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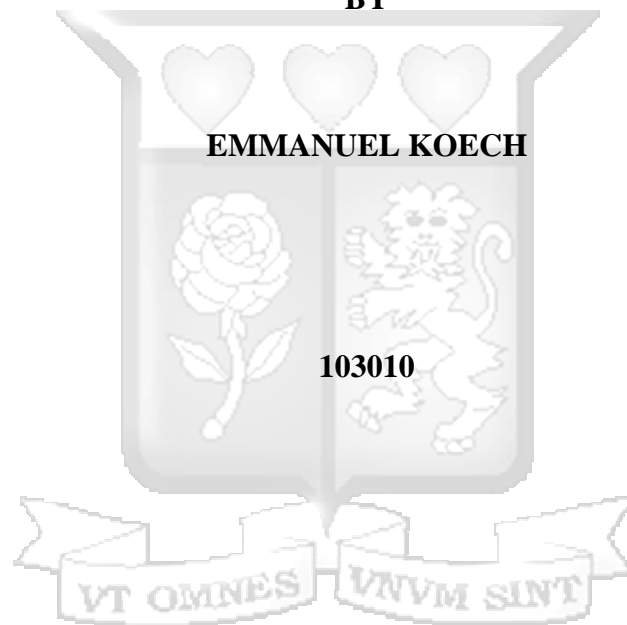
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**DETERMINANTS OF INTEREST RATE SPREADS AMONG LICENCED
COMMERCIAL BANKS IN KENYA**

BY



**A RESEARCH THESIS SUBMITTED TO THE STRATHMORE BUSINESS
SCHOOL IN THE STRATHMORE UNIVERSITY IN PARTIAL
FULFILLMENT FOR THE DEGREE OF MASTER OF COMMERCE OF
STRATHMORE UNIVERSITY.**

FEBRUARY 2019

DECLARATION

I declare this work has not beforehand been submitted for award of a degree by this or any other University. To the best of my knowledge, this thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Emmanuel Kiprono Koech

Signature:

Date:

Approval

The thesis of Emmanuel Kiprono Koech was reviewed and approved by the following:

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ABSTRACT

High interest rate spreads remain a barrier to financial intermediation because it disheartens probable investors with little profits on deposits and raises funding expenses for debtors consequently decreasing savings and development chances. Thus, it is imperative to ascertain factors that affect interest rate spreads that in essence to solve the barriers to financial intermediation. The broad research objective was to establish factors that influence interest rate spreads. Specific objectives included to determine effect of interest capping legislation, asset quality, management quality, bank size, and leverage on interest tariff spreads of commercial banks in Kenya. An exploratory, ex post facto and causal research design was adopted because it established the cause and effect relationship. The target population was the 42 licensed commercial banks in Kenya as at 30th June 2016. However, eight banks were expunged from the analysis because they became licensed before the study period, ceased operations in the study period, or were sharia compliant banks that did not charge interest. The study period comprised five quarters before interest capping law was enacted and five quarters after. The study utilized secondary panel data. The researcher employed multiple linear regression to analyze data collected during the study, Statistical Package for Social Sciences (SPSS) was used in analyzing data. Research variables were analyzed using fixed effects panel regression model. The univariate general linear model was utilized with the banks being the limiting factor. The study concluded that the factors chosen in the study have substantial effect in unison on interest tariff spread. However, only the interest rate capping legislation had a noteworthy effect on interest rate spread in isolation. This implies that since the enactment of bill capping interest rates, the interest rate spreads have been declining. Thus, the law had a significant influence on interest rate spreads since its enactment. Research findings were proposed to government agencies to evaluate influence of interest tariff capping law on interest rate spreads since its enactment and to also consider the effect on it by the various factors when formulating policies and legislative frameworks. Commercial banks' management, consultants, and scholars can also utilize research findings to document influence of the various factors on interest tariff spreads.

Key words: Interest rate spreads, interest rate capping, asset quality, management quality, bank size, leverage.

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ABBREVIATIONS AND ACRONYMS

CBK	-	Central Bank of Kenya
IRS	-	Interest Rate Spread
KANU	-	Kenya African National Union)
NSE	-	Nairobi Securities Exchange
OLS	-	Ordinary Least Squares
ROA	-	Return on Assets
ROE	-	Return on Equity
SACCO's	-	Savings and Credit Cooperative Unions
SSA	-	Sub-Saharan Africa



DEFINITION OF KEY TERMS

Interest Rate Spreads	A substantial share of revenue from commercial banks created from interest rates and is difference amongst interest income and interest expenditure (Ngugi, 2001).
Interest Rate Capping	Is a system of government control where lending and/or borrowing is set by a regulatory authority. Interest rate capping can either be on the coupon rate or yield (Peirce & Klutsey, 2016).
Asset Quality	It is the extent to which banks avoid the risk of default as they seek to leverage the profits realized through lending funds to borrowers. It is the extent of credit risk, where borrowers may be unable to pay back the loan along with interest or may intentionally default on the loan (Dehejia et al., 2012).
Management Quality	It is the evaluation of the control systems, management systems, and the culture of an organization to keep operational expenses low as possible in relation to the core revenue of the organization (Nampewo, 2015).
Bank Size	This is the total ownership of assets by banks that enable them to offer more financial services at low cost (Ngugi, 2001).
Leverage	This the borrowings which are converted to assets in order to generate revenue for a banking institution (Peirce & Klutsey, 2016).

DEDICATION

This project is dedicated to my family especially my father for the love, patient, support and faith they had in me throughout the entire study period. I will always appreciate all they have done



ACKNOWLEDGEMENT

I thank God for granting me the wisdom and courage to successfully complete this work.

My special thanks go to my supervisor, Dr. David Mathuva, for his effort, support, great advice and guidance that has enabled me to shape this research project to the product it is now.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Globally, changes in regulations that impact on interest rates have always influenced the operations of commercial banks. The banking industry in Kenya has experienced significant growth despite the various challenges that affect the sector (Gikandi & Bloor, 2010). However, in 2016, the Kenyan Parliament adopted a new piece of legislation whose purpose is to cap the interest rates charged by commercial banks. The news was not received well by some stakeholders in the banking industry who believed that the new law would have a negative influence towards banks operations and consumers (Ng'ang'a, 2017). On the other hand, lawmakers have insisted that the new law is intended to protect the interests of consumers who rely heavily on bank financing and who, in the absence of the regulation, would otherwise be exploited by the financial institutions (Ng'ang'a, 2017).

Aziakpono, Wilson, and Manuel (2005) state that the main sign of financial presentation and effectiveness in the banking industry is the spread amongst loaning plus deposit tariffs. If spread is big, it becomes a hindrance to growth and development of monetary intermediation since it disheartens prospective investors as a result of low earnings on deposit. This in turn limits financing for probable debtors. Similarly, there is low credit accessibility owing to depressed investments. On the other hand, high loaning tariffs would result to a decrease in credit request and cash resource because of high charge of loaning (Aziakpono, Wilson & Manuel, 2005).

According to Howells and Bain (2008), banks are critical for economic development and form a key part of a financial system because they form principal basis of credit. In addition, banks have influence on degree of savings plus spending in the economy. Interest tariffs, an expense from debtors to creditors to reimburse creditors for surrendering their moneys given a specific period at a risk crucial for loaning and borrowing system. Both high plus low interest rates affect interest rate spread (Howells & Bain, 2008).

Interest rate spread defined by Ngugi (2001) is market microstructure features of banking industry in Kenyan policy setting. Risk- disinclined banks function with lesser

spread compared to risk- impartial banks because risk aversion increases a bank's optimum interest tariff and reduces credit provided. Actual spread, which integrates pure spread, is also influenced by macroeconomic components which include financial and economic undertakings (Nyasha & Odhiambo, 2014).

The spread is defined by accounting value of net interest margin model together with firm maximization behavior model. Accounting value of net interest margin uses revenue accounts of banks, describing interest tariff margin as variance amongst banks' interest revenue costs stated as percentage of average earning assets (Howells & Bain, 2008). Njuguna and Ngugi (2000) state that studies have disparaged this model because of lack of specifying there being equilibrium in financial logic or kind of marketplace planning created. Organization maximization behavior permits derivation of revenue maximization law for interest tariff and captures elements of marketplace configuration.

Subject to market configuration together with risk management, a banking organization's expected value utilizes either anticipated revenue streams or anticipated returns. Similarly, subject to supposed market dynamics, interest spread elements differ (Wagacha, 2008). For instance, considering a competitive interest rate plus a free market mechanism in the credit market, interest rate spread is established by variants in between the lending and the deposit rates. Even where there are market control in the credit market, interest spread is explained as difference amongst the lending rates and deposit rates (Howells & Bain, 2008).

1.1.1 Global Perspective on Determinants of Interest Rate Spreads

According to Wicksell (2011), low interest tariffs encourage investments via loaning of moneys thus yielding high profits and investments. Disposable income for persons and enterprises rise as an outcome. Dependable variable of the nonrefundable revenue depends on advance interest tariffs and differs in variation of interest tariff. Temporary interest tariffs are derived from economic circumstances of an economy. Determination of interest tariff according to loanable funds theory is subject to obtainability of advance totals. Obtainability of such advance totals is dependent on net rise in money deposits, investments amount present, readiness to improve money balances and chances in development of new assets.

When the borrower is likely to default, the bank may resort to charging a higher interest tariff on loan. This strategy intends to insure bank against the risk of default. However, with interest rates capping, a commercial bank is bound to find itself unable to charge higher interest rates on its loans, including those advanced to high-risk borrowers (Bongaerts, De Jong, & Driessen, 2011).

Differences in interest margins and bank cost-effectiveness according to Demirguc and Huisinga (2008) is a result of a number of determinants which include; characteristics of banks, macroeconomic circumstances, taxation of banks, deposit cover policy, economic organization, and lawful and organization indicators. Regulatory variances in bank undertakings and influence on macroeconomic surroundings establish a greater bank capital to GDP ratio and lesser market place concentration proportion resulting in lesser margin and incomes. Banks in developed countries have greater margins and returns matched with banks in emergent nations, contrary to developed countries. In addition, corporate tax weight is handed down to clients.

1.1.2 Regional Perspective on Determinants of Interest Rate Spreads

In emerging nations, interest tariff spreads arise from main purposes of financial organizations particularly the commercial banks that comprise loaning and deposits. As banks loan, charge interest and appealing credits, giving interest on payment reimbursement for their customers' prudence and variance amongst both tariffs make spread (Nyasha & Odhiambo, 2014). Scholars have credited existence of high Interest Rate Spread (IRS) in emergent nations to numerous reasons like high operational expenses, financial restraint, lack of rivalry and marketplace control by a small number of leading banks permitting manipulation of business variables entailing loaning and payment tariffs, inflation tariffs, high threat premiums in official credit marketplaces owing to generally prevalent opinion involving high risk for utmost debtors, and comparable additional aspects (Mujeri & Islam, 2008).

Researches in Africa (Naidu & Chand, 2012; Asian Development Bank, 2013) recorded numerous explanations for high interest tariff spread. They include absence of sufficient rivalry, gauge diseconomies owing to minor market sizes, high static and operational

expenses, transportation expenses of resources as a result of costly telecommunications, presence of controlling systems and apparent market threats. In addition, issues cited result in high expenses that lead to high spread. Precisely, the researchers recognized apparent expenses related with the ability to implement debt agreements.

