

**SPREAD IN BRANCH NETWORK AND FINANCIAL  
PERFORMANCE OF COMMERCIAL BANKS IN  
KENYA**

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## **DECLARATION**

This research project is my original work and has not been submitted for examination in any other university or institution of higher learning for any academic award of credit.

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

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## **DEDICATION**

I dedicate this project to my supportive wife, Roselyne Nyamongo who stood by me towards the completion of the research project, my beloved daughter, Joy Monyangi Rioba who is my source of motivation to accomplish my dream.

## ABSTRACT

Spread in branch network is instrumental in improving access to banking services and products and addressing unmet needs of the customers. The contribution of spread in branch network towards improved performance has been a subject of debate since scholars' present different views over this issue while there is paucity of research on this area. The main goal for this study was establishing the link between spread in branch network and commercial banks financial performance in Kenya. To achieve this goal, the researcher adopted a correlation design to test the relationship between the variables. The study population involved all the 39 commercial banks in Kenya, the study utilized published sources of data that were derived from CBK annual reports in a duration spanning for years (2012-2016). Data was analyzed with the help of descriptive statistics and inferential statistics. Hierarchical regression was used to model the relationship between spread in branch networks and return on assets. The model was built by adding the interaction of four control variables (customer deposits, bank size, operational efficiency and capital adequacy). This study established that spread in bank branch networks significantly ( $p < 0.05$ ) predicts return on assets. The study established of that an interaction between spread and operational efficiency significantly ( $p < 0.05$ ) predicts return on assets. In addition, the interaction of spread and operational efficiency significantly explain the variance in return on assets over and above the additive effects of spread on return assets. Hence operational efficiency moderates the relationship between spread of branch networks and return on assets. However, the study found out that the interaction between spread and deposits, bank size and capital adequacy did to significantly explain the variance in return on assets. Hence deposits, bank size and capital adequacy do not moderates the relationship between spread of branch networks and return on assets. This study recommends that local commercial banks should continuously invest in advanced banking technologies to boost efficiency in their operations and minimize operational costs.

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

<b>AT</b>	Agency Theory
<b>ATM</b>	Automated Teller Machine
<b>Bn</b>	Billion
<b>CBK</b>	Central Bank of Kenya
<b>GDP</b>	Gross Domestic Product
<b>GFT</b>	Growth of the Fitter Theory
<b>IBBEA</b>	Interstate Banking and Branch Efficiency Act
<b>IT</b>	Information Technology
<b>ROA</b>	Return on Assets
<b>ROE</b>	Return on Equity
<b>SMEs</b>	Small and Medium Enterprises
<b>ST</b>	Stakeholder Theory

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

Spread in branch networks play an instrumental role in improving access to banking products or services and addressing specific customer needs (Ostadi & Monsef, 2014). McGrath (2001) posits that spread in branch network allows smaller financial institutions to derive competitive gains over large firms through availing personal links and interactions with customers. Spread in branch network provides a link and convenience to several contact points within the firm. This minimizes Automated Teller Machines (ATMs) surges and other costs because of operating with bank's network.

In Kenya, commercial banks are opening new branches to access huge deposits and ease processing of loans (CBK, 2016). Kamande, Zablou and Ariemba (2015) explain that banks seek to open new branches in small and developing towns targeting to tap new customers and offer convenient banking services. Ariambe and Muturi (2015) argue that introduction of agency banking has enabled banks to offer banking services in an effective fashion that is more beneficial to customers. This way, commercial banks can leverage on multiple distribution channels that are cost effective in providing financial services.

This study was supported by three important theories: Stakeholder Theory (ST), Agency Theory (AT) and Growth of the Fitter Theory (GFT). ST posits that the firm should aim satisfying all the needs of the stakeholders. Achieving profitability is one of the ways that a firm can use to cater for the different needs of the stakeholders

(Friedman & Miles, 2002). AT suggests that the agent has a primary role of ensuring that the goal of the principal is realized. Hence, he is expected to effectively control the firm resources to achieve profitability (Duckworth & Moore, 2010). GFT dictates that firms that record a high rate of growth tend to survive in the market and are likely to outdo firms that exhibit slow growth rates (Alchian & Harold, 2011).

### **1.1.1 Spread in Branch Network**

According to Athanasoglou and Gioka (2007), branch network can be defined as locating a firm in different locations with the aim of gaining more access to customers. Adeyinka (2013) contends that spreading in branch network can also be defined as dispersion of bank branches to boost availability of bank products and services, improve customer access to their place of residence and improve the bank's cooperation with its clientele.

