commercial banks in the country. Banks should mine their existing clients thoroughly by ensuring clients are utilizing all products in the various suites. This full utilization of the various products in different suites will generate more fees for the banks (Bodo, 2017).

Product diversification should be in investments that carry minimal risk such as treasury bills and treasury bonds although the return is not as attractive it will definitely provide safer bets for the banks. With the capping regime the current return on credit facilities advanced to the commercial market segment which is considered risky is slight fully different from government securities

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Product diversification should be in investments that carry minimal risk such as treasury bills and treasury bonds although the return is not as attractive it will definitely provide safer bets for the banks. With the capping regime the current return on credit facilities advanced to the commercial market segment which is considered risky is slight fully different from government securities despite the huge risk element that commercial credit carries. It will be therefore prudent to shift resources to government securities.

Asset quality affects negatively the financial performance of commercial banks according to the study findings. Loan processing should be done in strict compliance to banking rules and regulations. The soundness of the banking system is affected by asset quality poor asset quality has an adverse effect not only the financial performance but also of the soundness of banks. It is the recommendation of this paper that commercial banks introduce technologies that make use of predictive modelling in order to appraise the credit worthiness of loan borrowers. This will lead to reduction of non-performing loans in their portfolio.

There should be tightening of the lending process in order to ensure risky borrowers do not pass the safety net set up by banks. While predictive modelling algorithms used by banks to appraise borrowers are useful, staff judgment and input should be ingrained in the process to ensure there is a second layer of verification in the process. Commercial banks should also "take a flight to quality loans". In the previous regime 'pre interest rate caps' banks carried huge volumes of bad loans at 30% delinquency (Guguyu, 2016). With the new regime 'post interest caps' such a high rate of delinquency rate on loans will be unstainable.

Commercial banks must set policies and procedures that encourage and promote a high level of management efficiency. This study found that management efficiency positively affects commercial banks' profitability. The banks can invest in training their staff rigorously through specifically tailored short courses to suit the needs of the bank.

It was found that leverage has a negative and statistically significant relationship with commercial banks' performance. There should be prudent accommodation of leverage in commercial banks capital structure since its accumulation to high levels would be risky to banks stability as well as negatively affecting their performance. Some of the options for banks can be mergers or

acquisition of other banks, optimization of the debt structure, having swaps of debt to equity and also promoting equity financing.

With the caps of interest being effected commercial banks in Kenya should seek to have a financing mix in their capital structure that minimizes the cost of funds. It will be prudent to relay on cheap deposits in order to widen the spread in their lending business. A viable alternative will also be to seek funding from development financing institutions for advancing to specific segments in the market such as SME's or Agriculture. Development financing institutions advance loans to onward lending to this segments at competitive rates. This will enable commercial banks tap into competitively priced credit facilities for onward advancement.

With the widening gap in financial performance between large banks and small banks in the industry over the years, it is imperative that smaller players merge and consolidate in order to gain the benefit of large size attributable to the banking industry. Large banks enjoy the mobilization of cheap deposits which small banks don't. Large banks also due to the size of their balance sheets can easily finance big ticket loans to institutions allowing them to easily gain from such transactions which small banks cant undertake unless through syndication with other financial institutions. With the thinning of margins (interest caps) it is imperative for small banks to merge in order to benefit from size advantage.

Commercial banks should also progressively phase out the brick and motor model they have been riding on over the years. The setting up of physical branches is a capital intensive process that drains up the banks' capital which is much needed elsewhere. Banks should focus more on using the agency model by having third party's' handle most of the transactions on a commission basis. This will in the long run eliminate the need for physical branches. Any leverage brought in the

capital structures of the bank will go to the core business of commercial banks and not putting up structures for bank operations.

Commercial banks should work towards achieving a cost to income ratio of 30%. With the advent of technology and use of mobile phones as delivery channels for bank customers, banks should leverage on technological tools to serve their existing clients and reach out to new ones. The banks' management should engage in high quality right sizing initiatives. A perfect example will be phasing out physical networks in favour of alternative delivery channels (Bodo, 2017).

With the advent of use of technology and enthusiastic uptake by bank customers there is need for banks to shed off their head count in order to reduce recurring expenses in their income statement. The laying off of staff should be restricted to roles that can be undertaken by the deployed technological tools. It should however be noted that any cut down on costs by laying off of staff in non-core roles should be accompanied by increased investment in technology and maintaining of a small core staff team whose skills align with the current market needs.

Commercial banks in Kenya should pursue the route of cross border expansion with emphasis being placed in countries where the regulatory regime is not restrictive in terms of interest capping as in Kenya. The cross border expansion should serve as a risk diversification strategy while at the same time benefiting the banks from profit maximization. Evidence has shown there are increased business opportunities in neighboring countries which other Kenyan companies are pursuing. Commercial banks should follow on the "demand pull from corporate clients" and set up operations in neighboring countries which have not yet effected the capping restriction.

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The capping of interest rates goes against the market segmentation theory advanced by Culbertson (1957). Culbertson argued that there is market segmentation between the different markets. He argued that both the long term and the short term market are independent of each other and there is no causal relationship between them. The capping of interest rates ignores this fundamental fact since capping applies to both the short term and long term credit market. It in essence deems the different market expectations irrelevant. It will be imperative for policy makers and the regulatory authority to revise the law if not repeal it altogether. The revised law if enacted should cater for the different market segments when setting the interest rate.

It will be prudent for the regulatory authority to increasingly monitor the lending practices of commercial banks. This will put in check banks that would easily breach the laid down limits. There should be adoption of sound credit practices among bank staff, this will act as a self-regulation mechanism for both banks and the regulator. There should be goal congruence FOR both the profit objectives and credit policies.

The regulatory authority should fast track the operationalization of the movable property security rights bill of 2017. The aim of the bill was to allow banks to use movable property such as cattle, goats and other farm animals as security for the purpose accessing credit facilities. The bill also allows borrowers to collateralize future receivables which arise from contractual relationship with other entities. Commercial banks have been unable to advance collateral to certain segments of the market due to unavailability of collateral. With the passage of the bill and operationalization by the regulatory authority, commercial banks will widen the scope of their credit customers thereby enabling them to lift their loan transaction volume resulting in improved financial performance.

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Policy makers should consider modifying the capping law, a good start will be having the price caps apply only to secured loans. The regulatory authority should provide guidelines on what is considered as secured lending (Bodo, 2017). The market has been disabled by the blanket application of this law on both secured and unsecured loans.

Regulators need to rethink on the blanket application of deposit floors. The requirement should be restricted to only savings account and not on all accounts as is currently the case. There should also be a minimum amount for the accounts in order for them to earn interest. The minimum amount should be set a reasonable limit for both the customers and the bank. The revised amendment can expressly state that deposits below Kshs 20,000 are exempt from earning interest in the act (Bodo, 2017).

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The use of Central Bank Rate as the as the base rate for the law should be rethought. There are a variety of tools which are better suited for the control effect of this law. The CBK rate as a policy rate for this act has a negative signaling effect in the market and ends up not achieving its intended purpose when it was first crafted (Bodo, 2017).

Policy makers should consider having the capping of interest rate reviewed and adopt models used in other countries such as Egypt and Japan where capping was effected and continues to be effected to specific industries which the government considers vital for economic and industrial growth of the country. In Egypt capping has been effected in the agriculture industry and continues to be effected in order to promote food security. The model if adopted in Kenya will protect and foster growth in industries that are considered critical and need protectionist policies. The other industries that are considered mature and self-sustaining can be left to operate within the market forces of demand and supply in the money market.

### **5.5 Contribution to Theory**

The research findings demonstrated that firm assets influenced the profitability of a bank. The findings make a contribution to Liquidity Preference Theory which holds that liquid assets are easier to offload in the market. In line with this theory, medium term and long term securities attract higher interest rates due to the fact that investors are foregoing liquidity that's inherent in short term loans.

The results also add some contribution to the theory of a firm. It was discovered that operational efficiency influenced commercial banks'. The theory of the firm advocates for the desire to maximize profit by improving management efficiency. This makes markets endogenous in the theory of the firm by creating market for its goods and developing suitable pricing mechanisms. It

also creates and manages institutions that require personnel and financial capital making firms endogenous.

#### **5.6 Areas for Further Research**

Apart from bank size, asset quality, management efficiency and leverage, other factors influence profitability of commercial banks. The factors include management efficiency and earning ability of a firm. Future research should include this. The study also relied on Return on Assets to measure profitability. Future research should involve measuring profitability using both ROA as well as ROE which reflects how effectively the management of a bank is using the funds of the shareholders. Future research may introduce a moderating variable to the model. The moderator could be the regulatory environment.

Future research should consider having a regional perspective. It should especially focus on countries that have capping effected but on specific industries. Future research should then adjust for specific variables in order to promote comparability of the studies. The studies should then use the use extended time periods in order to address and overcome economic cycles that are bound to affect commercial banks financial performance.