Small debtors without property privileges lack collateral to offer and therefore are seemingly as high-risk debtors. Due to high business deal expenses like debtors are charged high tariffs on interest. Naidu and Chand (2012) note concerns of leadership. It comprises preservation of rule and establishment of means of transportation and communal infrastructure. Safety infringing absence has remained a reason for high operation expenses causing huge intermediation expenses. Where there exist high intermediation expenses reflected in high interest tariff spread, a debtor could be incapable of repaying the debt owed to expenses of such loaning. This results to a great threat of loan avoidance therefore non-performance (Ngugi, 2001).

1.1.3 Local Perspective on Determinants of Interest Rate Spreads

Forty-four commercial banks exist in Kenya. Out of these 44 banks, the seven largest ones are popularly referred to as the "Tier One," and they constitute 52.4 percent of the total assets in the industry (CBK, 2018). This imbalance causes merely a few banks to control the market, as it is the case with various other economies across the globe. Additionally, it is worth noting that banks act as middlemen where consumers deposit cash, in addition to getting loans and other advances. Banks realize profits through the differences amongst tariffs that they pay investors and charge the borrower. The difference is referred to as interest tariff spread, a crucial pointer of profitability within an industry (Thygerson, 1995).

Some of the primary laws that govern the banking sector of Kenya include companies act, Central Bank of Kenya act and banking acts. Recent developments have resulted in some of these pieces of legislation being amended and in a manner that has affected the banking industry. In 2016, for instance, Kenya adopted new amendments on the Banking Act, which caps the interest tariffs for bank loaning and savings. Specifically, new amendment caps banks' loaning interest tariffs to a figure not exceed four percent beyond Central Bank Rate (CBR) presently at 9%. Thus, in line with the new law,

Kenyan banks are supposed to charge maximum of 13% as the interest rate. Initially, banks enjoyed interest rate spreads on average of approximately 11.4%, above global average of 6.6%. Furthermore, it is worth noting that the new law directs banks to pay depositors at least 7.35 percent as the interest rate on deposited funds. The new law means that Kenyan banks have to contend with the narrowest spreads since the liberalization of the country's financial markets that took place in the 1990s (Ngugi, 2001).

Nevertheless, it should be underscored that banks in Kenya have remained recording high revenues as other industries struggled. According to a report by Central Bank of Kenya (2013), the leading bank based on consumers' standing is Equity bank which recorded in 2015 Return on Equity (ROE) of 47.2 percent. Furthermore, in 2017, the banks recorded an ROE of 13 percent on average as other banks registered at Nairobi Securities Exchange dispensed profit notices. However, there is a concern that large banks do not extend their benefits of scale to their customers. Moreover, there are some concerns with regard to this part of legislature where government does not have genuine intentions. The National Treasury is considered a significant contributor to high-interest rates via its loaning mechanisms like T-bills and Treasury bonds. Thus, there is a concern that banks will be forced to rise their loaning to government as part of the efforts intended to allow them to sustain their profit margins (Nyasha & Odhiambo, 2014).

Therefore, it is essential the influence of the changes on interest tariffs is analyzed with a focus on interest spreads realized by banks. Just as it is the case with various other sectors, the banking sector is expected to adopt changes that are intended to help it to shoulder itself from the negative implications associated with such amendments. The new law poses a significant impact on the banking sector of Kenya, as banks must reconsider their organizational strategies in addition to adopt strategies that will enable them to adapt to the new regulations. Moreover, it is worth noting that interest capping has been unsuccessful in some nations like India and Nigeria. The strategy however, has been successful in states such as Zambia, France, Canada and Argentina where the countries used it to protect consumers against market failures (Greenwood, Landier, & Thesmar, 2015).

It is apparent that high spreads are not good for performance of the economy hence detrimental on the wellbeing of populaces. Kenya, an emergent nation whose economy is greatly dependent on agriculture and small enterprises industry for financial development wants an injection of savings. High interest tariffs realized above have dejected investments consequently sunk existing assets for savings. Prospective development in resident businesses remained significantly emphasized and high price of lending likewise dissuaded overseas investment flowing to the economy. It happened particularly when investing was required by resident banking organization. Generally, wide spreads not only paid to deprived presentation of economy, but also significantly destabilized efforts at poverty decline (Ndung'u & Ngugi, 2009).

Wagacha, (2008) states that these undesirable effects of wide spreads on the economy raised up disputes near end of 1999. Ndung'u and Ngugi (2009), emphasize the spreads were detrimental to investors, debtors and macroeconomic level. Reason being, it donated to price rises fast-tracking and extended period of recession in the economy. Kenya in 2000 suggested to inverse financial liberalization policy by re-introducing controlled interest tariffs via treasury bill benchmark on loaning tariffs, deposit tariffs plus helpful methods to banking industry. The initiative was referred as the Donde bill (Wagacha, 2008).

Kenya witnessed a renewed political dispensation in 2002 with removal of Kenya African National Union government extensively accused for the country's preceding economic decay. The voted coalition regime took control promising to deracinate corruption from Kenyan economy (Wagacha, 2008). This led to invoking of Section 44 of the Banking Act in 2003/2004 financial year budget. This and stringent regulation of bank undertakings by Central Bank of Kenya (CBK) steered the drop in profits for banking industry plus tapering of IRS over the years (Ndung'u & Ngugi, 2009).

1.2 Research Problem Statement

In spite of liberalizing financial markets in Kenya, interest rates spread continue to be high. In 2010, IRS was so high prompting members of Parliament to table a financial bill motion to cap interest rate (Ngugi, 2017). A probable benefit of financial

liberalization and deepening is tapering of interest rate spreads, which is difference amongst interest tariff charged to debtors and interest tariff waged on investors. This is founded in consideration that liberalization improves rivalry together with productivity in economic sector. Consequently, an extensive deposit- loaning IRS might be suggestive of banking industry inadequacy or likeness of degree of monetary growth (Folawewo & Tennant, 2008).

The IRS is contingent on productivity of monetary intermediation, cost-effectiveness and financial regulation impact. IRS between January 2002 and December 2012, had averaged 9.68% which unfavorably equates a spread of 6.90 percent and 7.13 percent for African and East African nations respectively (CBK, 2012). Interest tariff affect price of doing business in Kenya consequently causing a multiplier influence on cost of living. Determinants leading to such high IRS in Kenya have not been researched and hence this study seeks to address this gap.

According to Hassan and Khan (2010) as loaning tariffs rise, banks appeal an uncertain pool of ventures on average that need higher proceeds on savings. They stipulated higher interest tariffs force numerous creditworthy debtors to avoid loaning, enlightening the drop in local credit in Pakistan private industry. Hamid (2011) study on influence of IRS in emergent nations revealed that part of non-deposit- established finance is importantly associated with interest tariff spreads. In addition, results showed the portion of deposits in overseas banks is negatively related to capacity of credit in private industry.

A study by Hawtrey and Liang (2008) on bank interest restrictions of 14 enterprises in emergent nations between 1987 and 2001, revealed two risks related with high interest spreads: It may generate overall shortage of cash hence confine loaning for customer expenditure, building and trade savings causing a recession and secondly, certain industries within an economy could endure unequal portion of effect of high interest tariffs together with credit deficiencies because of high price of resources. Small and medium enterprises work with trivial profit margins and the rises in price of loaning finances cut greatly into proceeds. This makes it difficult to borrow money by enterprises.

Crowley (2007), Grenade (2007), and Sologoub (2006) studies reveal there being a general opinion among some shareholders that high interest tariff spreads are triggered by inner features of banks like inclination to maximize incomes in an oligopolistic market. Hassan and Khan (2010) argue spreads are enforced by macroeconomic, controlling together with organized surroundings that banks function.

According to Kithinji and Waweru (2007) difficulties in Kenyan banking industry started in 1986s culminating in 37 bank failures as at 1998 following catastrophes of 1986 to 1998. The crises were credited to non- executing finances due to interest tariff spread. Nonetheless, shortage of research studies on determinants of interest rate spreads in African countries exist, predominantly in bank-level, with countries like Kenya still struggling with high interest tariff spreads. Thus presents a knowledge gap which can be addressed through impartial and measureable examination of determinants of interest rate spreads in emergent countries like Kenya. The Kenyan case is interesting since enactment of the interest rate capping bill. This research intended to fill the gap by studying the determinants of interest rate spreads among commercial banks in Kenya for the era interest rate capping law was enacted.

1.3 Research Objectives

This project's general goal was to determine factors that affect interest rate spreads realized by commercial banks in Kenya.

1.3.1 Specific Objectives

- i. To determine impact of interest rates capping on interest rate spreads of Kenyan commercial banks.
- ii. To determine the effect of asset quality on interest rate spreads in Kenyan commercial banks.
- iii. To determine the relationship between operational efficiency and interest rate spreads of Kenyan commercial banks.

- iv. To establish the effect of bank size on interest rate spreads in commercial banks in Kenya.
- v. To establish the relationship between leverage and interest tariff spreads of commercial banks.

1.4 Research Questions

Provided below is a list of questions that were used to guide the researcher in studying the phenomenon.

- i. What is interest rate capping influence on interest rate spreads of commercial banks?
- ii. What is the association between asset quality and interest tariff spreads of commercial banks?
- iii. What is the association between operational efficiency and interest rate spreads of commercial banks?
- iv. What is the association between bank size and interest rate spreads of commercial banks?
- v. What is the relationship between leverage and interest rate spreads of commercial banks?

1.5 Research Scope

The scope of research includes factors that have an effect on levels of interest rate spread in Kenya. Research covered the period of five quarters before the enactment of the interest capping law in September 2016, and five quarters after. The quarter when the law was enacted, from July to September, was excluded from the analysis. Additionally, it should be noted that the research population included all the 42 licensed banks as at June 2016.

1.6 Significance of the Study

Research will give extensive and valuable understandings that will be useful to various shareholders in the banking industry. Specifically, government of Kenya, as well as Kenyan commercial banks, consumers, and management consultants could benefit from the project's findings. Other countries that are keen on pursuing changes in their market interest rates could also use the study's results as a point of reference. Regarding the government, it is expected that policymakers will obtain information and an understanding of the behavior of interest rates and its influence on IRS that enables them come up with appropriate policies and formulate legal frameworks that encourage market growth by protecting depositors, borrowers as well as shareholders.

On the other hand, officials responsible for implementation of interest tariffs in banks will draw a conclusion in coming up with mechanism and guidelines to make use of interest tariffs in the industry. Management consultants could also use the study's findings to add to their information regarding interest tariffs and its association with financial behaviors of banks (Gross & Poor, 2008).

Future scholars and researchers in the field of banking sector studies can benefit from this study as it will help build knowledge on existing literature. The proposed research project is, therefore, significant. The findings and conclusions will also serve as a reference source in future research and studies as they seek to enhance knowledge on interest rates and its determinants. This study will make a great contribution to theories related to interest rates and other researchers and academicians conducting studies on interest rates in the banking sector can obtain research material that can be used as empirical literature.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Information contained in the section includes insights drawn from a review of various scholarly works whose content relates to relationship amongst interest tariff capping and IRS of commercial banks. It discusses theoretical framework upon which the study will be based, in addition to providing an analysis of empirical research.