Tuwei (2016) explains that spread in branch network can be described as locating branches of a firm in diverse locations to achieve certain goals. Athanasoglou et al. (2007) argue that spread in branch network results into an increase in sales, risk reduction and cost minimization. Contrary to this, Davidsson and Steffens (2009) opine that spread in branch network does not guarantee the firm increased sales and profits, the operational costs of running a new branch might supersede the profits generated by that particular branch. Claeys and Vennet (2008) posit that expanding branch networks improves the branch effectiveness in generating revenues from retail banking notwithstanding the costs involved and developing channels of distribution for example call centres, online banking and ATMs. Spread in branch network widens the market segments giving more customers access to products and services. Claeys and Vennet (2008), in his study argue that customers are willing to spend extra premiums as result of convenience when choosing banks. Athanasoglou et al. (2007)

argue that several banks aim at sustaining growth by having a wider network of branches to improve accessibility and convenience. The study will measure spread in branch network using the number of bank branches.

### **1.1.2 Financial Performance**

Financial performance is defined as a level of business performance over a given period of time that expressed in terms of overall profits and losses (Penman, 2007). Assessing financial performance of a firm enables decision makers to establish the results of business strategies and activities objectively in form of monetary terms. It also involves comparing similar firms in the same industry or sector (Peterson and Kumar, 2007). The significance of financial performance is that shareholders and other parties who have an interest such as investors can understand the performance of a firm.

This information is useful in helping them to invest and to make financial decisions. The key measures of financial performance include Return on Assets (ROA) and Return on Equity (ROE). The current study will use ROA to measure financial performance because it will allow the researcher to establish how the executive management uses firm assets and other resources to generate income and profits to the business.

### **1.1.3 The Relationship between Spread in Branch Network and Financial Performance**

Zardkoohi and Kolari (1994) tested the impact of branch network spread on performance in Finland and found that it led to improved access and convenience to banking services. Customers saved huge transport costs, this attracted more sales which resulted into bank profitability. Hensel (2013) found that huge European banks were unlikely to realize cost efficiencies because of increasing their network of

branches as compared to small banks. Seale (2014) found branching was linked to more profits, lower costs and high level of income among banks in U.S. However, this analysis zeroed in examining dissimilarities among firms with few than thirty branches. In their study, Edelstein and Morgan (2004) found that high deposits levels are linked to higher premiums in branch sales. This is in harmony with the idea that deposits are a vital element in measuring performance of branches.

Apart from deposits collection, branch networks generate new lending particularly small business and consumer lending. While in some banks, credit decisions are not conducted at the branch but are centralized in regional and head offices. Branches are a critical component to fresh customers and small businesses. Therefore, a crucial productivity parameter for branch network is the amount of new retail lending derived from new contacts. Mendes and Reblo (1999) explored the effect of bank branch networks on profitability. He explained the reasons why branches might not be as profitable as anticipated was that most banks today were struggling to have many branches. He points out that spread in branch network might be costly for the bank to maintain. In view of this, Scholterns (2000) found that most financial institutions have not wholly benefitted from their networks as they had anticipated. The operational cost of running numerous branches exceeded the profits that were derived from those branches.



### **1.1.4 Commercial Banks in Kenya**

Commercial banks in Kenya play an essential role in economic growth. The functions of commercial banks are as follows: accepting deposits, giving out credit facilities, and ensuring safe custody of employees' valuables and financial advice to customers. Commercial banks offer employment opportunities and access to credit for large corporation and SMEs (Oxford Business Group, 2016).

Kenyan commercial banks are classified into three peer groups using a weighted composite index that comprises net assets, customer deposits, capital and reserves, number of deposit accounts and number of loan accounts. A bank with a weighted composite index of 5 per cent and above is classified as a large bank. A medium bank has a weighted composite index of between 1 per cent and 5 per cent while a small bank has a weighted composite index of less than 1 per cent. For the period ended 31st December 2016, there were 4 large banks with a market share of 58.21 per cent, 12 medium banks with a market share of 32.42 per cent and 27 small banks with a market share of 9.24 per cent as shown in Appendix I. (CBK, 2015).

Spread in bank branches have increased 1,443 in 2014 to 1,523 in 2015, this led to an increase in 80 branches. Nairobi County has so far recorded the highest number of branches whereby in 2015 38 branches were opened, Machakos and Mombasa opened 7 new branches each while Kajiado had 6 new branches. A total of 19 out of 47 counties registered an increase in bank branches which was lower compared to 28 counties that had registered an increase in bank branches in 2014.

This decline in branch network spread can partly be attributed to the adoption of mobile banking, internet banking and agency banking (CBK, 2015). Banking sector operates through guidance from the Banking Act whose supervision is done by the

Central Bank of Kenya (CBK) Act and guidelines. The financial reforms took place in 1995 whereby exchange controls were lifted to allow free and fair competition while allowing them to grow and expand. CBK operates under the finance ministry which partners with other regulatory bodies including the government to set policies to ensure that banks operate in a favourable environment (CBK, 2015).

## **1.2 Research Problem**

Davidsson and Steffens (2009) explain that spread in branch network helps a bank to serve a wide range of customers in different locations. This allows customers to save huge costs from transport while giving them flexibility to boost their usage of banking services and products (Ramezani and Alan, 2010). Contrary to this, Davidsson & Steffens (2009) posit that institutions that participate in spread in branch network have not benefitted from these networks like they imagined. Hence, the basis to investigate whether spread in branch network impacts on financial performance.