The capping of interest rate is a new phenomenon in the East and Central African region. This markets are however different from Kenya. The Kenyan market has unique features such as extensive mobile banking which is not replicated elsewhere in the region or the world and it was the intention of the researcher to establish if the capping of interest rates affected the performance of Kenyan commercial banks given their unique operational structure. It will be imperative that future research should be undertaken in different countries especially those that are structurally different from the Kenyan market and establish its effect in those markets.
## REFERENCES

- Aboagye, A., Akoena, T. O., Antiwi-Asare & Gockel A. (2013). Explaining Interest Rate Spreads in Ghana, *African Development Review*, 20 (3), 378-99.
- Afanasieff, T. S., Lhacer, P. M. V. and Nakane, M. I. (2015). The Determinants of Bank Interest Spreads in Brazil, Banco Central do Brasil Working Paper No. 46, August http://www.bcb.gov.br/pec/wps/ingl/wps46.pdf.
- Aliko, C. (2015). Determinants of Bank Interest Capping in Sub-Saharan Africa (IMF Working Paper WP/13/34). Washington D.C.: International Monetary Fund.
- Aura, J., Mugizi, F. and Ndanshau, A. (2013). The Determinants of Interest Rate Spreads in Developing Countries: Evidence on Tanzania, 1991-, (Working Paper No. 02/11.2009).Dar es Salaam, University of Dar es Salaam, Department of Economics
- Aurello, L. (2015). "Commercial Bank Net Interest Margins, Default Risk, Interest Rate Risk, and off-Balance Sheet Banking." *Journal of Banking and Finance*, 21, 55-87.
- Auerbach, J. (2013). "Interest Rate Spreads in Uganda: Bank Specific Characteristics or Policy Changes," Bank of Uganda Mimeo.
- Aziz, T., Cull, R., Fuchs, M., Getenga, J., Gatere, P., Randa, J and Trandafir, M. (2015). Banking Sector Stability, Efficiency and Outreach in Kenya, World Bank Policy Research (Working Paper 5442, October). Washington D.C.: The World Bank. 114
- Barketer, A., Steiner, R. and Salazar, N. (2013). "Interest Capping in Banking: Costs, Financial Taxation, Market Power and Loan Quality in the Colombian Case, 1974–1988" (IMF Working Paper No. 110). Washington, D.C. World Bank

- Bekaert, C., Dominic, F, and Polit, D. (2015). Research Methods: Principles & Methods, 7thEdition, Williams and Wilkins, Lippincott, United States of America.
- Beck, T., Cull, R., Fuchs, M., Getenga, J., Gatere, P., Randa, J and Trandafir, M. (2010). Banking
   Sector Stability, Efficiency and Outreach in Kenya, World Bank Policy Research (Working
   Paper 5442, October). Washington D.C.: The World Bank. 114.
- Beck, Thorsten and Heiko Hesse, (2016). "Bank Efficiency, Ownership and Market Structure:Why are Interest Rate Spreads So High in Uganda?" World BankPolicy Research (Working Paper No. wps4027). Washington D.C.: The World Bank.
- Ben-Khedhiri H., Casu, B. and Sheik-Rahim, F. (2015). Profitability and Interest Rates Differentials in Tunisian Banking. University of Wales, Working Papers.
- Bennaceur, S and Goaied, M (2015). The Determinants of Commercial Bank Interest Margin and Profitability: Evidence from Tunisia, Frontiers in Finance and Economics, 5 (1),106 130.
- Birchwood, A. (2014). "An Examination of the Macro-Economic Influence on Nominal and Real Interest Rate Spreads in the Caribbean" presented at the XXXVIth Annual Monetary Studies Conference, Central Bank of Trinidad &Tobago.
- Bourke, P. (2015). "Concentration and other Determinants of Bank Profitability in Europe, North America and Australia," *Journal of Banking and Finance*13, 65-79.
- Breusch, W. and Pagan, M. (2010). Financial Reforms and Interest Rate Spreads in the Commercial Banking System in USA. IMF Staff Papers, 51(1), 96-122.
- Brock, P. and Franken, H. (2012). Bank Interest Margins Meet Interest Rate Spreads: How Good is Balance Sheet Data for Analyzing the Cost of Financial Intermediation?

http://scid.stanford.edu/people/mckinnon\_program/BrockV2 .pdf. Retrieved on Wednesday 26th February, 2018.

- Brock, P. and Franken, H. (2013). Measuring the Determinants of Average and Marginal Bank
   Interest Rate Spreads in Chile, 1994-2001.
   <u>http://scid.stanford.edu/people/mckinnon\_program/BrockV2</u>. pdf. Retrieved on
   Wednesday 26<sup>th</sup> November, 2017.
- Brock, P. and Rojas-Suareza, L. (2010). "Interest Rate Spreads in Latin America." In Why So High? Understanding Interest Rate Spreads in Latin America, edited by Philip Brock and Liliana Rojas-Suarez, pp. 1-38. Washington, D.C., InterAmerican Development Bank.
- Carter, G., Klingebiel, D., Laeven, L. and Noguera, G. (2015): "Banking Crisis Database", in: Honohan, P. and Laeven, L. (Eds.): Systemic Financial Crises, FCambridge University Press. 115.
- CBK (2015). Central Bank of Kenya. Quaterly report on Development in the Kenyan banking Sector for the period ended 30th June 2011, retrieved on 8th August 2011 www.centrabank.go.ke/downloads
- CBK (2012). Central Bank of Kenya. Quaterly report on Development in the Kenyan banking Sector for the period ended 30th June 2011, retrieved on 8th Jan 2018 www.centrabank.go.ke/downloads.
- Central Bank of Kenya, CBK (2010). Directory of Commercial Banks and Mortgage Finance Companies, Kenya. from the website: http://www.centralbank.go.ke/downloads/bsd/CommercialBanksDirectrory-31 December 2010.pdf. Retrieved on Friday, 26th January, 2018.

- Chirwa, W. and Mlachila, M. (2013). Financial Reforms and Interest Rate Spreads in the Commercial Banking System in Malawi. IMF Staff Papers, 51(1), 96-122.
- Christensen, L.B., Johnson, R.B. and Turner L.A. (2015). *Research Methods, Design, and Analysis 11th Edition*. Boston, USA, Pearson Education, Inc
- Choi, K. (2011). Determinants of Commercial Banks Interest Rate Spreads: Some Empirical Evidence from the Eastern Caribbean Currency Union. Eastern Caribbean Central Bank Staff Research Paper No. WP/ 07/01
- Claeys, S. and Vander, R. (2017). "Determinants of Bank Interest Margins in Central and Eastern Europe. Convergence to the West?" Economic Systems, 32(2), 197-216.
- Cooper, M. & Schindler, C. (2013). *Research Methods in Education*, 6th Edition. Routledge, New York, United States of America
- Coutts, R. (2015). "Credit to Private Sector, Interest Spread and Volatility in Credit Flows: Do Bank Ownership and Deposits Matter?" DESA (Working Paper No. 105 ST/ESA/2011/DWP/105), New York. Department of Economic and Social Affairs, United Nations Headquarters.
- Crowley, J., (2017) "Interest Rate Spreads in English-Speaking African Countries (IMF Working Paper No. wp/07/101). Washington D.C. World Bank.
- Cukierman, A. and Hercowitz, Z. (2010). "Oligopolistic Financial Intermediation, Inflation and the Interest Rate Spread," Paper No. 2. Tel Aviv University, Israel. The David Horowitz Institute for the Research of Developing Countries.
- Curbertson, K. (2017). Determinants of Bank Interest Capping in Sub-Saharan Africa (IMF Working Paper WP/13/34). Washington D.C.: International Monetary Fund

- Chuthama, T., Cull, R., Fuchs, M., Getenga, J., Gatere, P., Randa, J and Trandafir, M. (2015).
   Banking Sector Stability, Efficiency and Outreach in Kenya, World Bank Policy Research (Working Paper 5442, October). Washington D.C.: The World Bank. 114.
- Dawson, C. (2015). Introduction to Research Methods: A Practical Guide for Anyone Undertaking a Research Project. 3 Newtec Place, United Kingdom.How to Books Ltd.
- Demirguc-Kunt, A. and Huizinga, H. (2012). Determinants of Commercial Bank Interest
  - Margins and Profitability: Some International Evidence. World Bank Policy Research (Working Papers, WPS1900). *Economic Review*, 13, 379-408.
- Demirguc-Kunt, A., Laeven, L. and Levine, R. (2012). The Impact of Bank Regulations in Elkayam, D. 1996. "The effect of monetary policy on local-currency segment in Israel 1986-2000". Bank of Israel Economic Review, 68: 1–22.116.
- Entrop, O., Memmel, C., Ruprecht, B. and Wilkens, M. (2012). Determinants of Bank InterestMargins: Impact of Maturity Transformation Discussion Paper No 17., DeutscheBundesbank. Eurosystems.
- Ferber, R., and Verdoorn, P. (2012). *Research Methods in Economics and Business*. New York, The Macmillan Company.
- Folawewo A. and Tennant D. (2015). Determinants of Interest Rate Spreads in Sub Saharan African Countries: A Dynamic Panel Analysis. Paper prepared for the 13th Annual African Econometrics Society Conference, 9 – 11 July, 2015, Pretoria, Republic of South Africa.
- Fry, M. (2015). *Money, Interest, and Banking in Economic Development*, Second Edition. Baltimore: Johns Hopkins University Press.

Gakure, R. (2010). PhD Research Methods Course Lecture Notes, JKUAT, Nairobi CBD Campus.

- Gambacorta, L. (2014). How Banks Set Interest Rates? National Bureau of Economic Research Working Paper 10295, Cambridge.
- Gelos, R. G. (2016). Banking Spreads in Latin America. (Working Paper, WP/06/44). Washington DC. World bank.
- Grenade, K. H. I (2017). Determinants of Commercial Banks Interest Rate Spreads: Some Empirical Evidence from the Eastern Caribbean Currency Union. Eastern Caribbean Central Bank Staff Research Paper No. WP/ 07/01.
- Greene, K. (2017). Determinants of Bank Interest Spread in Estonia, (Working Paper No 1/2017) EESTIPANK.
- Gill, A., Hicks, T. O., Sydney and Gockel A. (2015). "Explaining Interest Rate Spreads in South Africa", African Development Review, 20 (3), 378-99.
- Gujarati P. (2013). Encyclopedia of Survey Research Methods, Vol. 1 &2. Los Angeles, United States of America. Sage Publications
- Hair, J. F., Jr., Black, W. C., Babin, B. J., and Anderson, R. E. (2010). *Multivariate Data Analysis*.Upper Saddle River, NJ: Pearson Prentic Hall.
- Hamid, R. (2011). "Credit to Private Sector, Interest Spread and Volatility in Credit Flows: Do
  Bank Ownership and Deposits Matter?" DESA (Working Paper No. 105
  ST/ESA/2011/DWP/105), New York. Department of Economic and Social Affairs, United
  Nations Headquarters.