2.2 Theoretical Framework

The research was guided by critical tenets associated with some of the theories that are said to explain some vital determinants of loaning behavior within commercial banks. The theories considered were the credit market theory and loanable funds theory.

2.2.1 Loanable Funds Theory

Loanable funds theory states that tariff of interest is computed on bases of demand and supply of loanable assets existent in capital market. The theory established by an economist Wicksell (1952), is among the vital economic theories. It stipulates that investments and resources are accountable for tariffs of interest resolve in the long haul. If interest tariffs are high, savings are low consequently sum of cash in circulation. Hence decreases not reusable revenue for individuals.

According to Wicksell (2011), low interest tariffs encourage investments via loaning of moneys thus yielding high profits and investments. Disposable income for persons and enterprises rise as an outcome. Dependable variable of the nonrefundable revenue depends on advance interest tariffs and differs in variation of interest tariff. Temporary interest tariffs are derived from economic circumstances of an economy. Determination of interest tariff according to loanable funds theory is subject to obtainability of advance totals. Obtainability of such advance totals is dependent on net rise in money deposits, investments amount present, readiness to improve money balances and chances in development of new assets.

The theory suggests nominal tariff of interest is determined by associations amongst demand and supply of lendable monies. Maintaining constant supply level, a rise in demand of lendable funds lead to a rise in interest tariff and vice versa. Thus

consequently lessens disposable income accessible in an economy. Conversely, a rise in supply of lendable funds would lead in decrease in tariff of interest. If demand and supply of lendable monies change, the resulting interest tariff will be contingent to the course of undertaking on demand and supply of lendable moneys. However, the theory only addresses determinants of the lending rate and not the borrowing rate. Combining the two rates result in the interest rate spread. The theory can be linked to the study as market forces determine the largest proportion of interest rates.

2.2.2 The Credit Market Theory

Another theory that could be used to examine the phenomenon that informs the basis of research on credit market theory. This neoclassical theory proposed by Smith (1776) states when the collateral needed for a loan, along with various other requirements, are removed from the equation, the most significant factor that influences how banks lend personal loans is the interest rate. Commercial enterprises are probable to lend personal advances to borrowers they consider to be associated with a relatively low risk of default.

Bongaerts, De Jong, and Driessen (2011) further asserted that when the borrower is likely to default, the bank may resort to charging a higher interest tariff on loan. This strategy intends to insure bank against the risk of default. However, with interest rates capping, a commercial bank is bound to find itself unable to charge higher interest rates on its loans, including those advanced to high-risk borrowers. This theory also only addresses the causes of loaning rate and not borrowing rate.

This theory links to the current study because it highlights asset quality as a determinant of interest rates. However, this theory does not include other factors that might influence the interest rates. Interest rate capping can also be utilized in the theory as a commercial bank is bound to find itself unable to price higher interest tariffs on its loans, including those advanced to high-risk borrowers.

2.3 Empirical Review

This section entails all the empirical literature that entail the determinants of interest rate spreads. The determinants of interest rate spreads covered in this section are; interest rate capping, asset quality, operational efficiency, bank size, and leverage.

2.3.1 Determinants of Interest spread by Commercial Banks

Beck et al (2011), in their research titled “Why are interest tariff spreads in Uganda so high?” revealed overseas banks use lower interest tariff spreads. In addition, there was lack of an economically noteworthy association amongst privatization, overseas bank entrance, marketplace configuration and bank productivity. Likewise, macroeconomic factors can clarify over-time disparity in bank spreads. Bank characteristics like size, functioning expenses and structure of advance portfolio give details to a huge section of cross-bank, cross- period variants in spreads. They implemented bank- even data information on Ugandan banking system to study causes responsible for constantly high interest tariff spreads and margins.

Differences in interest margins and bank cost-effectiveness according to Demirguc and Huisinga (2008) is a result of a number of determinants which include; characteristics of banks, macroeconomic circumstances, taxation of banks, deposit cover policy, economic organization, and lawful and organization indicators. Regulatory variances in bank undertakings and influence on macroeconomic surroundings establish a greater bank capital to GDP ratio and lesser market place concentration proportion resulting in lesser margin and incomes. Banks in developed countries have greater margins and returns matched with banks in emergent nations, contrary to developed countries. In addition, corporate tax weight is handed down to clients.

Bennaaceur and Goaid (2008) researched on influence of characteristics of banks, monetary configuration plus macroeconomic pointers on net interest margins and productivity in banking sector in Tunisia between 1980-2000. The findings showed Tunisian financial system were favorable to the banking industry sustainability. According to Ndung’u and Ngugi (2009) vast spreads happen in emergent nations because of high operating expenses, monetary taxation or control, absence of a competitive banking industry and macroeconomic uncertainty meaning risks are high.

2.3.2 Interest Rate Capping

Interest rates generate noteworthy share of income for banks. According to Ngugi (2001) greater interest tariff margin in banks result to greater profits. Banks make best use of their IRS to increase their presentation. Bigger spread warrant banks more income hence growing their returns. In times when interest tariffs were very low as a result of macro-economic circumstances, banks stated lesser profit margins in comparison to times when interest tariffs were high (Aliko, 2015). Interest rate capping is a system of regime control in financial industry. There has been a drop in the number of nations using this system over the years, primarily since major nations are targeting to have open-minded economic strategies. (Peirce & Klutsey, 2016).

Capping of interest rates be done in three different methods: the effective interest rate can be capped, or the yearly percentage rate or nominal interest tariff. Capping of the effective interest rate involves defining an interest tariff ceiling covering financial expenses meaning the interest rate itself inclusive of fees and commission. It is stated as a percentage of loan utilized for the period of every compensation. Annual Percentage Rate (APR) is interest tariff multiplied by the number of periods in a year, as effective interest is mentioned where APR is concerned then ,it includes all fees and commissions. The nominal interest rate includes the the coupon rate paid on the principle and does not include fees and commission (Maimbo & Gallegos, 2014).

There are two approaches used when capping interest rates namely; absolute cap or a relative cap. Absolute cap is a static nominal tariff. Relative cap is computed against an endogenous benchmark- a reference tariff in credit market or exogenous benchmark like interbank refinancing tariff. Countries practicing absolute cap rates include; Egypt with an absolute cap of 7 percent on commercial transactions and Greece at 6.75 percent on non-bank institutions. Relative interest tariff ceilings are witnessed in 32 nations mostly located in Sub Saharan Africa and Western Europe (Maimbo & Gallegos, 2014). The amendment of the Banking Act enacted on September 2016, entails the nominal interest rate method and utilizes a relative cap approach. The amendment instituted a cap on lending tariffs at 4% above Central Bank base tariff and a floor on deposit tariff at 70% of the CBR thus enforcing a uniform interest rate spread (Cytton, 2017).

Aliko (2015) research on bank performance determinants in commercial banks in Mauritius, found interest rates capping, resources value, administration productivity and macro-economic circumstances resolute bank presentation respectively. In addition, interest tariff capping was found as an important influence on bank presentation. In a similar study conducted by Mwege (2016) found that interest tariff capping, administration competence, resources value and overall macro-economic environments respectively, determined performances of commercial banks.

According to a Kenya Bankers Association (2017) publication, interest rate changes affects bank performance than any other variable. In their study, tier one and tier two banks in Kenya were sampled and restricted their data collections to the operations of the banks in Kenya and ignored income from subsidiaries in other Eastern Africa countries. Even though organization efficacy, accounts quality and bank possessions had an effect in financial presentation, interest tariff capping was the most sensitive to its performance.

Capping of interest tariff has unavoidably led to deprived economic performance of banks that posted substantial losses or income drop in light of laws on interest tariff capping in several nations worldwide (Tan, 2016). Closing of bank outlets in Kenya has occurred as a result of the negative effect interest rate capping has had on presentation of banks. Therefore, banks have scaled down on their costs since their profits have been influenced by the new interest tariff capping law.

In a study covering countries in Latin America that have interest tariff caps in place, World Bank (2015) in their paper reported significant poor financial presentation of 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.

Tan (2016) study in Mauritania on influence of interest tariff capping and monetary presentation in profitable banks listed in Securities Exchange, 8 banks were used in the

sample of listed banks the study from 2003 to 2013 by Ordinary Least Square regression (OLS). Research revealed a strong positive correlation amongst IRS and financial presentation of commercial banks. Mohamed argued by capping interest rate the commercial banks were performing dismally as opposed to when the free market forces were allowed to apply.

According to Tan (2016) imposition of interest tariff caps not only led to poor financial presentation of commercial banks, but also 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 after Latin America in monetary presence.

Mia (2017) conducted a study on the monetary performance of banks in Mauritius, Egypt and Ethiopia established 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 were low. The study 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.

In the same study Mia (2017) found that despite Egypt imposing interest rate caps on civil and commercial credit at 7%, it had a strong banking system and monetary presentation of their banks were among best in that region. The study argued that despite the country imposing a 7% ceiling on commercial and civil credit, commercial banks determined interest rates for other loans. The study argued that the banking system in Egypt is largely market based and that a blanket imposition of interest rate caps was not applied but was specific to certain sectors in the economy. This he argued did not upset monetary presentation 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 (Miller, 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. The study argued that the approach 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 tariff caps on monetary presentation in banks of named countries. Return On Asset (ROA) accounting method was used. A solid positive correlation amongst interest tariff capping and poor financial presentation was found. In their study, significant drop in monetary presentation of banks was found 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.

2.3.3 Asset Quality

Another critical factor that affects interest spread is concerned with credit risk. Even as banks seek to leverage the profits realized through lending funds to borrowers, these organizations are also keen to avoid the risk of default (Dehejia *et al.*, 2012). In some instances, borrowers may be unable to pay back the loan along with interest. In other cases, the borrower may intentionally default on the loan. Thus, it is imperative to understand how credit risk affects the interest spread. Ngugi (2001) conducted a study incorporating non-execution advances proportion as descriptive factors and established that increase in non-execution lends proportion creates an increase in spreads. Mannasoo (2012) studied role of latest worldwide monetary catastrophe on interest spreads in Estonia. Study follows Ho and Saunders (1981) works where pure spread is clarified by degree of threat aversion in bank plus marketplace organization of banking industry. The research established credit risk played a negligible role and greater bank liquidity was related with lesser interest margin.

Siddiqui (2012) based on discrete bank factors, estimated IRS in Pakistan and found credit threat, liquidity threat and bank equity were significant factors of interest margins but not subtle to financial development. Mannasoo (2012) examines influence of current worldwide monetary catastrophe on interest spreads in Estonia. The research follows Ho and Saunders (1981) works where spread is disintegrated into a pure and residual spread expounded by market configuration, rule and bank aspects. Results revealed credit risk played a negligible role and greater bank liquidity was related with lesser interest.