In Kenya, opening new branches is seen as a way of growing local banks by widening their scope of operations. It is a strategy that is well suited for commercial banks to enhance access to banking services and products to counter competition. However, having multiple branches does not necessary contribute to profitability. The costs of maintaining many branches might supersede profits (Ledgerwood, 2006).

Wilson, Dimitris and Hong (2013) examined the nexus between spread in branch network and profitability in the U.S and found that spread in bank branch network contributed to an improvement in performance. This study was done in a global set up whose ways of doing things is different from the local setting. Berger (2009) found that there existed a linear relationship between spread in branch network and profitability. Symeou (2012) explored the nexus between firm size and growth and the

results showed a statistically significant link between firm size and growth. These studies were executed in a global set-up whose ways of doing things is different.

Musyoka (2011) found a significant relationship between bank branches and financial performance. The key limitation for this research is that it was executed 5 years ago and so many things have changed in the banking sector like technology and regulation. Some banks have expanded while a few have been shut down. Muia (2014) found that financial innovation, growth and profitability of commercial banks had a positive association. The study ignored the concept of spread in branch network which is a major concentration in this study. Mimano (2014) found a positive correlation between increase in customer deposits and performance. Njoroge (2015) found that branch network and profitability of Microfinance banks was positively related. This study limited itself to Microfinance banks.

Although these studies (Symeou, 2012; Wilson et al., 2013; Musyoka, 2011; Muia, 2014; Mimamo, 2014) have explored branch network and financial performance, inexhaustive focus has been given on the link between spread in branch network and financial performance in particular, local commercial banks. Therefore, this study attempted to find a solution to the question: What is the link between spread in branch network and financial performance of commercial banks in Kenya?

### **1.3 Objective of the Study**

To establish the relationship between spread in branch network and financial performance of commercial banks in Kenya.

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

The empirical outcome was applicable to policy makers such as CBK to guide in policy setting by encouraging commercial banks to spread in their bank branches to improve financial performance.

Finance practitioners learnt more about the determinants of financial performance and the measures that they could implement to measure spread in branch network and financial performance. Financial institutions conceptualized the link between bank branches and financial performance.

This research made a great contribution to the existing literature. Students learnt the theories that anchored this study, their relevance and application. The findings realized in this study were utilized as a basis for more research.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The chapter constitutes three important sections: the theoretical framework, determinants of financial performance that forms the basis of conceptual argument and the third part discusses studies conducted by scholars in different parts of the world and an overview of the literature review.

#### **2.2 Theoretical Framework**

This part will provide a detailed discussion of the theories supporting this study which include Stakeholder Theory, Agency Theory and Institutional Theory. The theories have been discussed in line the goal of this study.

##### **2.2.1 Stakeholder Theory**

This theory was put forward by Freeman (1984). The main premise that underpins this theory is that the firm represents stakeholder needs hence the action taken by the firm should be aimed at representing these needs. The stakeholders include the customers, the community, the employees and the firm. Friedman and Miles (2002) maintain that firms that record high rates of profits are able to cater for diverse needs of the stakeholders. Stakeholders' needs are unique hence the firm should adopt several approaches to ensure these needs are satisfied (Ariambe & Muturi, 2015).

Duckworth and Moore (2010) opine that for a firm to achieve sustainable profit, the firm has to accommodate various needs of the stakeholders. The importance of this theory is that bank are adopting innovation to retain their customers and constantly engaging in innovative technologies by improving the features of their products and services or introducing new products or services to boost quality, accessibility,

convenience and flexibility. This enables the firm to retain existing customers and attract new ones, this leads to increased sales and bank profitability.

Spreading branch networks is aimed at growing and expanding the bank so as to satisfy to bolster its profits and satisfy the needs of all its stakeholders. Because the needs of the stakeholders are different and they keep on evolving, spread in branch network opens up more opportunities for customers to conveniently access a variety of banking services and this improves customer satisfaction.

By addressing the needs of customers, a bank can build and establish a long-term relationship with its customers and its stakeholders. Employees are key stakeholders of the firm. Satisfying employee interest improves their motivation and commitment in working towards achieving corporate goals. This contributes positively to improved financial performance Ayanda et al. (2013) explain that opening branch networks in potential areas is one of the ways a bank can adopt to boost financial performance.

### **2.2.2 Agency Theory**

Jensen and Meckling (1976) maintain that agency theory is a management approach where the agent represents the principal in running the organisation. The agent has an important obligation of ensuring that goals as set out by the principal are achieved (Duckworth & Moore, 2010). To effectively execute his or her roles he must be able to balance his own interest and that of the principal. The agent here is the top management executive of the firm who is mandated to control the firm resources.