- Hassan, M. and Khan, B. (2010). What Drives Interest Rate Spreads of Commercial Banks in Pakistan? Empirical Evidence Based on Panel Data. *SBP Research Bulletin*, 6(2).
- Hawtrey, K. and Liang, H. (2015). Bank Interest Margins in OECD Countries, North American Journal of Economics and Finance, 19, 249–260.117.
- Ho, T. and Saunders, A. (2011)." The Determinants of Bank Interest Margin: Theory and Empirical Evidence". *Journal of Financial and Quantitative Analysis*, XVI (4), 581–599.
   <u>http://support.spss.com/productsext/statistics/documentation/19/client/User</u>

Manuals/English/IBM SPSSRegression19.pdf. Retrieved on Thursday 25th January, 2018.

- IBM Statistics Base 19 (2010). Interest Margins and Profitability: Some International Evidence". United States of America, World Bank.
- Ikhide, S. (2015) Banking Spreads and Financial Market Access in Botswana and South Africa., East London, South Africa, Department of Economics University of Fort Hare, East London Campus.
- Jackson, S. (2015). *Research Methods and Statistics: A Critical Thinking Approach*, 3<sup>rd</sup> Edition. United States of America. Walds worth Cengage Learning.
- Johnson, P. and Gill, John. (2012). Research Methods for Managers, 3rd ed., London, UK.Sage Publications.
- Khawaja, I. and Musleh, Ding. (2015). Determinants of Interest Spread in Pakistan. Working Papers 2007:22) The Pakistan Development Review, Pakistan. Islamaba.
- Kamau, D. (2015). What Drives Interest Rate Spreads in Kenya's Banking Sector? *International Journal of Economics and Finance*1(5), 76–85.

- Kithinji, M. and Waweru, M. (2017). Merger Restructuring and Financial Performance of Commercial Banks in Kenya. *Journal of Economics, Management and Financial Markets*, 2, (4).
- Kothari, C. (2014). Research Methodology: Methods & Techniques, 2ndedition. New Delhi, India. New age International Publishers.
- Lasher. B (2013), "The Cost of Commercial Bank Credit in Belize: Contributing Factors and Policy Implications," Boston Village, Belize Central Bank of Belize Research Department
- Lavrakas P. (2015). Encyclopedia of Survey Research Methods, Vol. 1 &2. Los Angeles, United States of America. Sage Publications.
- Lekachman, P. and Keynes, L. (1964). "Interest Rate Spreads in Latin America." In Why So High?Understanding Interest Rate Spreads in Latin America, edited by Philip Brock and LilianaRojas-Suarez, pp. 1-38. Washington, D.C., InterAmerican Development Bank.
- Mannasoo, K. (2013). Determinants of Bank Interest Spread in Estonia, (Working Paper No 1/2012) EESTIPANK.
- Mangeli, J. (2013). The Determinants of Interest Rate Spreads in Developing Countries: Evidence on Tanzania, 1991-, (Working Paper No. 02/11.2009). Dar es Salaam, University of Dar es Salaam, Department of Economics
- Martin, Dougal, (2010). "Challenges in the Financial Sector," In Dougal Martin and Osmel Manzano, eds *Towards a Sustainable and Efficient State: The* 118 *Development Agenda of Belize*. Washington, DC, Inter-American Development Bank.

- Martinez, S. and Moody, A. (2014)." How Foreign Participation and Market Concentration Impact
  Bank Spreads: Evidence from Latin America', *Journal of Money, Credit and Banking*, 36(3), 511-537.
- Malenya, M. and Muturi, M. (2013). Merger Restructuring and Financial Performance of Commercial Banks in Kenya. *Journal of Economics, Management and Financial Markets*, 2, (4
- Maudos, J. and Fernandez de Guevara, J. (2014). "Factors Explaining the Interest Margin in Banking Sectors of the European Union." *Journal of Banking and Finance*, 28: 2259-2281.
- McShane, W. and Sharpe, G. (2015). "A Time Series/Cross Section Analysis of the Determinants of Australian Trading Bank Loan/Deposit Interest Margins: 1962-1981." *The Journal of Banking and Finance*, 9, 115-136.
- Mendoza, Patricia (2017), "The Cost of Commercial Bank Credit in Belize: Contributing Factors and Policy Implications," Boston Village, Belize Central Bank of Belize Research Department.
- Mlachila, M. and Chirwa, E. (2012). "Financial Reforms and Interest Rate Spreads in Commercial Banking System in Malawi," IMF Working Paper WP/02/6.
- Montiel, P. J. (2015). "Financial Policies and Economic Growth: Theory, Evidence and Country-Specific Experience from Sub-Saharan Africa." AERC Special Paper No. 18: African Economic Research Consortium, Nairobi, Kenya.
- Moore, W. and Craigwell, R. (2013). "Market Power and Interest Rate Spreads in the Caribbean", Paper Presented at the XXXII Annual Monetary Studies Conference, Kingston, Jamaica.

Moore, W. and Craigwell, R. (2013). "Market Power and Interest Rate Spreads in the Caribbean", paper Presented at the XXXII Annual Monetary Studies Conference, Kingston, Jamaica, Retrieved from

http://www.academia.edu/1343843/Financial\_Development\_and\_Market\_Structure.

- Morrison, M. & Louis, C. (2017). *Research Methods in Education*, 6th Edition. Routledge, New York, United States of America.
- Moulyneux, P. and Thornton, J. (2015). "Determinants of European Bank Profitability: A Note," *Journal of Banking and Finance*16, 1173-1178.
- Mugenda, O.M., & Mugenda, A.G. (2013). *Research methods; quantitative and* 119 166 *Qualitative approaches*. Nairobi: African Centre for Technology Studies.
- Mustafa, K. and Sayera, Y (2015), "An Analysis of Interest Rate Spread in the Banking Sector in Bangladesh". The Bangladesh Development Studies, Vol. XXXII, December, No. 4.
- Mwega, F. M. (2014). Regulatory Reforms and their Impact on the Competitiveness and Efficiency of the Banking Sector: A Case Study of Kenya. In Murinde, V (ed.), *Bank Regulatory Reforms in Africa*. Hampshire: Palgrave Macmillan.
- Nampewo, D. (2015). What Drives Interest Rate Spreads in Uganda's Banking Sector? International Journal of Economics and Finance1(5), 76-85.
- Ngugi, S. and Ndungu, R. (2015). "Adjustment and Liberalization in Kenya: The Financial and Foreign Exchange Market." *Journal of International Development* 11(3), 465–491.
- Ndung'u, S. and Ngugi, R. (2016). Banking Sector Interest Rate Spread in Kenya. Macroeconomic and Economic Modelling Division. Kenya Institute for Public Policy Research and Analysis. KIPPRA Discussion Paper No 5, March 2000. Nairobi, KIPPRA.

- Ngugi, R. (2015). "An Empirical Analysis of Interest Rate Spread in Kenya." AERC Research Paper. Nairobi, AERC.
- Ngechu, S. and Ngumi, R. (2014). "Adjustment and Liberalization in Kenya: The Financial and Foreign Exchange Market." *Journal of International Development* 11(3), 465–491.
- Njuguna, D. (2015). What Drives Interest Rate Spreads in Kenya's Banking Sector? *International Journal of Economics and Finance*1(5), 76 85.
- Norris, D. and Floerkemeir, H. (2017). Bank Efficiency and Market Structure: What Determines Banking Spreads in Armenia? International Monetary Fund (Working Papers, 134, 1–26). Washington D.C. World Bank.
- Ongeri, D. (2015). What Drives Interest Rate Spreads in Kenya's Banking Sector? International Journal of Economics and Finance1(5), 76 85
- Paroush, J. (2014). "The effect of Uncertainty, Market Structure and Collateral Policy on the Interest Rate Spread". I4,79–94.
- Poi, K. and Wiggins, Y (2011), "An Analysis of Interest Rate Spread in the Banking Sector in Bangladesh". The Bangladesh Development Studies, Vol. XXXII, December, No. 4
- Radha, U. (2011). Analysing the Sources and Impact of Segmentation in the Banking Sector: A Case Study of Kenya. PhD thesis, Department of Economics, School of Oriental and African Studies (SOAS), London. University of London.120.
- Randall, R. (2015). Interest Rate Spreads in the Eastern Caribbean. (IMF Working Paper, WP/98/59). Washington D.C. World Bank.

- Robinson, W. (2012). Commercial Bank Interest Rate Spreads in Jamaica: Measurement, Trend and Prospects.www.boj.org.jm/uploads/pdf/papers\_pamphlets.pdf.
- Ross, S. (1976a). The Arbitrage Theory of Capital Asset Pricing. *Journal of Economic Theory*13, 341–60.
- Ross, S. (1976b). Risk, Return and Arbitrage. Risk Return in Finance edition, I. Friend and J. Bicksler, Ballinger, Cambridge, Massachusetts.
- Russel, D. (2014). What Drives Interest Rate Spreads in Kenya's Banking Sector? *International Journal of Economics and Finance*1(5), 76–85
- Salloum, A. and Hayek, J. (2012) Analyzing the Determinants of Commercial Bank Profitability in Lebanon, *International Research Journal of Finance and Economics*, Issue No. 93.
- Samuel, W. and Valderrama, L. (2016). "The Monetary Policy Regime and Banking Spreads in Barbados," (IMF Working Paper, WP/06/211). Washington D.C. World Bank.
- Sanya, S. and Gaertner, M. (2012). Assessing Bank Competition within the East African Community, (IMF Working Paper WP No 12/32). Washington D.C. World Bank.
- Saunders, A. and Schumacher, L. (2010), "The Determinants of Bank Interest Margins: An International Study,"19, 813-32.
- Saunders, M., Lewis, P. and Thornhill, A. (2010). *Research methods for business students*. 4th ed. London: Prentice Hall.
- Schwab, D. (2015). Research Methods for Organizational Studies, 2nd edition, Lawrence Erlbaum Associates, London, United Kingdom.