Gambacorta (2004) research explored issues enlightening cross-sectional variances in bank interest tariffs in Italy. The finding found that interest tariff on short stint loaning for assets and capitalized banks respond not as much to economic policy setbacks due to their risks exposure. Ahokposi (2013) study established bank factors like threat, liquidity threat and bank impartiality are vital influencers of interest margins. The named spreads however, are not considerate to financial development. The research used 456 banks in 41 Sub-Saharan Africa nations. Studies by Chirwa and Mlachila (2004) and Siddiqui (2012) in addition established a positive influence of non-execution finances ratio on interest spreads of banks in Malawi and Pakistan as a result of contact to liquidity threats

Mwega (2016) research on controlling developments and its influence on competitiveness and productivity in Kenyan banking industry, gave proof with regards profit perseverance in the sector. Though, positive association can be counteracted along comparable discussions for size of bank if a person contends as efficacy measure of banks, a greater profit on average resources related to lesser spreads. Siddiqui (2012) found an affirmative influence of assets returns on interest spreads. Moreover, liquidity obtainability negatively associated with interest tariff spreads. Extremely liquid banks are related to lesser spreads because they do not sustain additional expenses of obtaining assets when confronted with amplified plea for advances.

Aboagy *et al.* (2008) research examined reply of banks net interest margin on variations of causes that are bank- precise, banking sector particular and Ghana macroeconomic elements. The study established that a rise bank market power, size of bank, work

expenses, organizational expenses, bank's extent to threat averse and price increases, rises net interest margin.

Maudos and Guevara (2004) integrated functioning expenses in their theoretical model based on Angbazo (1997) research. Additional, in their research on banks in Europe, they implemented lerner index, a straight forward extent of market control than concentration ratios adopted by past researches. The findings established interest margin was determined by competitive circumstances, interest tariff threat, credit threat, average functioning expenditures and banks risk aversion. In addition, opportunity cost of reserves, interest payments and value of organization variables not integrated in the theoretical model.

2.3.4 Leverage

Leverage beyond a certain limit has an adverse influence on financial presentation 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 influences on monetary performance of enterprises. This was because of 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 because of high cost of credit while large firms reported superior ROA and ROE due to cheap credit.

2.3.5 Bank Size

Bank size has an influence on banks monetary performance. According to Bakker, Schaveling, and Nijhof, (2014) big banks attract low-priced sources of finance and competitively advance to debtors at great margins whereas lesser banks were required to extravagantly pay for credits due to acuity that creditors are threats thus needful a high return for threat undertaken.

Nampewo (2013) did a study on determinants of commercial bank performance which he used all the licensed banks in Kenya. Results indicated interest tariff spread, bank size, administration efficacy and macro-economic factors as determinants of bank performance. The study results also showed a positive correlation amongst IRS and bank performance. There also positive correlation amongst bank size, management efficiency, macro-economic environment and monetary presentation of the banks. In another study by Kamau (2011) investigated determinants of monetary presentation of Kenyan commercial banks licensed and listed. Results in this study revealed interest rate spread, bank size, asset worth and management efficacy as the four most significant elements that affect performance of the banks.

2.3.6 Management Efficiency

Commercial banks incur some expenses when advancing loans, as well as while undertaking their various other operations. The interests charged on loans are intended to allow the banks to recoup these costs, along with the profits (Ireland, 2016). A bank that has high operational costs, which can be attributed to management inefficiency, may choose to increase the interest charged on its loans. Such an approach however, could end up pushing away potential borrowers who would then consider alternative financing options.

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 organization 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. The ratios include; loan growth rate, earnings growth and asset growth (Nampewo, 2015). This is used as a proxy to measure the capacity of administration of deploying the bank's assets resourcefully 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 Muiruri (2014), 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.

Ngugi (2001) carried out a research to determine interest rate spread in Kenyan banking industry pre and post liberalization. The study established that IRS rises as a result of yet to be gained efficacy plus high intermediation expenses. In addition, inherent and explicit taxes broaden interest spread because it rises intermediation expenses. Wong and Zhou (2008), study carried out in China on banks net interest margins, established that extension of IRS as a result of working expenses. Folawewo and Tennant (2008) cross- county research established statutory backup necessity, price cut tariff and level of cash amount decided by central bank utilized a noteworthy positive influence on IRS in Sub-Saharan Africa (SSA) for the time 1988-2005.

Chirwa and Mlachila (2004) conducted a research, which revealed macroeconomic instability and guidelines having a noteworthy influence on interest rate margins in banks. The findings recommended a trade-off amongst warranting bank creditworthiness, distinct by high asset ratios together with reducing prices of monetary amenities to customers, as assessed by low interest rate margins. Hawtrey and Liang (2008) state that explanations provided by commercial banks' are that reasonably huge IRS are as a result of high prices related with doing trade in Jamaica. However, the reasons are toned down by some executives and strategy consultants to be unrelated.

Maudos and Guevara (2004) conducted a study founded on the Angbazo (1997) research and only included functioning expenses in the theoretical model. The findings showed interest margin is influenced by average functioning expenses, banks threat aversion and factors not exclusively included in the model like reserves of opportunity cost, expense implied in interest and value of administration.

Williams (2007) established proof in backing of a research conducted by Maudos and Guevara (2004) in insertion of operating expenses in the model in Australia cases and

influence of market power of banks proposed in a prior research on Australian net interest margins by McShane and Sharpe (1985). Wong and Zhou (2008) in their research titled China commercial bank net interest margins established proof and support Ho and Saunders model regarding operating expenses.

The State Bank of Pakistan (2006) noted that bank-related factors like managerial costs, affect level of finance spreads in Pakistan. Siddiqui (2010) research carried out found that overhead expenses are peak for overseas banks, causing lowermost ROA related to banking industry. The researches revealed high overhead expenses is mostly revealed in worker expenses, extremely mechanical, well planned, and equipped bank outlets contribute towards interest tariff spread.

2.4 Research Gap

The appropriate literature reviewed show presence of numerous studies in urbanized and growing economies and shortage of researches in Africa apart from a few like Chirwa and Mlachila (2004) in Malawi, Apaa and Ojwiya (2009) and Folawewo and Tennant (2008) in Uganda and Aboagye et al (2008) in Ghana. This presents a contextual research gap. This research replicated such researches in a Kenyan setting.

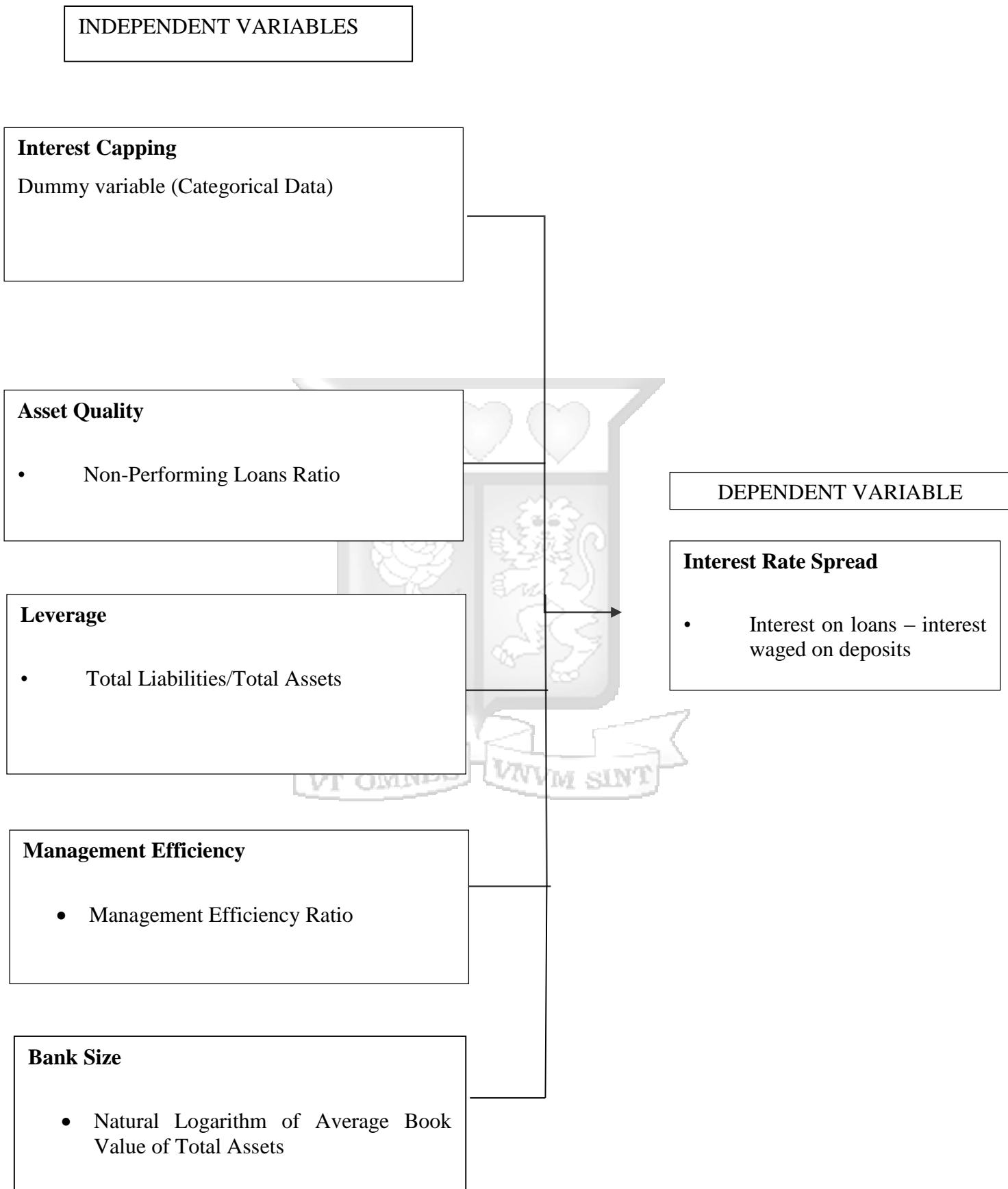
Numerous studies reviewed, including studies by Siddiqui (2012), Ho and Saunders (1981), and Ahokpossi (2013) focused on factors determining interest rate spread but did not employ interest capping as a primary determinant. Other studies, like the ones conducted by Chuthamas *et al* (2015), Malenya and Muturi (2013), and Aziz *et al.* (2015) focused on the effect of the determinants enumerated in the study on financial performance of commercial banks. Other reviewed studies, like the study conducted by Gambacorta (2004), focused on the effect of the enumerated factors on the prevailing interest rates. This presents a conceptual and knowledge gap, this research therefore sought to fill the gap by analyzing how has interest rate capping and other exogenous factors like asset quality, operational efficiency, bank size, and leverage affect interest rate spread in Kenyan commercial banks.

2.5 Conceptual Framework

Provided below is a graphical illustration depicting the conceptual framework used by the researcher in studying the phenomenon. Notably, the financial sector is to a larger extent bank founded since capital market is still viewed as shallow and narrow (Ngugi, 2001). In Kenya, banks dominate the financial industry. Consequently, financial intermediation process depends greatly on commercial banks (Kamau, 2009). Interest rate capping will serve as the main independent variable and conversely, the interest spread will be the dependent variables. The control variables include credit risk, liquidity risk, and operational costs.



Figure 2.1: Conceptual Framework



CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section describes study methodology used to reach out to the study objectives and stages followed to conclude the research. Further, it defines study design, the target populace, data gathering methods and data analysis used to produce anticipated information of the research.