According to Laffont & David (2008), decisions and the actions taken by the agent has an effect on the overall firm including the principal. Therefore, the agent must represent the interest of all the stakeholders in a firm which is profitability. Top

management is trusted to control organisational resources and hence should act in the best interest of the stakeholders by prioritizing their needs. Long-term and sustainable profitability of the firm is one of the priorities of the top management and a key indicator of performance. The management of any firm exercises self-control in managing the firm to attain profitability. The top executives of commercial banks should act to serve the best interest of the stakeholders of the firm. They should always look out for opportunities to exploit; a bank can achieve this by establishing branches to boost sales and performance in order to address the needs of the stakeholder. To achieve this, the management has to establish links with the stakeholders and this provides an enabling environment for the banks to accomplish their objectives.

Duckworth and Moore, (2010) note that agents might favour the decision to spread bank branches with the hope of increasing profitability this decision might also be supported by the stakeholders since by spreading bank branches the bank might grow and expand and this might help in solving agency problems and save the bank huge costs that can be reinvested in opening more branches (Laffont & David, 2008). Spreading branch networks is aimed at growing and expanding the bank so as to satisfy to bolster its profits and satisfy the needs of all its stakeholders. Because the needs of the stakeholders are different and they keep on evolving, spread in branch network opens up more opportunities for customers to conveniently access a variety of banking services.

### **2.2.3 Growth of the Fitter Theory**

This theory was put forth by Alchian (1950), it noted that firms that exhibit a faster growth are more likely to survive in the market however, firms that do not show this form of growth might exit the market due to poor performances. Alchian (1950) posit that fitter firms grow and expand while weaker firms lose their market share and depart through evolutionary selection approaches. Hence, if profitability is reflective of the financial soundness of a firm, it is easier to forecast that cost effective firms will record high growth rate (Alchian & Harold, 2011). Delmar and McKelvie (2013) posit that firms that are profitable have potential to grow since they can easily grasp opportunities since they are liquid.

Through spreading bank branches a bank improves its transactions by providing more customers an opportunity to transact and attract new customers. This widens the bank's sales volumes and opportunities for businesses to access credit. The extra profits derived from new branches might be used in growth and expansion strategies of the bank. Ayanda, Christopher and Mudashiru, (2013) note that extra profits should be utilized for growth of the firm. The firm can achieve internal growth through investing in modern technology such as information communication technology and allocating funds for research and development. Thus, the firm is able to develop products or services that add value to customers and minimize operational costs through improved efficiency (Alchian & Harold, 2011).

Spread in branch network is perceived to enhance profitability of a bank as opposed to failure to spread in branch network. However, this might not be the case since spread in branch network does not necessarily lead to increased sales or profitability. The cost of maintaining a wide spread in branches might supersede the profits realized. A



bank might invest in advanced technology and realize more profits as compared to a bank that invests its resources in spreading in branch network.

## **2.3 Determinants of Financial Performance**

Several factors that affect financial performance of a bank; these factors could be external or internal; this study will discuss internal factors that the bank has some level of control over, they include but not limited to the following; spread in branch network, growth in customer deposits, asset growth, operational efficiency and capital adequacy.

### **2.3.1 Spread in Branch Network**

Almazari (2014) argues that the value of return on assets indicates that the number of branches a bank has is inversely proportional to its profitability. Gul et al. (2011) cite that an increase in the number of bank branches or bank network reduces bank profitability as indicted by return on assets, net interest margin, return on equity, and return on capital employed. Researching factors that affect profitability of banks in Nigeria, Ayanda et al. (2013) found that there is insignificant link between the number of bank branches and banks' profitability.

Berger (2009) holds a similar view, arguing that the number of branches does not affect a bank's profitability level. Based on the return on equity and return on assets value, an increase in the number of branches implies high profitability. It was found that banks that have wide network of branches have more sales avenues thus improved financial position. However, this contradicts the view by Rahaman and Nasr (2007) who argue that increased number of branches due to high cost of maintenance reduces a bank's profitability.

### **2.3.2 Growth in Customer Deposits**

A customer deposit is money placed into a bank by an account holder for safe-keeping. Customer deposits create a pool of finances that is given out as loans to lenders with interest. Banks compete for deposits by providing their customers with attractive rates that is lower than their rivals. According to Ostadi and Monsef (2014) bank deposits are directly related to bank profitability. Banks that have huge deposits are more likely to report high profits as compared to banks with low deposits. High profits might be attributable to high interest income from loans and deposits held by banks.

Aladwan (2015) showed that customer deposits had a significant relationship with profitability. Increase in value of bank deposits resulted into an increase in the revenue generating activities of banks and this contributed positively to bank profitability. Contrary to this, Rahaman et al. (2007) showed that bank deposits had a negative effect on profitability measured using return on assets. It was further revealed that over dependence on time deposits as well as savings deposits led to limited earnings for banks as compared to dependence on demand deposits.

### **2.3.3 Firm Size**

Rahaman et al. (2007) showed that banks with smaller asset sizes reported higher levels of profitability as compared to banks that had large asset sizes. It was further revealed that smaller and medium sized banks reported high profit margins as compared to large banks. Ostadi et al. (2014) revealed a positive association between the value, asset quality and bank profitability.