- Sekaran, U. & Bougie, R. (2011). Research Methods for Business: A Skill Building Approach. 5th Edition. Delhi. Aggarwal printing press.
- Siddiqui M. A. (2015). Towards Determination of Interest Spread of Commercial Banks:
   Empirical Evidences from Pakistan, *African Journal of Business Management*, 16 (5) 1851

   1862.
- Sologoub, D. (2016). The Determinants of Bank Interest Margins and Profitability: Case of Ukraine. www.bof.fi/bofit/seminar/bofcef06/sologub.pdf.121.
- State Bank of Pakistan (2016). "Efficiency of Financial Intermediation: An Analysis of Banking Spreads." *Financial Stability Review (FSR), The State Bank of Pakistan*: 28-31.
- Tennant, D. (2016). Are Interest Rate Spreads in Jamaica too Large? Views from within the Financial Sector. *Social and Economic Studies*, 55(3), pp. 88-111.
- Tobago, (2014). Ghosh, Saibal, "Regulatory Pressure, Market Discipline, and Bank Spreads in India: An Empirical Exploration," Global Economic Review, 37(2) (2008), 227-247. (IMF Working Paper No. wp/98/110.1998). Washington D.C.World Bank.
- Vogt, W.P. (2017). *Quantitative Research Methods for Professionals*. Boston, USA. Pearson Education, Inc.
- Were, R. (2015). "An Empirical Analysis of Interest Rate Spread in Kenya." AERC Research Paper. Nairobi, AERC
- Weth, A. (2012). Towards Determination of Interest Spread of Commercial Banks: Empirical Evidences from Pakistan, *African Journal of Business Management*, 16 (5) 1851 1862.

- World Bank. (2015), "The Pass-Through from Market Interest Rates to Bank Lending Rates in Germany", Discussion Paper No 11, Economic Research Center of the Deutsche Bundes bank. EARC.
- Williams, B. (2017). "Factors Determining Net Interest Margins in Australia: Domestic and Foreign Banks." Financial Markets, Institutions and Instruments, 6: 145-165.Working Paper, WP/07/101.www.econ.washington.edu/user/plbrock/ChileSpreads091603.pdf.
- Wong, M. and Zhou, K. (2016). "The Determinants of Net Interest Margins of Commercial Banks in Mainland China." *Emerging Markets Finance & Trade*, 44,41-53.
- Wooldridge, D. (2012). Are Interest Rate Spreads in Jamaica too Large? Views from within the Financial Sector. *Social and Economic Studies*, 55(3), pp. 88-111.
- Yang, K. and Miller, G. (2014). Handbook of Research Methods in Public Administration. New York, Taylor& Francis Group.
- Yokoshima, B. (2015). "Factors Determining Net Interest Margins in Australia: Domestic and Foreign Banks." Financial Markets, Institutions and Instruments, 6: 145-165.Working Paper, WP/07/101.www.econ.washington.edu/user/plbrock/ChileSpreads091603.pdf
- Zarruk, R. (1989). "Bank spread with uncertainty deposit level and risk aversion." *Journal of Banking and Finance*,13, 797–810.
- Zikmund, G., Babin, J., Carr, J. and Griffin, M. (2010). *Business Research Methods* 8<sup>th</sup> Edition, South-Western, Cengage Learning.

## APPENDIX I: LIST OF LICENCED COMMERCIAL BANKS IN KENYA

- 1. ABC Bank (Kenya)
- 2. Bank of Africa
- 3. Bank of Baroda
- 4. Bank of India
- 5. Barclays Bank of Kenya
- 6. Chase Bank Kenya (In Receivership)
- 7. Citibank
- 8. Commercial Bank of Africa
- 9. Consolidated Bank of Kenya
- 10. Cooperative Bank of Kenya
- 11. Credit Bank
- 12. Development Bank of Kenya
- 13. Diamond Trust Bank
- 14. Dubai Islamic Bank
- 15. Ecobank Kenya
- 16. Equity Bank
- 17. Family Bank
- 18. First Community Bank
- 19. Giro Commercial Bank
- 20. Guaranty Trust Bank Kenya
- 21. Guardian Bank
- 22. Gulf African Bank

- 23. Habib Bank AG Zurich
- 24. Housing Finance Company of Kenya
- 25. I&M Bank
- 26. Imperial Bank Kenya (In receivership)
- 27. Jamii Bora Bank
- 28. Kenya Commercial Bank
- 29. Mayfair Bank
- 30. Middle East Bank Kenya
- 31. National Bank of Kenya
- 32. NIC Bank
- 33. Oriental Commercial Bank
- 34. Paramount Universal Bank
- 35. Prime Bank (Kenya)
- 36. SBM Bank Kenya Limited
- 37. Sidian Bank
- 38. Spire Bank
- 39. Stanbic Bank Kenya
- 40. Standard Chartered Kenya
- 41. Trans National Bank Kenya
- 42. United Bank for Africa
- 43. Victoria Commercial Bank

## **APPENDIX II: DATA COLLECTION SHEETS**

Bank	Year	Quarter	ROA	Asset	Management efficiency	Bank Size	Leverage
ABC Bank (Kenva)	2015	201502	0.0065	0 1003	0.4153	21979802	0.8769
ABC Bank (Kenva)	2015	201503	0.0084	0.1247	0.4923	22002465	0.8753
ABC Bank (Kenya)	2015	201504	0.0161	0.1805	0.5681	22058297	0.8714
ABC Bank (Kenya)	2016	201601	0.0051	0.1993	0.2748	21727353	0.8667
ABC Bank (Kenya)	2016	2016O2	0.0063	0.2002	0.337	24039489	0.8776
ABC Bank (Kenya)	2016	2016Q4	0.0099	0.1996	0.3652	22422351	0.8664
ABC Bank (Kenya)	2017	2017Q1	0.0027	0.2134	0.3489	22678535	0.8657
ABC Bank (Kenya)	2017	2017Q2	0.0043	0.2392	0.3793	23705934	0.8694
ABC Bank (Kenya)	2017	2017Q3	0.0063	0.2525	0.5131	23705934	0.8678
ABC Bank (Kenya)	2017	2017Q4	0.0082	0.2298	0.4183	24804407	0.8726
Bank of Africa	2015	2015Q2	0.0005	0.0643	0.4358	62469210	0.8431
Bank of Africa	2015	2015Q3	0.0025	0.079	0.4868	65069310	0.8502
Bank of Africa	2015	2015Q4	-0.0207	0.2578	0.6845	69280267	0.8774
Bank of Africa	2016	2016Q1	-0.0019	0.2351	0.4179	66482816	0.8735
Bank of Africa	2016	2016Q2	0.0002	0.2815	0.4509	62804576	0.8654
Bank of Africa	2016	2016Q4	-0.0003	0.1511	0.4038	55995671	0.8497
Bank of Africa	2017	2017Q1	-0.0001	0.3313	0.5598	59626808	0.8583
Bank of Africa	2017	2017Q2	0.0001	0.3521	0.5621	61425613	0.8637
Bank of Africa	2017	2017Q3	0.0004	0.3765	0.5431	57257984	0.8529
Bank of Africa	2017	2017Q4	0.0007	0.386	0.5396	54191291	0.8437
Bank of Baroda	2015	2015Q2	0.024	0.0393	0.121	64198677	0.8311
Bank of Baroda	2015	2015Q3	0.0288	0.07	0.2022	65245206	0.843
Bank of Baroda	2015	2015Q4	0.0365	0.0762	0.1969	68177548	0.8347
Bank of Baroda	2016	2016Q1	0.0114	0.0734	0.1467	71954794	0.8354
Bank of Baroda	2016	2016Q2	0.0241	0.0686	0.1338	78391648	0.837
Bank of Baroda	2016	2016Q4	0.0468	0.0932	0.1494	82907475	0.8284
Bank of Baroda	2017	2017Q1	0.0117	0.0971	0.1594	85368565	0.8252
Bank of Baroda	2017	2017Q2	0.0294	0.0783	0.1306	88413486	0.8162
Bank of Baroda	2017	2017Q3	0.0421	0.0693	0.129	92015867	0.8186
Bank of Baroda	2017	2017Q4	0.0503	0.0526	0.1257	94153760	0.8191
Bank of India	2015	2015Q2	0.0182	0.0053	0.1291	38899261	0.8217
Bank of India	2015	2015Q3	0.0284	0.0052	0.1291	37527774	0.8166
Bank of India	2015	2015Q4	0.0349	0.0204	0.1426	42162947	0.8296
Bank of India	2016	2016Q1	0.0127	0.0094	0.1081	41427446	0.8166
Bank of India	2016	2016Q2	0.0233	0.0228	0.1215	43717462	0.8066
Bank of India	2016	2016Q4	0.0457	0.0142	0.1205	47815075	0.8006