3.2 Research Philosophy

The study philosophy employed was positivist paradigm. Positivism provides theoretical description and provides valid fact data that is “scientific”. Theories provide framework established on descriptions and justifications. Levin (1988) notes positivists have faith in reality being steady and defined from perspective without meddling studied phenomena. In addition, the phenomena studied should be isolated and observations made credible. Often it entails manipulation of reality with variants in independent variable to recognize uniformities form associations amongst essential factors of social biosphere. Forecasts are made based on formerly described realities and their inter-relationships. The study applied positivist research philosophy because it was guided by relevant theories and empirical literature.

3.3 Research Design

The study applied an explanatory, ex post facto and causal research design. It was panel data with the scope being a census. It was a field setting with the unit of analysis being the industry. It was chosen because it allowed describing the population through a standardized data is obtained at a given time. This method was used because it addresses the aim of research in examining the association amongst variables of the research. The design takes into thought aspects like sample size relative to target populace, the variables used in the research and data gathering methods (Polit & Beck, 2013).

3.4 Population and Sampling

A populace is a set of things or individuals with shared observable characteristics (Mugenda and Mugenda, 2013). Commercial banks authorized by CBK formed the research population. All the 42 commercial banks in Kenya licensed as at June 2016 formed the population in this study. However, eight banks were expunged from the

analysis because they became licensed before the study period, ceased operations in the study period, or were sharia compliant banks that did not charge interest thus making it difficult to obtain management efficiency. Thus, 34 commercial banks were utilized for this analysis. The list of the 42 licensed commercial banks as at June 2016 is provided in the appendices, the list is obtained from the CBK website.

3.5 Data Collection

The process of gathering data is critical as it ultimately impacts on the validity of the results. In this regard, the researcher utilized secondary data. In particular, the investigator relied on data provided by CBK which highlighted monthly data, as well as bank supervision reports, for banks in Kenya. The researcher supplemented this information with that obtained in the published individual bank's financial accounts. Thus, researcher analyzed interest tariff spreads of the banks before and after implementation of the new law capping interest rates. Panel data was collected for five quarters preceding the enactment of the interest capping law on September 16 2016, and five quarters after the enactment of the law, for 34 licensed commercial banks. The quarter during which the law was enacted, from July to September 2016, was not considered. Data on interest income, net loans, interest expense, customer deposits, non-performing loans, total assets, total liabilities, and operating expenses will be collected for the period.

3.5 Data Analysis

Data was validated, coded and checked for mistakes and oversights, it was organized, tabulated and simplified so as to make it easier to analyze, interpret and understand. Statistical Packages for Social Sciences (SPSS) version 25 was utilized. Descriptive analysis of data applied measures of central tendencies and standard deviations. Further, correlation analysis was used to show whether and how strongly the determinants of interest spreads is associated with the interest rate spreads while regression analysis applied to establish association amongst interest rate spreads and its determinants. Reports obtained from the analysis were presented using tabulations.

Research variables were analyzed using fixed effects panel regression model. A univariate general linear model was utilized with the banks being the limiting factor. The study adopted a confidence interval of 95%. The results were set significantly at 0.05 level, which indicated that significance value should be less than 0.05. A statistical inference technique was used in making conclusions relating to the accuracy of the model in predicting the interest rate spreads. The model significance was tested using the significance values at 95% confidence. Meaning of association amongst each individual predictor variable and response variable were also determined by the significance values, which illustrated how much standard errors indicated that the sample deviates from the tested value.

3.5.1 Analytical Model

The study aim was achieved through use of multiple linear regression analysis model. Multiple regression analysis tested whether predictor variables have any influence on interest rate spreads. The analytical tests were carried out at 95% significance level, implying an error of up to 5% was allowed in the research. The model is illustrated below.

$$\text{SPREAD}_{it} = a + b_1\text{INT_CAP}_{it} + b_2\text{A_QUALITY}_{it} + b_3\text{MGT_EFF}_{it} + b_4\text{BANK_SIZE}_{it} + b_5\text{LEVERAGE}_{it} + \varepsilon$$

Where;

SPREAD_{it} = Interest rate spread

a = constant (The interest tariff spread exhibited when all predictor variables are set at 0).

INT_CAP_{it} = Interest rate capping dummy variable (Categorical Data)

A_QUALITY_{it} = Asset quality ratio measured by non-performing lends

MGT_EFF_{it} = Management Efficiency

BANK_SIZE_{it} = Bank Size

LEV_{it} = Leverage

ε = Disturbance Term

Interest rate capping is main predictor variable while asset quality, management efficiency, bank size, and leverage are control variables.

Table 3.1: Operationalization of the study variables

Variable	Measurement
Interest Rate Spread	Interest tariff spread is calculated as; $\log((\text{Interest Income}/\text{Interest Bearing Assets})/(\text{Interest Expense}/\text{Interest Earning Liabilities}))$ (Ngugi, 2001).
Interest Rate Capping	Interest rate capping will be introduced as a dummy variable where the quarters preceding interest rate capping will be denoted as 0 and the quarters after interest rate capping denoted as 1 (Peirce & Klutsey, 2016).
Management Efficiency	Management efficiency is going to be given by total operating expenses divided by total interest income.
Leverage	Leverage was calculated by total liabilities divided by total assets (Dehejia et al., 2012).
Asset Quality	Asset quality denoted by non-performing loans and advances is calculated; $(\text{Net Non-Performing Loans over Net Loans and Advances})$ (Nampewo, 2015).
Bank Size	Natural logarithm of average book value of entire assets of a bank during the period (Peirce & Klutsey, 2016).

3.5.2 Diagnostic Tests

Diagnostic tests on normality, linearity, multicollinearity, and autocorrelation were conducted on the collected data to establish its suitability in the formulation of linear regression model. Normality was tested by Shapiro Wilke's which though common, fails to work well where large amount of data is involved and as was also supplemented by Kolmogorov-Smirnov test which is suitable for testing distributions of Gaussian nature which have specific mean and variance. Linearity indicates direct proportionate association amongst dependent and independent variable such that change in independent variable is followed by correspondent change in dependent variable (Gall et al. 2006). Linearity was tested by the means of considering the normality and the homoscedacity of the individual variables. Homoscedacity tests were carried out by means of scatter plot diagrams.

Tests for multicollinearity of data was carried out using variance inflation factors (VIF) plus tolerance statistics to determine if independent variables considered in this study is significantly correlated with each other. According to Grewal *et al.*, (2004) the main sources of multicollinearity are small sample sizes, low explained variable and low measure reliability in the independent variables. Auto-correlation test was carried out through the Durbin-Watson Statistic.



CHAPTER FOUR DATA: DATA ANALYSIS, RESEARCH FINDINGS AND INTERPRETATION

4.1 Introduction

The findings of data analysis and interpretation of the study are presented in this chapter divided into five sections; diagnostic statistics, data examination and interpretation. Interpretation and discussion of findings were founded on objectives of the research which were: to determine factors affecting interest rate spreads realized by Kenyan commercial banks, the impact of interest rates capping, leverage, management efficiency, bank size, and asset quality on interest tariff spreads of the commercial banks in Kenya. All the 42 commercial banks in Kenya licensed as at June 2016 formed the population in this study. However, eight banks were expunged from the analysis because they became licensed before the study period, ceased operations in the study period, or were sharia compliant banks that did not charge interest thus making it difficult to obtain management efficiency. Thus, 34 commercial banks were utilized for this analysis.

4.2 Diagnostic Tests

Diagnostic tests carried out included; normality tests, homoscedacity tests, multicollinearity tests, lastly, autocorrelation tests. Normality test was carried out using Shapiro Wilk test, which was supplemented by the Kolmogorov-Smirnov test. The homoscedacity test was conducted through scatter plots diagrams. Tests on Multicollinearity of data was carried out using Variance Inflation Factors (VIF) and Tolerance. Autocorrelation test was carried out through the Durbin-Watson Statistic.

4.2.1 Normality Tests

The findings for normality tests for various variables employed are displayed in Table 4.1.

Table 4.1: Test for Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Int_Rate_Spread	.119	340	.000	.936	340	.000
Int_Capping	.341	340	.000	.637	340	.000
Asset_Qual	.172	340	.000	.812	340	.000
Mgt_Effec	.092	340	.000	.915	340	.000
Bank_Size	.133	340	.000	.937	340	.000
Leverage	.178	340	.000	.862	340	.000

a. Lilliefors Significance Correction

The null hypothesis data is normally distributed. Since significance values for both variables in Shapiro- Wilk and Kolmogorov- Smirnov tests are less than the α (0.05), null hypothesis was rejected. Hence, statistics the data series employed in the study are not normally distributed.

4.2.2 Tests for Homoscedacity

Appendix IV contains the scatter plots testing for homoscedacity of the predictor variables. For the data series interest rate capping, asset quality, and management quality, the plotted points indicated that no linear association amongst the variables and interest rate spreads since they did not coalesce around a line of best fit. Thus, there the three data series exhibited heteroscedacity.

For the data series bank size and leverage, the plotted points indicated a linear relationship amongst the variables and interest rate spreads since they coalesce around a line of best fit. Thus, there is the two data series exhibit homoscedacity.

4.2.3 Test for Multicollinearity

Results on Test for Multicolinearity of data carried out using variance inflation factors (VIF) and Tolerance are displayed on Table 4.2.

Table 4.2: Multi-Collinearity Statistics

Variables	TOLERANCE	VIF
Interest Rate Capping	.891	1.122
Asset Quality	.596	1.679
Management Efficiency	.729	1.371
Bank Size	.742	1.347
Leverage	.671	1.491

Tolerance values are more than 0.1 and VIF figures are less than 10 and greater than 1, hence there is no presence of multicollinearity amongst predictor variables included in the model.

4.2.4 Tests for Autocorrelation

The result on Test for autocorrelation carried out using the Durbin-Watson Statistic is displayed on Table 4.3.

Table 4.3: Test for Auto-Correlation

Durbin-Watson Statistic	1.103
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The Durbin-Watson value range is from 0 and 4. 2 means there is no autocorrelation in the sample. Values less than 2 to 0 show positive autocorrelation. Negative autocorrelation is indicated with values more than 2 to 4. Values between 1.5 to 2.5 are relatively normal. Values outside of this range causes concerns. Field (2009) however, states values under 1 or more than 3 are a definite concern. Therefore, data used in this panel is not serially autocorrelated since it meets the threshold.

4.3 Descriptive Statistics

Descriptive study describes a subject by making a framework of a collection of difficulties, persons, or occasions, by gathering information and tabulation of frequencies of study variables or their association. It gives an array of research objectives such as; description of an occasion or features connected with a subject populace, estimate of level of populace that has these characteristics, and extracting of relations between changing variables (Ngechu, 2004). Descriptive design was implemented because it allowed generalization of the findings of the populace and allowed analysis and relation of variables.

Findings in Table 4.4 show highest value for the interest rate spreads ratio is 0.285 the lowest value is 0.1796. The following measures of central tendency were exhibited; a mean of 0.222911, and a median of 0.22925. Also, the value of the standard deviation depicts variability in the interest rate spread ratio of ± 0.02635 . The data in the series is normally distributed because it has a skewness ranging from -0.8 to +0.8 and a kurtosis statistic lying within the range of -3 to +3.