Banks that had large total assets generated high profits as compared to banks that had low value of assets. Rahman and Farah (2012) found that the quality of the assets was positively connected to the level of bank profitability. The findings identified three

factors that affected bank profitability; liquidity, asset quality and capital adequacy. Banks that has large assets value were in a better position to offer a wide variety of services to customers hence they generated high revenues as compared to banks that had fewer assets.

#### **2.3.4 Operational Efficiency**

Operating efficiency is a determinant of financial performance. It is computed by dividing total operating expenses by total income. A firm achieved operating efficiency if the top management allocates its resources in an efficient manner that maximizes income generated by the same firm. To optimize the cost of operations, financial ratios are applied. The ratios that are applied to measure the quality of management is operating profit to income ratio (Shankmann, 2009).

Another important ratio as a proxy for management quality is expense to asset ratio. This is the ratio of operating expenses to total assets (Shankmann, 2009). The quality of the management influences operating expenses and performance of the firm. This coincided with the sentiments by Choi (2010) who indicated that profitable banks had an efficient management that coordinate the activities and operations of a bank efficiently.

#### **2.3.5 Capital Adequacy**

Capital adequacy can be described as quantum of fund that a bank needs to conduct their businesses in a discreet manner. Adequate capital can be described as the amount of capital that can support and prevent failure of a bank through absorbing losses. It prevents the bank against insolvency that emanates from the liquidity problems. Adeyinka (2013) explored the effect of capital adequacy on profitability of deposit-taking banks in Nigeria. The results showed a significant and positive relationship amongst capital adequacy and firm profits.

Onaolapo and Olufemi (2012) investigated the relationship between performance and capital adequacy on selected banks in Nigeria. It was found that ROA and efficiency were significantly related to performance. Further, Goddard (2004) tested European banks' profitability using a cross-sectional data in 1990s. The findings depicted a positive linkage between capital to asset ratio and profitability. Angbazo & Lazarus (2009) observe that banks possessing a high equity amount easily minimized their cost of capital.

## **2.5 Empirical Studies**

This section describes both international and local studies that support the link between branch network and financial performance. The research has identified the research design adopted by the studies, the study population, method of data collection, nature of data collected and data analysis. This is meant to inform the reader's understanding of the various approaches adopted in the empirical studies and to guide the researcher on the most suitable approach to adopt in the current study.

### **2.5.1 International Studies**

Seale (2004) did an investigation involving spread in bank branches and its impact on firm performance in the US. The study adopted an event study approach. The study tested the connection between bank branches and various financial ratios. The study found that extensive branch network was related to high non-interest income, low interest and non-interest expense, a higher return on equity among banks.

Hirtle (2007) assessed the effect of branch network size on ROA. The study adopted a descriptive design to find out the link between variables. The study sampled a 100 banks in the US. The study adopted a correlation analysis and found no association

between the variables. Further, an examination on the nexus between branch network and performance and found out medium-sized banks had a competitive advantage over small and large-sized banks in terms of branch network growth. Nippani and Green (2010) did an analysis on the effect of the Riegle-Neal Interstate Banking and Branch Efficiency Act (IBBEA) on performance of US banking sector. A comparative analysis was done to establish the performance in pre and post IBBEA period. The results showed that an improvement in performance in the Post-IBBEA period. Further, no significant effect was found to be present between real GDP and IBBEA.

Adelowotan (2016) investigated the effect of branch network growth and bank's performance in Nigeria. The study took place in between 1981 and 2013 involving all the banks in Nigeria. The study utilized Ordinary Least Square (OLS). A pooled data analysis was adopted, the main study variables were as follows; number of bank branches in the study period and growth in total assets proxied as independent variable. Growth in bank branches was positively related to asset growth in rural, urban and foreign areas.

Kazumine (2016) tested whether Japanese regional banks entered the banking industry in other regions including the neighbouring countries and the impact this had on lending-based income. The study adopted 3 lending-based income indicators as dependent variable; the assessment was done with the help of panel data from regions banks in Japan. As a consequence, it was established that regional banks that entered new markets in other regions recorded positive impacts in the all three indicators of lending-based income.