Bank of India	2017	2017Q1	0.0123	0.0118	0.1143	49736103	0.7994
Bank of India	2017	2017Q2	0.0203	0.0249	0.1351	59956597	0.8172
Bank of India	2017	2017Q3	0.0332	0.031	0.1294	57297472	0.8094
Bank of India	2017	2017Q4	0.0472	0.0211	0.1206	56630656	0.7947
Barolays Bank of Kanya	2015	201502	0.0274	0.0445	0.4949	23469987	0.8456
Balciays Balk of Kellya	2013	2013Q2	0.0274	0.0445	0.4949	22104152	0.8450
Barclays Bank of Kenya	2015	2015Q3	0.0412	0.0502	0.503	3	0.8333
Barclays Bank of Kenya	2015	2015Q4	0.0501	0.0367	0.5064	24115269	0.8353
	2016		0.0106	0.05155	0.5212	24191314	0.0251
Barclays Bank of Kenya	2016	2016Q1	0.0126	0.05177	0.5312	0	0.8251
Barclays Bank of Kenya	2016	2016Q2	0.0227	0.0572	0.5468	0	0.8473
Barclays Bank of Kenya	2016	201604	0.0274	0.0681	0 5612	25949822	0 8379
Daterays Dank of Kenya	2010	2010Q4	0.0274	0.0001	0.5012	26042945	0.0377
Barclays Bank of Kenya	2017	2017Q1	0.0091	0.0694	0.5648	3	0.8324
Barclays Bank of Kenya	2017	2017O2	0.0184	0.0733	0.5639	26801554 7	0.8495
						26948176	
Barclays Bank of Kenya	2017	2017Q3	0.0294	0.0768	0.5627	4	0.8435
Barclays Bank of Kenya	2017	2017Q4	0.0368	0.0749	0.5623	6	0.8397
Chase Bank Kenya (In	2015	201502	0.016	0.0645	0 2002	13108615	0.8078
Chase Bank Kenya (In	2013	2013Q2	0.010	0.0043	0.3093	15180694	0.8978
Receivership)	2015	2015Q3	0.0216	0.0617	0.3253	2	0.906
Citibank	2015	2015Q2	0.0217	0.0436	0.2987	11582613 8	0.8281
Citibank	2015	2015Q3	0.0408	0.0412	0.3229	93483001	0.7823
Citibank	2015	2015Q4	0.0633	0.0664	0.306	88147287	0.7798
Citibank	2016	2016Q1	0.0133	0.0597	0.4085	89167854	0.7727
Citihank	2016	201602	0.0201	0.0490	0.214	10325469	0.7064
Ciudalik	2010	2016Q2	0.0291	0.0489	0.314	10332354	0.7904
Citibank	2016	2016Q4	0.0584	0.0293	0.2922	0	0.81
Citibank	2017	2017Q1	0.0121	0.0616	0.3978	0	0.7983
Citibank	2017	2017Q2	0.0349	0.0592	0.309	90025078	0.7955
Citibank	2017	2017Q3	0.0527	0.0576	0.2998	88851809	0.7843
Citibank	2017	2017Q4	0.0649	0.0458	0.2947	98231912	0.7946
Commercial Bank of Africa	2015	2015O2	0.0161	0.0562	0.3128	17936640 4	0.8951
						18456686	
Commercial Bank of Africa	2015	2015Q3	0.0254	0.0484	0.3008	2	0.8965
Commercial Bank of Africa	2015	2015Q4	0.0314	0.0456	0.3301	0	0.8856
Commercial Bank of Africa-	2014	201601	0.000	0.0941	0.2507	19596208	0 0770
	2010	2010Q1	0.008	0.0841	0.3397	0 20632856	0.8/78
Commercial Bank of Africa	2016	2016Q2	0.0163	0.0945	0.377	1	0.8821
Commercial Bank of Africa	2016	201604	0.036	0.0743	0.3624	21087792	0.8697
							•

						20269963	
Commercial Bank of Africa	2017	2017Q1	0.0099	0.0836	0.3506	9	0.8575
Commercial Bank of Africa	2017	2017Q2	0.018	0.0835	0.3695	3	0.8688
	2015	201502	0.02.02	0.0010	0.0754	21900937	0.0641
Commercial Bank of Africa	2017	2017Q3	0.0262	0.0919	0.3754	1 22241729	0.8641
Commercial Bank of Africa	2017	2017Q4	0.0317	0.0948	0.3867	8	0.8626
Consolidated Bank of Kenya	2015	2015Q2	0.0031	0.3571	0.4555	14573039	0.8898
Consolidated Bank of Kenya	2015	2015Q3	0.0021	0.35065	0.4668	14425550	0.8899
Consolidated Bank of Kenya	2015	2015Q4	0.0035	0.2123	0.6657	14135528	0.8857
Consolidated Bank of Kenya	2016	2016Q1	-0.002	0.2129	0.6352	14272743	0.8889
Consolidated Bank of Kenya	2016	2016Q2	0.0044	0.191	0.643	14419461	0.893
Consolidated Bank of Kenya	2016	2016Q4	-0.0199	0.2224	0.7074	13917895	0.8992
Consolidated Bank of Kenya	2017	2017Q1	0.0015	0.2363	0.6538	13697179	0.9032
Consolidated Bank of Kenya	2017	2017Q2	-0.0109	0.2528	0.7311	13620906	0.9128
Consolidated Bank of Kenya	2017	2017Q3	-0.0214	0.2769	0.77	13423571	0.9222
Consolidated Bank of Kenya	2017	2017Q4	0.0326	0.2947	0.8079	13455744	0.9206
Commission Daris of Komm	2015	201502	0.02(2	0.0400	0.2897	31899896	0.9564
Cooperative Bank of Kenya	2015	2015Q2	0.0263	0.0409	0.3886	32394811	0.8564
Cooperative Bank of Kenya	2015	2015Q3	0.0358	0.0415	0.4031	0	0.8519
Cooperative Bank of Kenva	2015	201504	0.0415	0.0394	0.4193	33954980 8	0.8548
			0.01.11	0.0400		34835488	
Cooperative Bank of Kenya	2016	2016Q1	0.0141	0.0403	0.3639	9 36004146	0.8431
Cooperative Bank of Kenya	2016	2016Q2	0.0283	0.0465	0.3792	7	0.8414
Cooperative Bank of Kenva	2016	2016O4	0.0515	0.0477	0.4278	34999776 0	0.8284
						37601820	
Cooperative Bank of Kenya	2017	2017Q1	0.0117	0.0458	0.426	1 38008685	0.8227
Cooperative Bank of Kenya	2017	2017Q2	0.0235	0.0486	0.4247	9	0.8332
Cooperative Bank of Kenya	2017	201703	0.0344	0.0656	0 4266	38446497 1	0 8285
	2017	2017 20	0.0511	0.0020	0.1200	38282964	0.0205
Cooperative Bank of Kenya	2017	2017Q4	0.0431	0.0742	0.4494	0	0.8218
Credit Bank	2015	2015Q2	0.0016	0.1321	0.4625	99936791	0.8765
Credit Bank	2015	2015Q3	0.0024	0.0906	0.5756	10189227	0.873
Credit Bank	2015	2015Q4	-0.0174	0.0726	0.7026	10287085	0.8647
Credit Bank	2016	2016Q1	0.0027	0.0659	0.463	11153369	0.8319
Credit Bank	2016	2016Q2	0.0074	0.0613	0.4869	11197836	0.8118
Credit Bank	2016	2016Q4	0.0087	0.0856	0.5366	12201968	0.7984
Credit Bank	2017	2017Q1	0.0039	0.0816	0.5521	13010223	0.8092
Credit Bank	2017	2017Q2	0.0077	0.0934	0.5543	13959064	0.8121
Credit Bank	2017	2017Q3	0.011	0.0873	0.5511	14411385	0.8149
Credit Bank	2017	2017Q4	0.0124	0.0904	0.5609	14465074	0.8158
Development Bank of Kenya	2015	2015Q2	0.0005	0.2248	0.2248	16187543	0.8137

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Development Bank of Kenya	2015	2015Q3	0.0037	0.2578	0.2395	16245892	0.8245
Development Bank of Kenya	2015	2015Q4	0.0247	0.2697	0.2425	16345823	0.8265
Development Bank of Kenya	2016	2016Q1	0.0011	0.278	0.2575	16347860	0.8279
Development Bank of Kenya	2016	2016Q2	0.0005	0.2943	0.2698	16400245	0.8243
Development Bank of Kenya	2016	2016Q4	0.0058	0.2971	0.2733	16418382	0.8232
Development Bank of Kenya	2017	2017Q1	0.0014	0.3058	0.28	16435365	0.8224
Development Bank of Kenya	2017	2017Q2	0.0006	0.3038	0.3086	16710985	0.8259
Development Bank of Kenya	2017	2017Q3	0.0049	0.2608	0.247	16127993	0.8166
Development Bank of Kenya	2017	2017Q4	0.0273 4	0.2511	0.2833	16319925	0.8205
Diamond Trust Bank	2015	2015O2	0.0192	0.0126	0.3064	16432196 7	0.8093
	2010	2010 22	0.000	0.01120	0.0001	16600439	0.0070
Diamond Trust Bank	2015	2015Q3	0.0302	0.0145	0.3034	7 19094790	0.8276
Diamond Trust Bank	2015	2015Q4	0.037	0.0291	0.3013	3	0.8429
Diamond Trust Bank	2016	2016Q1	0.0091	0.0315	0.3049	20548034 9	0.8481
Diamond Trust Pank	2016	201602	0.0104	0.0415	0.2073	22214576	0.9129
	2010	2010Q2	0.0194	0.0415	0.2973	24412381	0.8138
Diamond Trust Bank	2016	2016Q4	0.0364	0.0404	0.2868	8	0.8508
Diamond Trust Bank	2017	2017Q1	0.0077	0.0436	0.3027	24880525	0.8486
Diamond Trust Bank	2017	2017Q2	0.0158	0.0508	0.2904	25815960 3	0.8507
Diamond Trust Bank	2017	201703	0.0298	0 5274	0 2723	26245976 4	0 8467
	2017		010220		012720	26798523	
Diamond Trust Bank	2017	2017Q4	0.0362	0.5732	0.2936	8	0.8501
Diamond Trust Bank	2017	2017Q2	-0.2019	0	1559.691	1694734	0.0891
Diamond Trust Bank	2017	2017Q3	-0.3024	0	73.3212	1855248	0.3014
Diamond Trust Bank	2017	2017Q4	-0.3215	0	38.0727	2610309	0.5139
Ecobank Kenya	2015	2015Q2	0.0008	0.0978	0.5478	48824374	0.8444
Ecobank Kenya	2015	2015Q3	0.0007	0.0748	0.5397	55142958	0.8677
Ecobank Kenya	2015	2015Q4	0.0018	0.0825	0.5321	52426513	0.8558
Ecobank Kenya	2016	2016Q1	0.0012	0.1034	0.5496	51356798	0.8454
Ecobank Kenya	2016	2016Q2	0.0015	0.1251	0.5662	46581940	0.8291
Ecobank Kenya	2016	2016Q4	-0.0613	0.219	1.1703	47123839	0.8449
Ecobank Kenya	2017	2017Q1	0.0013	0.3789	0.8143	47908081	0.8473
Ecobank Kenya	2017	2017Q2	0.0022	0.4275	0.6207	45145977	0.8331
Ecobank Kenya	2017	2017Q3	0.0053	0.4183	0.6076	44295854	0.828
Ecobank Kenya	2017	2017Q4	-0.0268	0.5062	0.9931	53455760	0.8796
Equity Bank	2015	201502	0.033	0.0422	0.4258	31818342 6	0.8502
	2010	201702	0.000	0.0122	0.4200	32114624	0.0120
Equity Bank	2015	2015Q3	0.0494	0.0429	0.4388	7 34132931	0.8438
Equity Bank	2015	2015Q4	0.0656	0.0304	0.4253	8	0.861