Table 4.4: Descriptive Statistics

	Interest Rate Spread	Non-Performing Loans Ratio	Management Efficiency	Bank Size	Leverage
N	340	340	340	340	340
STATISTIC	340	340	340	340	340
MAXIMUM	0.285	0.573	1.589	5.55E+08	0.949
MINIMUM	0.180	0.000	0.108	5210456	0.609
MEDIAN	0.229	0.084	0.422	58462140	0.835
MEAN	0.223	0.123	0.445	1.06E+08	0.829
STANDARD DEVIATION	0.026	0.113	0.200	1.23E+08	0.053
SKEWNESS	-0.033	1.781	1.450	1.523	-1.64753
KURTOSIS	-1.25185	3.153821	4.713	1.753	4.216

From the findings, the highest number of non-performing lends ratio is 0.5732 while the lowest value is 0. The following measures of central tendency were exhibited; a mean of 0.12316 and a median of 0.08435. The data in the series does not exhibit normal distribution because its skewness lies slightly out of the rage of -0.8 to +0.8, and the kurtosis statistic also slightly lies outside the range -3 to +3. In addition, the value of the standard deviation depicts variability in the variable of ± 0.112521 .

Further results from the findings indicate that the highest value of the management efficiency ratio variable is 1.5894 while the lowest value is 0.1081. Measures of central tendency exhibited a mean of 0.445166 and a median of 0.42145. In addition, the value of the standard deviation depicts variability in management efficiency of ± 0.200373 . The data in the series does not exhibit a normal distribution because it has skewness that is out of array of -0.8 to +0.8 and a kurtosis lying outside the array of -3 to +3.

From the findings, the highest value of the bank size variable is KES 555 billion while the lowest value is KES 5,210,456. The following measures of central tendency were exhibited; a mean of KES 106 billion and a median of KES 58,462,140. The data in the series does not exhibit a normal distribution because its skewness lies in out of range of -0.8 to +0.8. However, the kurtosis lies within the range of -3 to +3. In addition, the value of the standard deviation depicts variability in the variable of \pm KES 123 billion.

The final results from the findings point out that the highest figure of leverage variable is 0.9397, while lowest figure is 0.6089. The following measures of central tendency were exhibited; a mean of 0.828513, and a median of 0.8345. Also, the value of the standard deviation depicts variability in the variable of ± 0.05295 . The data in the series does not have a normal distribution because it has skewness that lies out of array of -0.8 to +0.8, and a kurtosis out of range of -3 to +3.

4.4 Inferential Statistics

The section states the inferential statistics employed to find the determinants of interest tariff spreads and effect the determinant on interest rate spreads. They included correlation and regression analysis.

4.4.1 Correlation Analysis

Correlation analysis done for predictor variables on the response variable, Pearson correlation analyzed the level of relationship amongst them. The study employed a Confidence Interval of 95%, as it is the most utilized in social sciences. A two tailed test was used. The findings are displayed in Table 4.5.

Table 4.5 show all predictor variables, apart from leverage, are significantly correlated with interest rate spreads at the 5% significance level. The findings imply a significant

negative association of interest rate capping, asset quality, and management efficiency with interest rate spreads. However, the study findings indicate a positive association between interest rate spread and bank size.

Table 4.5: Correlation Analysis

		Int_Rate_S pread	Int_Rate_Ca pping	Asset_Qu ality	Mgt_E ffec	Bank_ Size	Lever age
Int_Rate_Spread	Pearson Correlation	1	-.845**	-.266**	-.253**	.162**	.052
	Sig. (2-tailed)		.000	.000	.000	.003	.338
Int_Rate_Capping	Pearson Correlation		1	.218**	.225**	.014	-.079
	Sig. (2-tailed)			.000	.000	.794	.144
Asset_Quality	Pearson Correlation			1	.499**	-.171**	.325**
	Sig. (2-tailed)				.000	.002	.000
Mgt_Effec	Pearson Correlation				1	-.162**	.087
	Sig. (2-tailed)					.003	.111
Bank_Size	Pearson Correlation					1	.375**
	Sig. (2-tailed)						.000
Leverage	Pearson Correlation						1
	Sig. (2-tailed)						
	N						340

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

4.4.2 Multiple Linear Regression Analysis

Research variables were analyzed using fixed effects panel regression model. A univariate general linear model was utilized with the banks being the limiting factor. The interest rate spread variable was regressed against interest rate capping, asset quality, organization efficacy, bank size, and leverage. Regression analysis was carried out at 5% significance level. A critical figure 0.05 was compared with the significance values obtained from the tests of between subjects effects and parameter estimates, the results are displayed in Table 4.6.

Table 4.6: Regression Analysis

Tests of Between-Subjects Effect							
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared	
Corrected Model	.208 ^a	38	.005	60.865	.000	.885	
Parameter Estimates							
Parameter	B	Std. Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
					Lower Bound	Upper Bound	
Intercept	.237	.050	4.736	.000	.139	.336	.069
InterestRateCapping	-.044	.001	33.982	.000	-.047	-.042	.793
AssetQuality	-.009	.008	-1.040	.299	-.025	.008	.004
ManagementEffeciency	.004	.006	.678	.498	-.008	.017	.002
Bank_Size	-.002	.007	-.315	.753	-.015	.011	.000
Leverage	.032	.030	1.078	.282	-.027	.091	.004

a. R Squared = .885 (Adjusted R Squared = .870)

Dependent Variable: InterestRatesSpread

Coefficient of determination, R squared, indicate deviations in the response variable as an outcome of discrepancies in predictor variables. Table 4.6 shows an R square value of 0.870, a finding that 87% of the deviations in interest rates spread are caused by variables employed in the study. Additional factors not comprised in model justify 13% of variations in the interest rate spreads.

The null hypothesis developed in the study is that the model is not significant to predict interest rate spreads. A significance value of 0.000 was obtained in the study, which was less than critical value of 0.05. The null hypothesis was therefore rejected and the alternate hypothesis adopted. Thus, the overall model is significant to predict interest rate spreads.

Significance of individual coefficients was established using the significance values. The null hypothesis stated that the individual variables do not significantly influence interest rate spreads. If the significance values are greater than 0.05, the null hypothesis is not rejected but if they are more than 0.05, the null hypothesis is rejected. Only interest rate capping had a significance value that was lower than 0.05, thus it is the only predictor variable that affects interest rate spreads. It has a negative relationship with interest rate spreads at 95% confidence interval. This implies that since the enactment of bill capping interest rates, the interest rate spreads have been declining. The regression equation indicated below was thus estimated:

$$Y = 0.237 - 0.044X_1$$

Where;

Y = Interest Rate Spreads

X₁ = Interest Rate Capping

4.4 Interpretation of Findings

The research wanted to determine impact of interest capping legislation on interest tariff spreads in Kenyan banks, in the presence of control variables which included; asset quality, management efficiency, bank size, and leverage.

The study found out that all the variables employed in the study were not normally distributed. An assumption of classical linear regression model is error term need be normally spread with zero plus constant variance symbolized as $\mu (0, \sigma^2)$. Error term captures every factor that influence dependent variable not deliberated. Nevertheless, omitted factors are perceived to have a minor influence and are arbitrary. Ordinary Least Squares (OLS) to be beneficial, error term need be normal (Gujarati, 2004). Since variables are not normally distributed, it can lead to biased results.

Only bank size and leverage were established having homoscedastic association with interest rate spreads. However, existence of heteroscedasticity did not influence the fairness plus linearity of regression coefficient because it influences property of OLS,

that declare decision when testing hypothesis invalid (Gujarati, 2004). Absence of multicollinearity and serial autocorrelation implies that the results employed were unbiased.

All determinants of interest tariff spreads were correlated with interest rate spreads apart from leverage; this implies there is an association between them. Interest rate capping, asset quality, and management efficiency exhibited a negative association with interest rate spreads while bank size exhibited a positive association. The adjusted r-square exhibits that the model developed in the study has high explanatory powers on interest rate spreads. The significance of the model implies that it is sufficient to predict interest rate spreads.

The parameter estimates displays that the interest rate capping legislation had a significant influence on interest rate spreads. It has a negative relationship with interest rate spreads at 95% confidence interval. This implies that since the enactment of bill capping interest rates, the interest rate spreads have been declining. Thus, the law had a significant influence on interest rate spreads since its enactment. The coefficient of 0.044 implies that when the banking act was amended to institute interest rate caps, the interest spread ratio decreased by 0.044.

However, the parameter estimates indicate that asset quality, management efficiency, bank size, and leverage do not significantly impact on interest rate spreads. Thus, they should not be considered when analyzing bank interest rate spreads.

CHAPTER FIVE: SUMMARY, DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

Chapter five discusses summary of findings, conclusions and recommendations on; how to adjust to the effect of interest rate capping law on interest rate spread and also how asset quality, management efficiency, bank size, and leverage affect interest rate spread. Further, it states limitations of research and further studies suggestions

5.2 Summary and Discussion of Study findings

The research aimed at determining impact of the interest capping law, asset quality, management efficiency, bank size, and leverage on interest rate spread. It was a panel study done across the licensed commercial banks in Kenya for five quarters before the enactment of the interest rate capping law and five quarters after. Secondary method of data collection was utilized where information was gotten from the published financial accounts of the licensed banks. The study employed use multiple linear regression analysis to realize the objectives.

5.2.1 Factors that influence Interest Rate Spreads realized by Kenyan Commercial Banks

Findings revealed factors that impact interest rate spreads from the research have a noteworthy impact on interest tariff spreads. Thus, the model developed was appropriate in predicting interest rate spreads by utilizing factors chosen for the study.

5.2.2 Impact of Interest Rate Capping on Interest Rate Spreads realized by Kenyan Commercial Banks

The findings were that interest rate capping had a negative association with interest rate spreads. The findings exhibited also exhibited that the interest rate capping legislation had a significant negative influence on interest rate spreads. Thus, the law has considerable influence on interest rate spreads since its enactment. The study findings are congruent to research done by Aliko (2015) in Mauritius on commercial banks determinants of bank performance whose findings were interest rate capping determined commercial bank performance. It is also in tandem with a study done by Mwega (2016) which established interest rate capping determined the performance of

banks. The study findings are also consistent with the credit market theory which stipulates that when the collateral needed for a loan, along with various other requirements, are removed from the equation, the most significant factor that influences how banks lend personal loans is the interest rate (Smith, 1776).

5.2.3 Impact of Asset Quality on Interest Rate Spreads realized by Kenyan Commercial Banks

The results were that asset quality has a negative association with interest tariff spreads. Research findings exhibited the level of non-performing loans does not significantly impact interest rate spreads. Thus, asset quality does not influence the interest rate spreads and should not be considered when analyzing bank interest rate spreads and trying to forecast them.

The study findings are in contradiction to research carried out by Mauritius by Aliko (2015) in banks on factors of presentation whose findings were asset quality determined commercial bank performance. It is also in disagreement with a study conducted by Mwega (2016) which established that asset quality influence performance of the banks. The study findings are also not congruent findings of the study conducted by Ngugi (2001) which incorporated non-performing lends ratio as a descriptive variable which established increase in non-performing lends ratio causes rise in spreads. The findings are contradictory to those of a study conducted by Siddiqui (2012) which assessed interest tariff spread in Pakistan and found out that credit threat is a vital determinant of interest margins.

5.2.4 Impact of Management Efficiency on Interest Rate Spreads realized by Kenyan Commercial Banks

Research findings were that management efficiency had a negative association with interest rate spreads. In addition, findings established that the level of operational efficiency instituted by the management does not significantly affect interest rate spreads.