### **2.5.2 Local Studies**

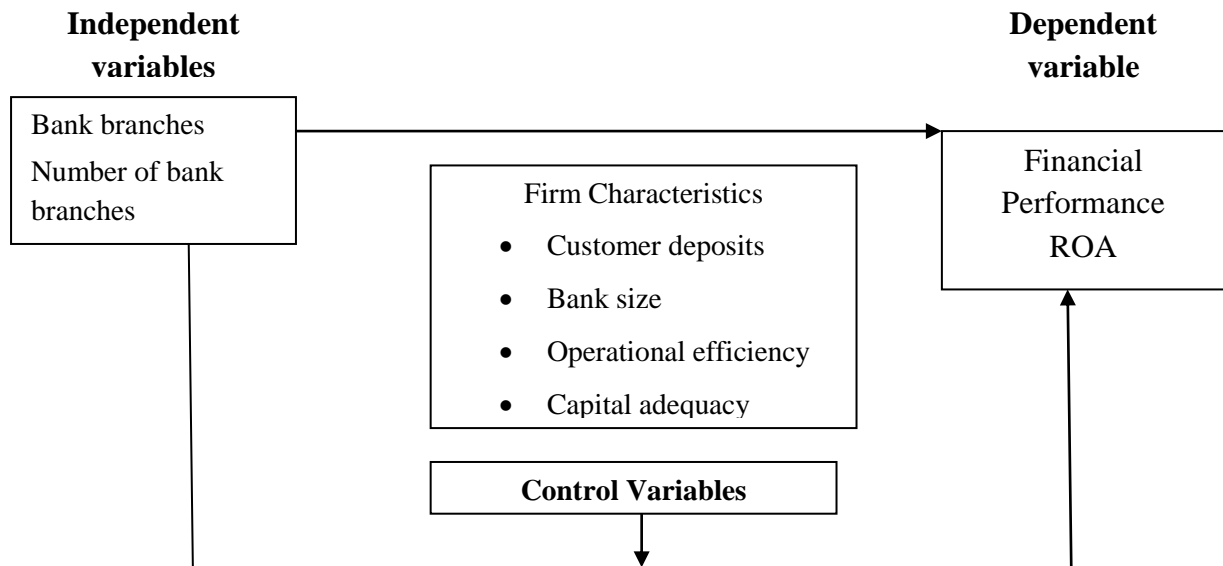
Musyoka (2011) tested the link between branch network spread and financial performance in commercial banks. The study adopted a descriptive research design and a population of 42 commercial banks. Secondary sources of data were used and a regression model was utilized to test the association between the parameters. A significant relationship was found to be present between branch network spread and financial performance. Salim (2011) determined the connection between bank size and financial performance of commercial banks in Kenya. A descriptive design was applied. The population of 43 local banks was utilized. Sample of 25 banks was done and published sources of data were utilized. Data was analysed with the help of a regression equation to establish the link between the study variables. A significant relationship was found to be present between total loans, total deposits and total assets against financial performance of local banks.

Bisher (2011) tested the connection between size and bank's financial performance in Kenya, the research adopted a descriptive design and a total population of 43 commercial banks. A sample size of 30 local banks was used from which published data sources were obtained. The study was conducted in a period of ten years (2000-2010). A multiple regression model was adopted and the results concluded that total loans, total deposits and total assets were significantly related to financial performance. A weak relationship was also established between the variables. Tuwei (2016) explored the link between number of branches and financial performance of private college. A descriptive research design was used. Raw data was used and it was collected using questionnaires that were administered to a sample of selected respondents. Microsoft excel was utilized in data analysis. The findings revealed that branch network was positively linked to organisational performance.

Kavita (2016) explored the effect of bank growth on bank's financial performance. The study employed a descriptive design in a population of 43 local banks. Published data sources were employed and the results showed a significant linkage between bank growth and financial performance.

## 2.6 Conceptual Framework

The study anticipated that there was no connection between branch network and financial performance of commercial banks. The independent variable was branch network and the dependent variable was financial performance (ROA). Control variables were customer deposits, bank size, operational efficiency and capital



**Figure 2.1 Conceptual Framework**

**Source; Researcher, 2017**

## **2.7 Summary of the Literature Review**

It was deduced that the theories anchoring this study; Stakeholder theory, Agency theory and Growth of the Fitter theory seemed to predict that branch networks and financial performance. This study was explored widely especially in the US, Japan and in the African region (Nigeria). Examples included Nippani and Green (2010), Hirtle (2007), Seale (2004) and Adelowotan (2016) among others. Many studies were conducted in the banking sector. Locally, studies paid much attention to bank size and bank growth in relation to financial performance. Examples included Bisher (2011), Salim (2011) and Kavita (2016). Studies that investigated bank branches; Tuwei (2016) limited himself to private college while this study focused on commercial banks. The study by Musyoka (2011) was carried out in 2011; this is a long-time ago since many things have changed such as technology and regulations. Some banks had expanded while a few have been shut down. Therefore, the researcher found it necessary to conduct an exhaustive relationship between bank branches and financial performance.



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

Described in this chapter is the research methodology approach that was implemented in addressing the research question. Research methodology is an approach, tools and the procedure adopted in a study for collecting and analysing data.

#### **3.2 Research Design**

This study adopted a correlational form of research design in measuring two variables and determining their statistical relationships. Under this design, the statistical relationship between variables was examined with either limited or no effort at all to regulate extraneous variables. Levine and Norenzayan, (1999) contend that a correlational research design tries to find out whether or not two variables are correlated. It also examined if a rise or decline in a variable corresponded to a rise or decline in another variable (Pelham, Carvallo & Jones, 2005). The decision to choose this kind of design was influence by the need for the researcher to detect whether spread in branch network impacted on commercial banks' financial performance.

#### **3.3 Target Population**

Population is defined as the totality of items under investigation. Cooper et al. (2008) define that a population consists of noticeable traits that can be generalized by a researcher in a study. Population is a set of elements that possess identical traits. The study population include 39 commercial banks in Kenya registered as at December 31<sup>st</sup> 2016. Banks were grouped in three Peers according to the number of branches i.e. many branches, average branches and small branches (See Appendix I). Banks under receivership, banks under statutory management and banks that underwent transition for acquisition were not considered. A census was used hence no sampling.