						34755990	
Equity Bank	2016	2016Q1	0.0191	0.036	0.4052	6	0.85
Equity Bank	2016	2016Q2	0.0362	0.044	0.4217	0	0.85
						37974899	
Equity Bank	2016	2016Q4	0.06	0.0723	0.4722	6 38745931	0.8622
Equity Bank	2017	2017Q1	0.0207	0.0702	0.4826	2	0.8754
Equity Donly	2017	201702	0.0294	0.0605	0 4025	39576385	0.9672
	2017	2017Q2	0.0384	0.0095	0.4955	40275698	0.8075
Equity Bank	2017	2017Q3	0.0478	0.0691	0.4427	2	0.8576
Equity Bank	2017	2017Q4	0.0568	0.0688	0.438	40640248 6	0.8477
Family Bank	2015	2015Q2	0.0228	0.0595	0.4928	74747708	0.8509
Family Bank	2015	2015O3	0.0329	0.0593	0.4898	80554920	0.8539
Family Bank	2015	201504	0.0355	0.0276	0.4757	81190214	0.8531
Family Bank	2016	201601	0.0061	0.0736	0 4797	85939969	0.8572
Family Bank	2016	201602	0.0131	0.0895	0.5173	80104753	0.8501
Family Bank	2016	201604	0.0091	0.1308	0.638	60/3237/	0.8183
Family Dank	2010	201701	0.0020	0.179	0.058	66706570	0.0105
	2017	2017Q1	-0.0039	0.1759	0.8000	(0201040	0.8254
	2017	2017Q2	-0.0072	0.1758	0.8013	69391049	0.8254
Family Bank	2017	2017Q3	-0.0105	0.1846	0.8103	/14/9580	0.834
Family Bank	2017	2017Q4	-0.9199	0.2173	0.8576	69050943	0.8319
First Community Bank	2015	2015Q2	0.0048	0.1974	0.6983	15892384	0.9003
First Community Bank	2015	2015Q3	0.0089	0.2001	0.7257	15726633	0.8927
First Community Bank	2015	2015Q4	0.0007	0.2538	0.8246	14564631	0.8893
First Community Bank	2016	2016Q1	0.0064	0.2387	0.6568	14827745	0.8874
First Community Bank	2016	2016Q2	0.0096	0.2255	0.6898	15069141	0.8873
First Community Bank	2016	2016Q4	-0.0028	0.3522	0.8702	14962089	0.8959
First Community Bank	2017	2017Q1	0.0045	0.3655	0.6259	15521372	0.8968
First Community Bank	2017	2017Q2	0.0056	0.3272	0.7043	16489388	0.9025
First Community Bank	2017	2017Q3	0.0091	0.371	0.7162	15050947	0.8922
First Community Bank	2017	2017Q4	0.0125	0.4522	0.6997	17359968	0.9016
Giro Commercial Bank	2015	2015Q2	0.0165	0.0146	0.2367	14235735	0.8527
Giro Commercial Bank	2015	2015Q3	0.0246	0.0165	0.2567	15005725	0.8374
Giro Commercial Bank	2015	2015Q4	0.0303	0.0198	0.247	15810061	0.8207
Giro Commercial Bank	2016	2016Q1	0.0094	0.0199	0.2598	17081523	0.8298
Giro Commercial Bank	2016	2016Q2	0.0132	0.0209	0.2768	16942674	0.8162
Giro Commercial Bank	2016	201604	0.0358	0.0213	0.2604	16247276	0.8116
Giro Commercial Bank	2017	201701	0.0089	0.0225	0.2754	15983567	0.8247
Giro Commercial Bank	2017	201702	0.0105	0.0236	0.2467	15003576	0.8276
Giro Commercial Bank	2017	201703	0.0206	0.0256	0.2658	14678909	0.8345
Giro Commercial Bank	2017	201704	0.0342	0.0278	0.2761	13238474	0.8345

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Guaranty Trust Bank Kenya	2015	2015Q2	0.0104	0.0542	0.425	30169915	0.7458
Guaranty Trust Bank Kenya	2015	2015Q3	0.017	0.0509	0.4373	29161835	0.7333
Guaranty Trust Bank Kenya	2015	2015Q4	0.0186	0.0459	0.4543	29374062	0.7309
Guaranty Trust Bank Kenya	2016	2016Q1	0.007	0.0437	0.412	29252326	0.725
Guaranty Trust Bank Kenya	2016	2016Q2	0.0143	0.0436	0.4212	28784276	0.7148
Guaranty Trust Bank Kenya	2016	2016Q4	0.0223	0.077	0.4416	29619072	0.7175
Guaranty Trust Bank Kenya	2017	2017Q1	0.0032	0.0869	0.5325	27803556	0.697
Guaranty Trust Bank Kenya	2017	2017Q2	0.0072	0.0613	0.4996	28487642	0.6994
Guaranty Trust Bank Kenya	2017	2017Q3	0.0083	0.0825	0.5234	28635634	0.7327
Guaranty Trust Bank Kenya	2017	2017Q4	0.0087	0.1076	0.5665	27627849	0.7949
Guardian Bank	2015	2015Q2	0.0126	0.0857	0.3306	15694727	0.8796
Guardian Bank	2015	2015Q3	0.0222	0.0844	0.3303	15113307	0.8681
Guardian Bank	2015	2015Q4	0.0225	0.1114	0.3817	14609492	0.8642
Guardian Bank	2016	2016Q1	0.004	0.1089	0.3175	15386946	0.8678
Guardian Bank	2016	2016Q2	0.0053	0.0998	0.3977	15349948	0.868
Guardian Bank	2016	2016Q4	0.0205	0.0877	0.4159	14705351	0.8494
Guardian Bank	2017	2017Q1	0.0062	0.0836	0.3721	12755313	0.8492
Guardian Bank	2017	2017Q2	0.0089	0.0844	0.3849	15271509	0.8499
Guardian Bank	2017	2017Q3	0.013	0.088	0.3838	15520532	0.8501
Guardian Bank	2017	2017Q4	0.0144	0.1167	0.4062	15802759	0.8497
Gulf African Bank	2015	2015Q2	0.0285	0.0642	0.4829	21903335	0.8379
Gulf African Bank	2015	2015Q3	0.0374	0.06	0.5029	23723135	0.8431
Gulf African Bank	2015	2015Q4	0.0442	0.0906	0.5337	24713782	0.8431
Gulf African Bank	2016	2016Q1	0.0117	0.0941	0.5145	23398523	0.8267
Gulf African Bank	2016	2016Q2	0.0195	0.0739	0.5597	22877199	0.8179
Gulf African Bank	2016	2016Q4	0.0278	0.0999	0.5815	27156264	0.8389
Gulf African Bank	2017	2017Q1	0.007	0.0837	0.589	26213067	0.8285
Gulf African Bank	2017	2017Q2	0.0098	0.0905	0.63	30085287	0.8519
Gulf African Bank	2017	2017Q3	0.017	0.0846	0.6144	29751830	0.8456
Gulf African Bank	2017	2017Q4	0.0081	0.1012	0.7452	31316228	0.8589
Habib Bank AG Zurich	2015	2015Q2	0.0164	0.0196	0.3224	13721500	0.8265
Habib Bank AG Zurich	2015	2015Q3	0.0231	0.0201	0.3175	14003465	0.8236
Habib Bank AG Zurich	2015	2015Q4	0.0353	0.0221	0.3109	14439951	0.8218
Habib Bank AG Zurich	2016	2016Q1	0.0093	0.0231	0.2736	16490956	0.8383
Habib Bank AG Zurich	2016	2016Q2	0.0198	0.0235	0.2693	16765434	0.8349
Habib Bank AG Zurich	2016	2016Q4	0.0365	0.0301	0.2958	17032990	0.8259
Habib Bank AG Zurich	2017	2017Q1	0.0068	0.0401	0.3398	16831253	0.8431
Habib Bank AG Zurich	2017	2017Q2	0.0121	0.1017	0.3392	16899767	0.8405
Habib Bank AG Zurich	2017	2017Q3	0.0198	0.1064	0.3422	17653876	0.8427