The study findings are contrary to a study done in Mauritius by Aliko (2015) amongst banks on causes of bank performance whose findings were management efficiency

determined commercial bank performance. It is also in disagreement with a study conducted by Mwega (2016) which established that management efficiency influenced performance of banks. The study findings also not congruent to those of a study conducted by Birungi (2005) who used Ho and Saunders (1981) model comprising influence of organizational expenses and established that interest margin relays on operating costs. Finally, the study findings are also not similar to those of the study conducted by Wong and Zhou (2008) on bank net interest margins in China whose findings support postponement of interest tariff spread because of increase in working expenses.

5.2.5 Impact of Bank Size on Interest Rate Spreads realized by Kenyan Commercial Banks

The results revealed size of bank had a positive association with interest rate spreads and does not significantly affect interest tariff spreads. Thus, bank size does not influence interest tariff spreads and should not be considered when analyzing bank interest rate spreads and trying to forecast them. The study findings do not agree with those of a study conducted by (Malenya and Muturi, 2013) where they identified firm size as having positive impact on financial presentation of enterprises because of economies of scale enjoyed by large firms as opposed to small firms.

5.2.6 Impact of Leverage on Interest Rate Spreads realized by Kenyan Commercial Banks

Results of research were that leverage had no significant association with interest rate spreads. They also established level of leverage does not significantly affect interest tariff spreads. Thus, leverage does not influence interest tariff spreads and should not be considered when analyzing bank interest rate spreads and trying to forecast them.

The findings are not agreeing with those of research by Chuthamas *et al* (2015) who established 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 cost of funds. The study findings are not also not in alignment with results of Bakker, Schaveling, and Nijhof (2014) that bank's size has an influence on its financial presentation because big banks enticed low-

priced funding sources and competitively progress to debtors at high margins when small banks pay extravagantly for credits due to creditors perceiving them risky consequently demanding a high return from them.

5.4 Conclusion

The specific objectives were realized by determining the influence of interest capping law, asset quality, management efficiency, bank size, and leverage on interest rate spread. The general objective was realized determining whether factors employed in the study jointly significantly affect interest rate spreads.

The research concludes interest capping legislation, asset quality, management efficiency, and bank size have an association with interest rate spreads of Kenyan commercial banks. They can also be used to predict interest rate spreads. The study also concluded that the interest capping legislation negatively affects interest tariff spreads. The study concludes that since the enactment of bill capping interest rates, the interest rate spreads have been declining. Thus, the law had a significant influence on interest rate spreads since its enactment. In addition, the study concluded that, asset quality, management efficiency, bank size, and leverage do not impact interest rate spreads of Kenyan banks.

The study conclusions are congruent to the conclusions of a research done by Aliko (2015) in Mauritius on commercial banks determinants of bank performance whose findings were interest rate capping determined commercial bank performance. The conclusions are also in tandem with the conclusions of a study done by Mwega (2016) which established interest rate capping determined the performance of banks.

5.5 Recommendations

Policy recommendations are that the government and government agencies can use the study to assess interest capping law impact on spreads of banks. The government should bear in mind that the legislation impacts on bank performance when doing a review of the law. The government and government agencies can use the findings to be able to forecast interest rate spreads when instituting various policy changes and formulating

legal frameworks. Other countries that are keen on pursuing changes in their market interest rates could also use the study's results as a point of reference.

The management of the individual Kenyan commercial banks, consumers, and management consultants could utilize the study findings to know the impact of the interest capping law legislation and the other factors on interest rate spreads and know how to manage the spreads. The decision-makers responsible in executing interest tariff in banks will draw mechanism and strategies to benefit from interest tariff in the market. Management consultants could also use the study's findings to add to their knowledge on interest tariffs and its association with financial behaviors of banks. Future scholars and researchers in the field of banking sector studies can help build knowledge on existing literature. The proposed research project is, therefore, significant.

5.6 Limitations of the Study

Time and budget limited the research to only a sample of eleven listed Kenyan commercial banks. Thus, result findings have not been determined would hold for 43 licensed Kenyan commercial banks. Research utilized secondary information, which was transformed and tabulated before being inputted into statistical software. This was a very long and technical process with time and expenses implications. Clerks had to be engaged to transform and input the data into SPSS for further analysis.

The study intended to utilize the whole population of the 42 licensed commercial as at June 2016, however, 8 banks were expunged from the analysis because they became licenced before the study period, ceased operations in the study period, or were sharia compliant banks that did not charge interest thus making it difficult to obtain management efficiency. Thus, 34 commercial banks were utilized for this analysis. It is not certain the study findings would hold if more banks are utilized in a similar analysis in future.

5.7 Recommendations for Further Study

Based upon data collected and knowledge gained, areas for further research study suggested research can be done to identify more factors that impact on interest rate spreads since study considered interest rate capping, asset quality, management

efficiency, bank size, and leverage. The study's scope was restricted to eleven listed commercial banks, further studies can be done on all 43 licensed commercial banks and micro-finance banks and Savings and Credit Cooperative Unions (SACCO's).

The study was limited to Kenyan context where listed commercial banks were examined. Scholars in East Africa and other countries can conduct the research in these jurisdictions to determine whether the present research results would hold. Secondary data was solely utilized in the study; alternative research can be employed using primary sources of data. This can then approve or disapprove the current study findings. Multiple linear regression was applied in this research; further research can incorporate other analysis methods like factor analysis, correlation analysis, Granger causality, cluster analysis, and discriminant analysis.



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APPENDICES

Appendix I: List of Licensed Commercial Banks in Kenya (as at 30th June 2016)

1. African Banking Corporation Limited
2. Bank of Africa Kenya Limited
3. Bank of Baroda (K) Limited
4. Bank of India
5. Barclays Bank of Kenya Limited

6. CfC Stanbic Bank Limited
7. Charterhouse Bank Limited (Under Statutory Management)
8. Chase Bank (K) Limited (In Receivership)
9. Citibank N.A Kenya
10. Commercial Bank of Africa Limited
11. Consolidated Bank of Kenya Limited
12. Co-operative Bank of Kenya Limited
13. Credit Bank Limited
14. Development Bank of Kenya Limited
15. Diamond Trust Bank Kenya Limited
16. Ecobank Kenya Limited
17. Equatorial Commercial Bank Limited
18. Equity Bank Kenya Limited
19. Family Bank Limited
20. Fidelity Commercial Bank Limited
21. First Community Bank Limited
22. Guaranty Trust Bank (K) Ltd
23. Giro Commercial Bank Limited
24. Guardian Bank Limited
25. Gulf African Bank Limited
26. Habib Bank AG Zurich
27. Habib Bank Limited

28. I & M Bank Limited
29. Imperial Bank Limited (In Receivership)
30. Jamii Bora Bank Limited
31. KCB Bank Kenya Limited
32. Middle East Bank (K) Limited
33. National Bank of Kenya Limited
34. NIC Bank Limited
35. Oriental Commercial Bank Limited
36. Paramount Bank Limited
37. Prime Bank Limited
38. Sidian Bank Limited
39. Standard Chartered Bank Kenya Limited
40. Trans-National Bank Limited
41. UBA Kenya Bank Limited
42. Victoria Commercial Bank Limited
43. Mayfair Bank Limited
<i>Source: CBK Website</i>



Appendix II: Budget

Items	Details	Cost
Stationery	Printing papers	15,000
	Binders	5,000
Transport		10,000
Data collection	Internet	5,000
	Distribution of instruments	5,000
	Collection of instruments	5,000
Production of the documents	Typesetting	1000
	Printing	15,000

	Photocopying	5,000
	Binding	5,000
Data analysis		30,000
TOTAL		101,000



Appendix III: Work Plan

Activities	Start Time (2019)					
	June	July	August	September	October	November
Proposal writing						
Proposal defense and corrections						
Data collection						
Data analysis						
Report writing						
Submission of Research Report						