### **3.4 Data Collection**

Kothari (2005) asserts that data collection is a precise, systematic approach that seeks to address the research problem using several approaches such as interviews, focus groups and observation. Secondary data sources were collected using Microsoft excel sheets for a period of five years (2012-2016); this duration was adequate in enabling the researcher to establish an accurate relationship on the spread in branch network and financial performance. These data was gathered from annual reports of commercial banks and CBK supervision reports.

### **3.5 Data Analysis**

Kothari (2005) contends that data analysis is the application of reasoning to have an understanding of collected data with the goal of establishing consistent patterns and summarizing key details in an investigation. A four step approach of analysing data; included; preparing data for analysis, having a feel of collected data, testing data reliability and hypothesis. The Statistical Package for Social Sciences (SPSS) version 22 was utilized for analysis of data. Correlation and regression analysis was used to establish the existing relationship between branch network, control variables and financial performance.

#### **3.5.1 Analytical Model**

Hierarchical multiple regression analysis was used to model the relationship between spread in branch networks and return on assets. This model was further built by adding the interaction effect of each of the four control variables (customer deposits, bank size, operational efficiency and capital adequacy) with spread in branch networks. The output of hierarchical regression analysis was used to establish the amount of variation in return on assets explained by each of the control variables over and above the additive effects of spread on return assets.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_1 * X_2 + \beta_3 X_1 * X_3 + \beta_4 X_1 * X_4 + \beta_5 X_1 * X_5 + \epsilon$$

Where;

Y = Financial performance that was assessed using ROA that is computed as net income divided by total assets.

X<sub>1</sub> = Bank branches that was evaluated using the number of bank branches.

#### Control Variables

X<sub>2</sub> = Operational efficiency which was computed through dividing total operating expenses by total income.

X<sub>3</sub> = Customer deposits that was determined by computing growth in customer deposits annually.

X<sub>4</sub> = Bank size that was measured using natural logarithm of total assets

X<sub>5</sub> = Capital adequacy was measured using the ratio of capital to total weighted assets.

$\alpha$  = Regression constant

$\epsilon$  = Error term which was normally distributed about a mean of zero.

$\beta_1 \beta_2 \dots \beta_n$  = coefficients variation to find out the volatility of each variable on performance in the regression equation.

### 3.5.2 Tests of Significance

The study applied F test and T test. If the computed F statistics in a test was greater than the table F value, null hypothesis was rejected. T-tests were applied in determining if a regression coefficient was statistically significant at a given time.

## CHAPTER FOUR

### DATA ANALYSIS, RESULTS AND INTERPRETATION

#### 4.1 Introduction

This chapter gives a discussion concerning the analysed data and interpretation that included descriptive statistics and inferential statistics. Analysis of data was done as per the research objective which was to determine the effect of spread in branch network on financial performance of commercial banks in Kenya.

#### 4.2 Descriptive Analysis

This section presents descriptive analysis for variables used in this study. The independent variables of the current study are spread in branch network, bank size, operational efficiency, customer deposits and capital adequacy while the dependent variable is return on asset.

##### 4.2.1 Spread in branch networks

The results of the descriptive analysis of spread in branch networks is shown in table 4.1

**Table 4.1 Spread in Branch Networks**

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Spread in large Banks	4	107	186	146.75	33.270
Spread in Medium Banks	12	22	79	39.33	18.242
Spread in Small Banks	23	3	19	10.00	5.713

The average spread was 146 for large banks, 39 for medium banks and 10 for small banks. The maximum spread was 186 for large 79 for medium banks and 19 for small

banks; furthermore the minimum spread was 107 for larger banks 22 for medium banks and 3 for small banks.

These findings suggest that large banks have a wider market segment compared to small and medium banks. In particular, large banks are spread in more locations than medium and small banks which enable them to gain more access to customers, boost availability of bank products and services and improve the bank's cooperation with its clientele.

#### 4.2.2 Deposits

The results of the descriptive analysis of spread in branch networks is shown in table 4.2

**Table 4.2 Deposits**

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Deposits in Large Banks	4	120,494.000	294,282.200	197,135.0500	73,139.4664
Deposits in Medium Banks	12	3,163.000	164,538.600	57,474.2000	51,418.0775
Deposits in Small Banks	23	2,427.8000	215,973.800	25,674.6256	44,000.6869

The average customer deposit was 197,135 million Kenya shilling for large banks 57,474 million for medium bank and 25,674 million for small banks. The maximum deposit was 294, 282 million for large banks, 164,538 million for medium banks and 215973 for small banks in addition the minimum deposit was 120,494 million for large banks 3163 million for medium banks and 2427 for small banks.

These findings imply that large banks had huge deposits compared to small and medium banks with low deposits. Therefore, large were more likely to report high profits as compared to small and medium banks.