Habib Bank AG Zurich	2017	2017Q4	0.0219	0.1078	0.3465	18708241	0.8481
Housing Finance Company of Kenya	2015	201502	0.0098	0.0832	0.3277	66538187	0.8548
Housing Finance Company of	2015	2010 22	0.0070	0.0052	0.3277	00000107	0.00 10
Kenya	2015	2015Q3	0.0198	0.0788	0.306	64907602	0.8653
Housing Finance Company of Kenya	2015	2015Q4	0.0252	0.0773	0.2876	68808654	0.8679
Housing Finance Company of	2016	201/01	0.00.64	0.00.17	0.0010	(0100000	0.0724
Kenya Housing Finance Company of	2016	2016Q1	0.0064	0.0847	0.2818	69122232	0.8634
Kenya	2016	2016Q2	0.0131	0.1003	0.2933	69895556	0.8618
Housing Finance Company of	2016	201604	0.0212	0 1127	0.221	68084020	0.8564
Housing Finance Company of	2010	2010Q4	0.0212	0.1157	0.321	00004930	0.0304
Kenya	2017	2017Q1	0.002	0.1426	0.394	67986372	0.8548
Housing Finance Company of Kenya	2017	201702	0.0025	0.15	0 3985	67587483	0 8554
Housing Finance Company of	2017	2017 Q2	0.0025	0.15	0.3703	07507405	0.0554
Kenya	2017	2017Q3	0.0037	0.1583	0.3915	66807678	0.8536
Housing Finance Company of Kenya	2017	201704	0.0063	0.1654	0.3977	62126556	0.8396
						14532738	
I&M Bank	2015	2015Q2	0.0274	0.0251	0.2333	9	0.8397
I&M Bank	2015	2015O3	0.0394	0.0368	0.233	8	0.8416
						14784633	
I&M Bank	2015	2015Q4	0.0566	0.0496	0.2281	9 15777578	0.8229
I&M Bank	2016	2016Q1	0.0142	0.0554	0.2369	1	0.8322
	2016	201702	0.0201	0.0565	0.0500	16442593	0.0070
I&M Bank	2016	2016Q2	0.0291	0.0565	0.2522	3 16411612	0.8262
I&M Bank	2016	2016Q4	0.0527	0.0771	0.3208	2	0.8093
LeM Doult	2017	201701	0.0108	0.0726	0.2147	18158207	0.9417
	2017	2017Q1	0.0108	0.0720	0.3147	17732958	0.8417
I&M Bank	2017	2017Q2	0.0222	0.0771	0.329	5	0.8282
I&M Bank	2017	201703	0.0311	0.0831	0 3/83	18281787	0.8276
	2017	2017Q3	0.0311	0.0651	0.3485	18395251	0.8270
I&M Bank	2017	2017Q4	0.0409	0.1464	0.3812	7	0.8096
Imperial Bank Kenya (In receivership)	2015	2015Q2	0.0232	0.0623	0.3919	61576704	0.8599
Jamii Bora Bank	2015	2015Q2	0.0029	0.0696	0.4972	15896471	0.8018
Jamii Bora Bank	2015	2015O3	0.0036	0.0584	0.4846	17042346	0.8141
Jamii Bora Bank	2015	201504	0.0022	0.0766	0.4809	16781543	0.8115
Jamii Bora Bank	2016	2016O1	0.0002	0.0808	0.3755	17281779	0.8168
Jamii Bora Bank	2016	201602	-0.0009	0.0965	0.412	17103526	0.8159
Iamii Bora Bank	2016	201604	-0.0312	0 2289	0.6506	15724254	0 7717
Jamii Bora Bank	2010	201024	-0.0076	0.2265	0.6803	15635425	0.7672
Jamii Dora Darl	2017	2017Q1	0.0176	0.2303	0.0095	1/762590	0.7552
	2017	2017Q2	-0.0176	0.2478	0.7163	14/03589	0.7552
Jamii Bora Bank	2017	2017Q3	-0.0265	0.2505	0.7576	13674983	0.7436
Jamii Bora Bank	2017	2017Q4	-0.0593	0.2534	0.7695	12850795	0.7312

						42837392	
Kenya Commercial Bank	2015	2015Q2	0.0275	0.0664	0.4238	9	0.8286
Kenya Commercial Bank	2015	2015Q3	0.0382	0.0588	0.4166	44377304 1	0.83
			0.0501	0.0440	0.00.01	46774117	
Kenya Commercial Bank	2015	2015Q4	0.0501	0.0618	0.3961	3 46704028	0.8271
Kenya Commercial Bank	2016	2016Q1	0.0128	0.0835	0.4057	9	0.8603
Kanya Commercial Bank	2016	201602	0.0208	0.0878	0 3068	46811926	0.8466
Kenya Commerciai Bank	2010	2010Q2	0.0298	0.0878	0.3908	50477767	0.8400
Kenya Commercial Bank	2016	2016Q4	0.0564	0.0801	0.4158	4	0.8396
Kenva Commercial Bank	2017	201701	0.012	0.0822	0.4332	52053566 2	0.853
						53997243	
Kenya Commercial Bank	2017	2017Q2	0.0255	0.0809	0.4369	0	0.8474
Kenya Commercial Bank	2017	2017Q3	0.0376	0.0843	0.4373	54089254	0.8342
	2017	201704	0.05.67	0.0024	0.4407	55524135	0.0226
Kenya Commercial Bank	2017	2017Q4	0.0567	0.0834	0.4487	6	0.8326
Mayfair Bank	2017	2017Q3	-0.1246	0	4.6526	2769235	0.6247
Mayfair Bank	2017	2017Q4	-0.0839	0	3.5074	3547988	0.6705
Middle East Bank Kenya	2015	2015Q2	-0.0008	0.0154	0.4567	5464573	0.7653
Middle East Bank Kenya	2015	2015Q3	-0.0016	0.0264	0.4673	5435728	0.7664
Middle East Bank Kenya	2015	2015Q4	-0.0235	0.0304	0.4873	5346789	0.7678
Middle East Bank Kenya	2016	2016Q1	-0.0006	0.0365	0.4962	5300243	0.7702
Middle East Bank Kenya	2016	2016Q2	-0.0009	0.0402	0.5073	5287645	0.7713
Middle East Bank Kenya	2016	2016Q4	-0.0193	0.0428	0.5256	5233522	0.7722
Middle East Bank Kenva	2017	201701	-0.0007	0.0476	0.5257	5213476	0.7745
Middle East Bank Kenva	2017	201702	-0.001	0.0567	0.5286	5200163	0.7743
Middle Fast Bank Kenya	2017	201703	-0.0024	0.0674	0.5325	51675345	0.7736
Middle East Dank Kenya	2017	2017Q3	0.0024	0.0744	0.5325	5121026	0.7721
	2017	2017Q4	-0.0081	0.0744	0.5548	12987356	0.7751
National Bank of Kenya	2015	2015Q2	-0.0045	0.0987	0.7654	4	0.9365
National Bank of Kenva	2015	201503	-0.0097	0.1076	0.6985	12678345	0.9246
						12529503	
National Bank of Kenya	2015	2015Q4	-0.0134	0.1735	0.7272	5	0.9129
National Bank of Kenya	2016	2016Q1	0.0021	0.2365	0.6842	9	0.9097
	2016	201602	0.0027	0.4015	0.6419	11615772	0.0024
National Bank of Kenya	2016	2016Q2	0.0037	0.4215	0.6418	3 11192915	0.9034
National Bank of Kenya	2016	2016Q4	0.0005	0.545	0.7064	8	0.9397
National Bank of Kenya	2017	201701	0.0004	0 4994	0.6851	11544282	0 9048
	2017	2017Q1	0.0004	0.4774	0.0051	11652200	0.70+0
National Bank of Kenya	2017	2017Q2	0.0018	0.5155	0.6653	7	0.9036
National Bank of Kenya	2017	2017Q3	0.0054	0.5198	0.6721	11345769 4	0.9165
	0.01-		0.00.7	0.5055		10994204	0.005
National Bank of Kenya	2017	2017 <b>Q</b> 4	0.0067	0.5282	0.6761	2 13478653	0.9359
NIC Bank	2015	2015Q2	0.0234	0.1345	0.4376	4	0.8346

						13987465	
NIC Bank	2015	2015Q3	0.0298	0.1256	0.4326	3	0.8286
NIC Bank	2015	201504	0.0395	0.1234	0.4297	14078934 5	0.8256
						15226220	
NIC Bank	2016	2016Q1	0.0084	0.1224	0.4273	5	0.8198
NIC Bank	2016	2016Q2	0.0214	0.1196	0.4236	13723430 7	0.8165
			0.0044		0.44.67	16184735	0.0100
NIC Bank	2016	2016Q4	0.0366	0.1181	0.4165	16630474	0.8129
NIC Bank	2017	2017Q1	0.008	0.119	0.4192	6	0.8126
	2017	201702	0.0172	0.1106	0.4008	16986734	0.9957
NIC Bank	2017	2017Q2	0.0173	0.1186	0.4098	5 18647598	0.8257
NIC Bank	2017	2017Q3	0.0234	0.1195	0.3854	3	0.8346
NIC Donk	2017	201704	0.0204	0 1191	0.2780	19281687	0.8400
	2017	2017Q4	0.0294	0.1102	0.3789	005(010	0.0499
Oriental Commercial Bank	2015	2015Q2	0.0043	0.1192	0.3468	9056018	0.8199
Oriental Commercial Bank	2015	2015Q3	0.0076	0.1325	0.3765	8934653	0.7965
Oriental Commercial Bank	2015	2015Q4	0.0049	0.1577	0.3922	8496350	0.7364
Oriental Commercial Bank	2016	2016Q1	0.0029	0.1464	0.3321	9024348	0.7493
Oriental Commercial Bank	2016	2016Q2	0.0035	0.1213	0.4112	8776999	0.6665
Oriental Commercial Bank	2016	2016Q4	0.0036	0.1285	0.5314	9920247	0.7045
Oriental Commercial Bank	2017	201701	0.003	0.1236	0.4692	10005843	0.7047
Oriental Commercial Bank	2017	2017Q2	0.0067	0.1166	0.4577	10482709	0.7149
Oriental Commercial Bank	2017	2017Q3	0.0105	0.1107	0.4459	10492155	0.7121
Oriental Commercial Bank	2017	201704	0.011	0.1109	0.5002	10576525	0.7137
Paramount Universal Bank	2015	2015Q2	0.0007	0.1254	0.2768	11045879	0.8762
Paramount Universal Bank	2015	2015Q3	0.0009	0.1316	0.2696	10834567	0.8673
Paramount Universal Bank	2015	2015Q4	0.016	0.1387	0.2648	10525709	0.8541
Paramount Universal Bank	2016	201601	0.004	0.1633	0.2461	9853717	0.8402
Paramount Universal Bank	2016	201602	0.0062	0.1567	0.2576	8723458	0.8365
Paramount Universal Bank	2010	2016Q2	0.0111	0.1342	0.2738	9426931	0.8256
Paramount Universal Bank	2017	201701	0.0006	0.1613	0.2750	0738035	0.8296
Daramount Universal Dank	2017	2017Q1	0.0026	0.140	0.2610	0745544	0.8256
	2017	2017Q2	0.0050	0.149	0.3019	9745544	0.8230
Paramount Universal Bank	2017	2017Q3	0.0062	0.1637	0.3404	9579358	0.8194
Paramount Universal Bank	2017	2017Q4	0.0101	0.1573	0.3362	9541251	0.8156
Prime Bank (Kenya)	2015	2015Q2	0.0199	0.01984	0.2339	61271772	0.8654
Prime Bank (Kenya)	2015	2015Q3	0.0312	0.0213	0.2289	64343912	0.8718
Prime Bank (Kenya)	2015	2015Q4	0.0399	0.0241	0.3186	65001313	0.8658
Prime Bank (Kenya)	2016	2016Q1	0.0082	0.0245	0.2405	66032315	0.8603
Prime Bank (Kenya)	2016	2016Q2	0.0141	0.0372	0.2465	65000953	0.8526
Prime Bank (Kenya)	2016	2016Q4	0.0358	0.0471	0.3393	65338215	0.8342
Prime Bank (Kenya)	2017	2017Q1	0.0076	0.0396	0.2853	67925452	0.8361