Appendix IV: Tests for Homoscedacity

Figure 1: Interest Rate Capping Scatter Plot

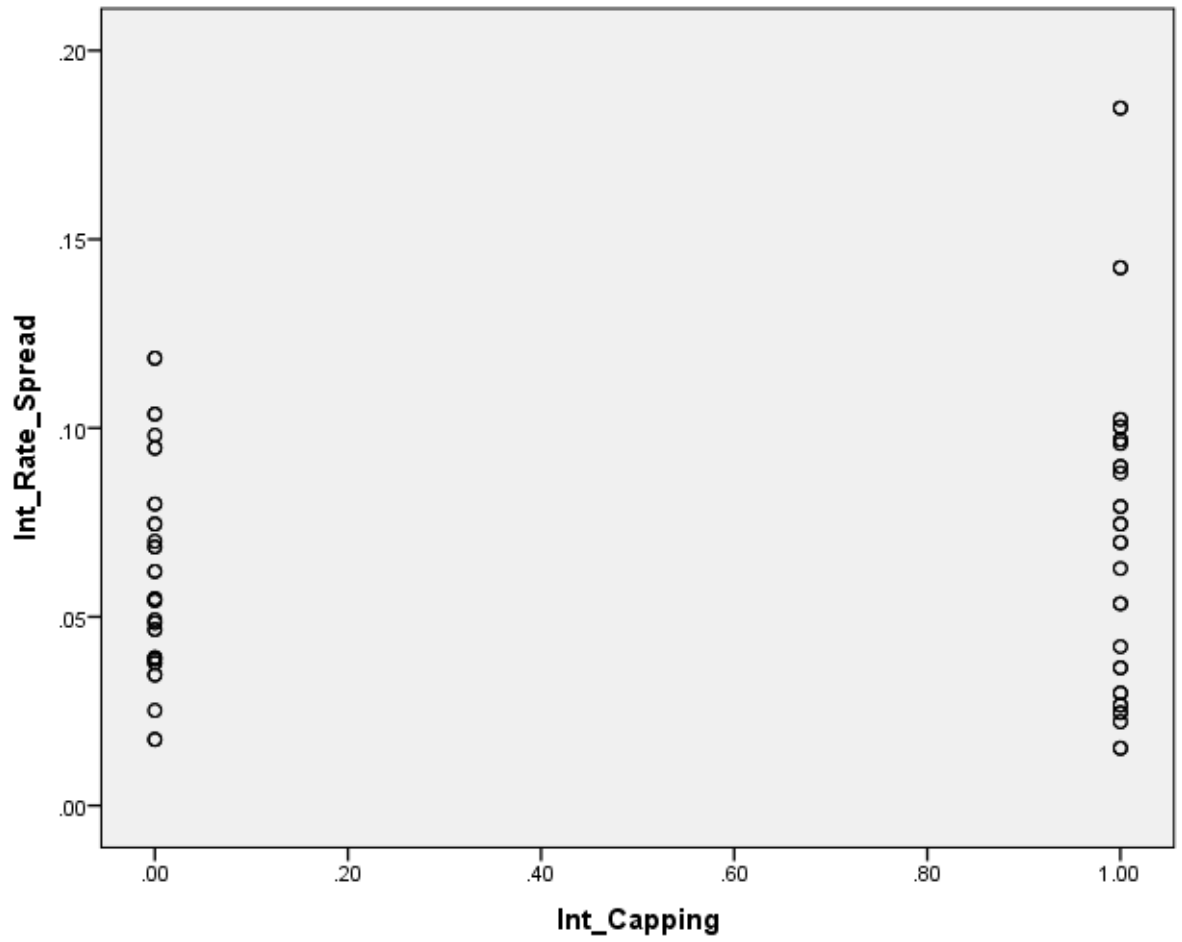


Figure 2: Asset Quality Scatter Plot

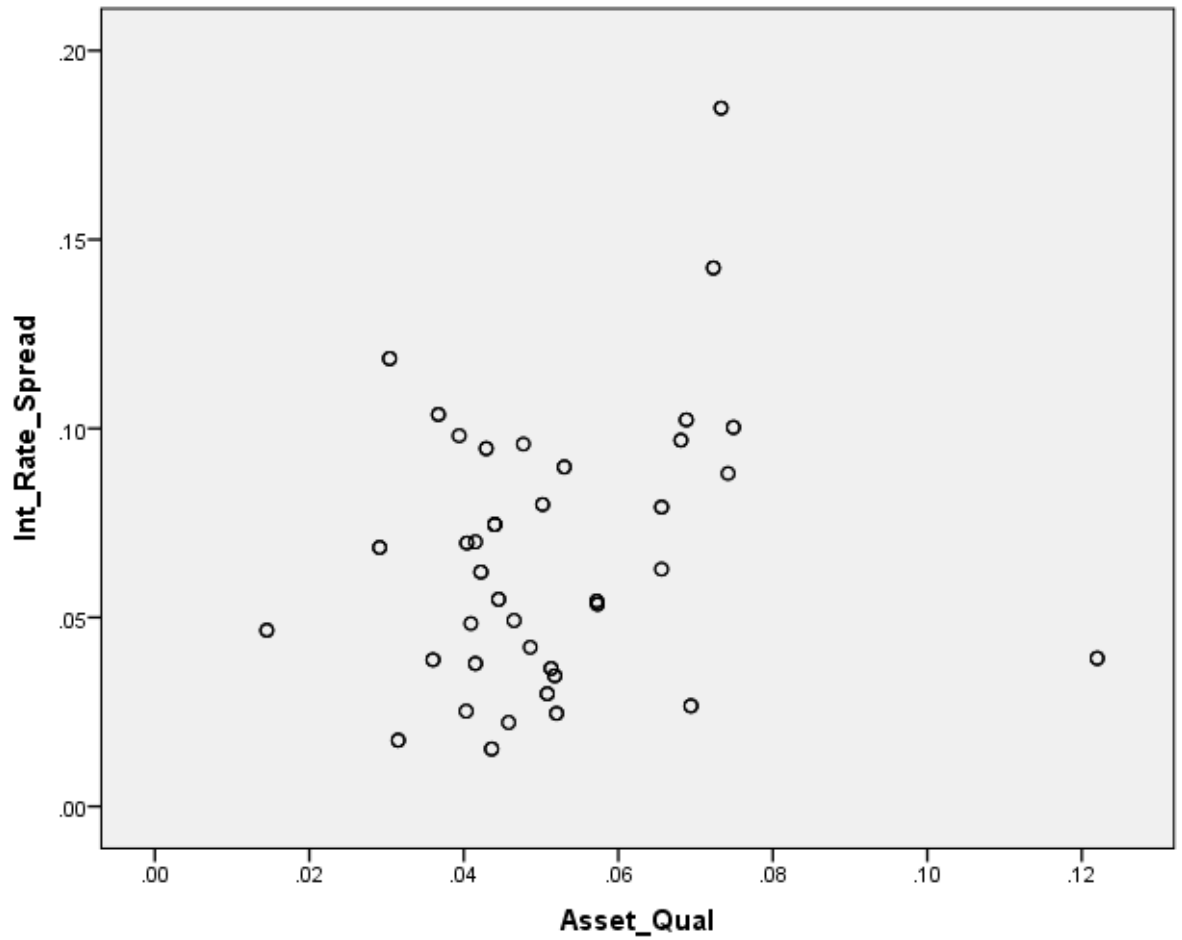


Figure 3: Management Efficiency Scatter Plot

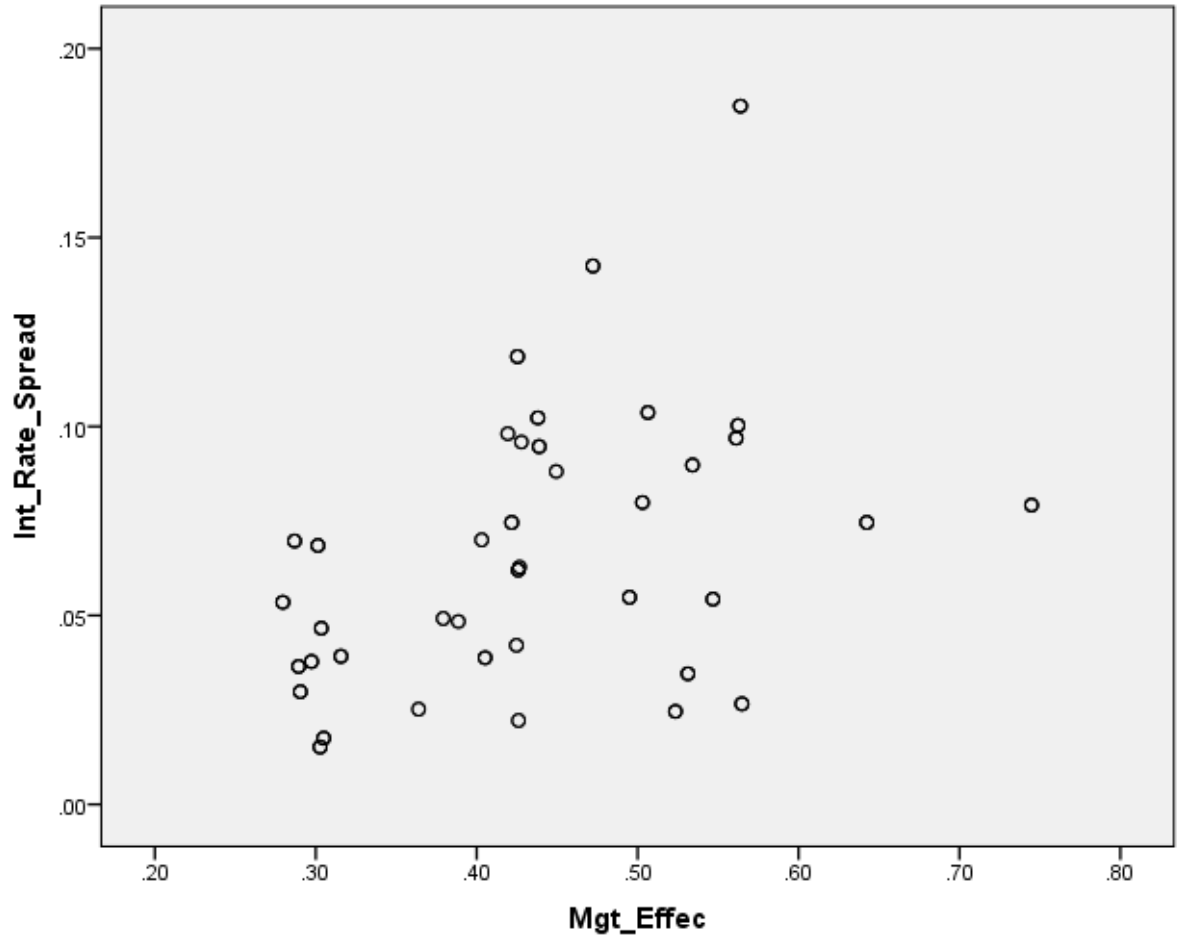


Figure 4: Bank Size Scatter Plot

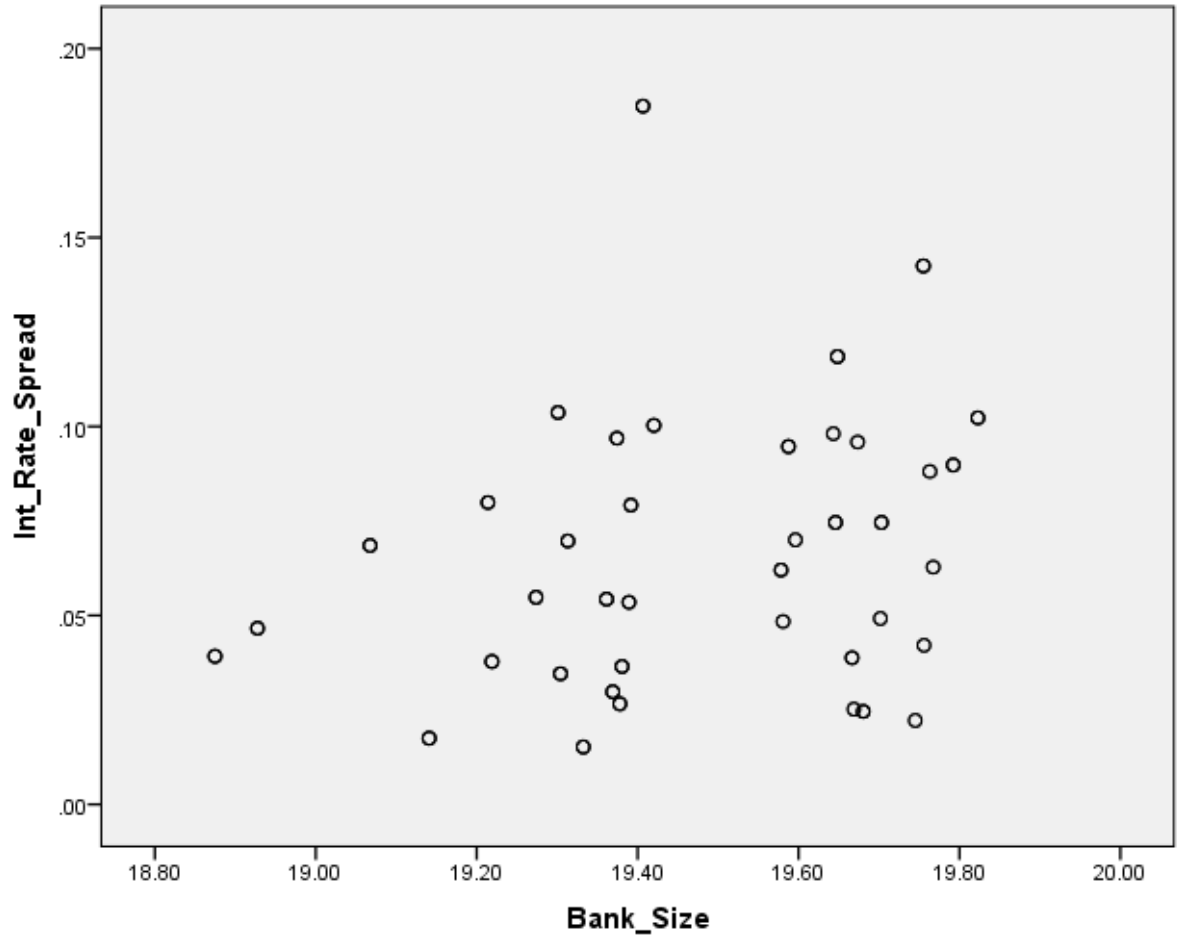


Figure 5: Leverage Scatter Plot