				-			
Prime Bank (Kenya)	2017	2017Q2	0.0151	0.0388	0.288	70961293	0.8389
Prime Bank (Kenya)	2017	2017Q3	0.022	0.042	0.2981	72601507	0.8238
Prime Bank (Kenya)	2017	2017Q4	0.0259	0.058	0.3176	76438199	0.8124
SBM Bank Kenya Limited	2017	2017Q3	-0.0156	0.8942	0.8732	10943492	0.8772
SBM Bank Kenya Limited	2017	2017Q4	-0.0307	0.8893	0.8617	11745145	0.8632
Sidian Bank	2015	2015Q2	0.0045	0.0976	0.4357	15476855	0.7765
Sidian Bank	2015	2015Q3	0.0087	0.1064	0.4724	17283654	0.7865
Sidian Bank	2015	2015Q4	0.0272	0.1284	0.5287	19106557	0.7992
Sidian Bank	2016	2016Q1	0.0008	0.1436	0.5547	19873654	0.8094
Sidian Bank	2016	2016Q2	0.0012	0.1654	0.6098	19996753	0.8123
Sidian Bank	2016	2016Q4	0.003	0.1812	0.6596	20875499	0.8147
Sidian Bank	2017	2017Q1	-0.0034	0.1965	0.7153	21465376	0.8145
Sidian Bank	2017	2017Q2	-0.0065	0.2087	0.7753	20876534	0.8156
Sidian Bank	2017	2017Q3	-0.0143	0.2165	0.8365	19876234	0.8196
Sidian Bank	2017	2017Q4	-0.0328	0.2275	0.8751	19301752	0.8214
Spire Bank	2015	2015Q2	0.003	0.4107	0.4626	16857598	0.8751
Spire Bank	2015	2015Q3	-0.0059	0.4201	0.5343	15826494	0.8741
Spire Bank	2015	2015Q4	-0.0453	0.4071	0.7658	14469562	0.857
Spire Bank	2016	2016Q1	-0.0128	0.3752	0.823	15107721	0.872
Spire Bank	2016	2016Q2	-0.0376	0.2876	0.98	14657869	0.8691
Spire Bank	2016	2016Q4	-0.0701	0.1779	1.0014	13802498	0.8683
Spire Bank	2017	2017Q1	0.0132	0.1854	1.0065	13652346	0.8567
Spire Bank	2017	2017Q2	0.0467	0.3267	1.2346	12653985	0.8672
Spire Bank	2017	2017Q3	0.0983	0.4056	1.376	11763546	0.8875
Spire Bank	2017	2017Q4	0.1414	0.4484	1.5894	11147949	0.8935
Stanbic Bank Kenya	2015	2015Q2	0.0098	0.0463	0.3876	19873456 1	0.8546
Stanbic Bank Kenya	2015	2015Q3	0.0346	0.0476	0.3975	19945327 2	0.8674
Stanbic Bank Kenya	2015	2015Q4	0.0324	0.0515	0.4087	20002375 3	0.8753
Stankia Daula Kanan	2016	201(01	0.0076	0.0522	0.4122	20167436	0.9665
	2010	2016Q1	0.0076	0.0332	0.4125	20233261	0.8003
Stanbic Bank Kenya	2016	2016Q2	0.0172	0.0544	0.444	1	0.8632
Stanbic Bank Kenya	2016	2016Q4	0.0351	0.0607	0.4474	7	0.8524
Stanbic Bank Kenya	2017	2017Q1	0.0071	0.0611	0.4802	21203320	0.8624
Stanbic Bank Kenya	2017	2017Q2	0.0101	0.055	0.5658	22480442 8	0.8629
Stanbic Bank Kenya	2017	2017Q3	0.0287	0.0632	0.5763	22765236 5	0.8698
Stanbic Bank Kenva	2017	201704	0.0397	0.0587	0.5834	23654278 4	0.8612
			0.001	0.0/==	0.455	22833809	0.0075
Standard Chartered Kenya	2015	2015Q2	0.024	0.0677	0.4665	4	0.8255

						23178686	
Standard Chartered Kenya	2015	2015Q3	0.0379	0.0852	0.4505	4	0.8225
Standard Chartered Kenva	2015	201504	0.0383	0 1277	0 5393	23413055	0.8253
	2010	2010 2	0.00000	011277	0.0070	24971065	0.0200
Standard Chartered Kenya	2016	2016Q1	0.0142	0.1404	0.4094	1	0.8244
Standard Chartered Kenva	2016	2016O2	0.0283	0.1344	0.4026	25590572	0.8316
						25017410	
Standard Chartered Kenya	2016	2016Q4	0.051	0.1226	0.4287	8	0.8246
Standard Chartered Kenya	2017	2017Q1	0.0104	0.1315	0.4487	4	0.8334
			0.04.40	0.4.40.4		28871110	0.0701
Standard Chartered Kenya	2017	2017Q2	0.0163	0.1496	0.5029	8 30995156	0.8521
Standard Chartered Kenya	2017	2017Q3	0.0208	0.1487	0.5212	9	0.8587
Standard Chartarad Vanua	2017	201704	0.0224	0.1205	0 4065	28512453	0.9426
	2017	2017Q4	0.0554	0.1393	0.4963	0	0.8430
Trans National Bank Kenya	2015	2015Q2	0.0106	0.1058	0.5264	10456605	0.8111
Trans National Bank Kenya	2015	2015Q3	0.0167	0.0931	0.5188	10803306	0.8107
Trans National Bank Kenya	2015	2015Q4	0.0239	0.1077	0.4997	10533322	0.807
Trans National Bank Kenya	2016	2016Q1	0.0046	0.1329	0.4885	10507615	0.802
Trans National Bank Kenya	2016	2016Q2	0.0111	0.1425	0.4992	9973356	0.8119
Trans National Bank Kenya	2016	2016Q4	0.0153	0.1375	0.5606	10464500	0.8019
Trans National Bank Kenya	2017	201701	0.001	0.1317	0.6409	10606271	0.8031
Trans National Bank Kenva	2017	201702	0.0087	0.1312	0.6578	11764562	0.8034
Trans National Bank Kenya	2017	2017Q3	0.0143	0.1256	0.6674	12782534	0.8134
Trans National Bank Kenya	2017	201704	0.0216	0.1234	0.6987	12835647	0.8156
United Bank for Africa	2015	2015O2	0.0008	0.0213	0.4367	5210456	0.6089
United Bank for Africa	2015	2015Q3	0.0023	0.0232	0.4576	5314672	0.6134
United Bank for Africa	2015	201504	0.0034	0.0239	0.4754	5823567	0.6175
United Bank for Africa	2016	201601	0.0007	0.0241	0.4876	5976345	0.6196
United Bank for Africa	2016	201602	0.0118	0.0245	0.5276	5761555	0.6207
United Bank for Africa	2016	201604	0.0089	0.0245	0.6043	5601281	0.6173
United Bank for Africa	2017	201701	0.0006	0.0225	0.7068	6281056	0.6579
United Bank for Africa	2017	2017Q1	0.0009	0.0246	0.7146	7748462	0.722
United Bank for Africa	2017	2017Q2	0.0009	0.0365	0.6979	8234657	0.6078
United Bank for Africa	2017	2017Q3	0.0016	0.0303	0.6889	8504732	0.6576
Victoria Commercial Bank	2017	201502	0.0114	0.0000	0.1345	20465287	0.8534
	2015	2015Q2	0.0114	0.0000	0.1343	20403287	0.0354
victoria Commercial Bank	2015	2015Q3	0.0234	0.0000	0.1657	20576543	0.8465
Victoria Commercial Bank	2015	2015Q4	0.0298	0.0000	0.1865	20983645	0.8412
Victoria Commercial Bank	2016	2016Q1	0.0096	0.0000	0.1953	21135764	0.8287
Victoria Commercial Bank	2016	2016Q2	0.0186	0.0000	0.2032	21246376	0.8207
Victoria Commercial Bank	2016	2016Q4	0.0356	0.0000	0.2279	22403481	0.7741
Victoria Commercial Bank	2017	2017Q1	0.0014	0.0000	0.233	22872534	0.7689

Victoria Commercial Bank	2017	2017Q2	0.0194	0.0012	0.2377	22927255	0.763
Victoria Commercial Bank	2017	2017Q3	0.0265	0.0014	0.2576	23874682	0.7523
Victoria Commercial Bank	2017	2017Q4	0.0365	0.0076	0.2785	24782341	0.7592