### 4.2.3 Operational Efficiency

The results of the descriptive analysis of operational efficiency of commercial banks is shown in table 4.3

**Table 4.3 Operational Efficiency**

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Operational efficiency in Large Banks	4	0.5755	0.6477	0.6048	0.0352
Operational efficiency in Medium Banks	12	0.3348	1.6376	0.7241	0.3590
Operational efficiency in Small Banks	23	0.2117	1.4658	0.6186	0.3169

**Source: Author, 2017**

The average operational efficiency ratio was 0.6048 for large banks, 0.7241 for medium banks and 0.6186 for small banks. The maximum operational efficiency ratio was 0.6477 for large banks, 1.6376 for medium banks and 1.4658 for small banks. Furthermore, the minimum operational efficiency was 0.5755 for large banks, 0.3348 for medium banks and 0.2117 for small banks.

These findings show that large banks were more efficient than small and medium banks. Therefore, large banks were more likely to keep a healthy balance between cost and productivity than small and medium banks.

### 4.2.4 Capital adequacy

The results of the descriptive analysis of capital adequacy of commercial banks is shown in table 4.4

**Table 4.4 Capital adequacy**

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
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Capital adequacy in Large Banks	4	0.1962	0.2212	0.207	0.0105
Capital adequacy in Medium Banks	12	0.1488	9.5800	1.77	3.6488
Capital adequacy in Small Banks	23	4.262	7.7765	6.78	0.9868

**Source: Author, 2017**

The average capital adequacy ratio was 0.207 for large banks, 1.77 for medium banks and 6.78 for small banks. The maximum capital adequacy ratio was 0.2212 for large banks, 9.5800 for medium and 7.7765 for small banks. The minimum capital adequacy ratio was 0.1962 for large banks, 0.1488 for medium and 4.262 for small banks.

These results imply that capital adequacy in small banks was higher compared to large and medium banks. Therefore, small banks faced a reduced risk of insolvency than large and medium banks due to availability enough capital to cover unexpected losses and keep themselves solvent in a crisis.

#### **4.2.5 Bank Size**

The results of the descriptive analysis of size of commercial banks is shown in table 4.5

**Table 4.5 Bank Size**

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Bank size in Large Banks	4	8.3466	8.627	8.477	0.1176
Bank size in Medium Banks	12	4.6319	8.349	7.621	1.0381
Bank size in Small Banks	23	4.2692	7.776	6.769	0.9868

**Source: Author, 2017**

The average bank size was 8.477 for large banks 7.621 for medium banks and 6.769 for small banks .The maximum bank size was 8.627 for large banks 8.349 for medium banks and 7.776 for small banks. In addition the minimum size of banks was 8.3466 for large size banks, 4.6319 for medium banks and 4.2692 for small banks.

These findings suggest that large banks had larger total as compared to small and medium banks that low value of assets. Therefore, large banks were in a better position to offer a wide variety of services to customers hence they generated higher revenues as compared to small and medium banks that had fewer assets.



#### 4.2.6 Return on Asset

The results of the descriptive analysis of spread in branch networks of commercial banks is shown in table 4.6

**Table 4.6 Returns on Asset**

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Return on asset in Large Banks	4	0.0464	0.0698	0.056325	0.0097705
Return on asset in Medium Banks	12	-0.0303	0.0948	0.029292	0.0324410
Return on asset in Small banks	23	-0.0622	0.0696	0.020448	0.0272765

**Source: Author, 2017**

The average return on asset was 0.056325 for large banks, 0.029292 for medium banks and 0.020448 for small banks. The maximum return on asset was 0.0698 for large banks, 0.0948 for medium banks and 0.0696 for small banks. In addition the minimum return on asset was 0.0464 for banks -0.0303 for medium banks and -0.0622 for small banks.

These findings imply that large banks had higher return on assets compared to small and medium banks with low deposits. Therefore, large were more likely to report high profits as compared to small and medium banks.

### 4.3 Inferential Statistics

#### 4.3.1 Regression Analysis

This section presents hierarchical regression analysis for variables used in the current study. The independent variable of this study is spread in branch networks of commercial banks while the dependent variable is financial performance based on return on assets. The control variables are customer deposits, bank size, capital adequacy and operational efficiency. In particular, a regression model between spread in branch networks and return on assets was built after which four other regression models were built by adding the interaction effect of each of the four control variables (customer deposits, bank size, operational efficiency and capital adequacy).

The output of hierarchical regression analysis was used to establish whether the newly added control variable had a significant improvement in the coefficient of determination ( $R^2$ ).

**Table 4.7 Return on Asset Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.360 <sup>a</sup>	.129	.106	.0277474	.129	5.499	1	37	.025
2	.488 <sup>b</sup>	.239	.196	.0263080	.109	5.159	1	36	.029
3	.489 <sup>c</sup>	.239	.174	.0266692	.001	.031	1	35	.861
4	.489 <sup>d</sup>	.239	.150	.0270585	.000	.000	1	34	.989
5	.496 <sup>e</sup>	.246	.131	.0273492	.006	.281	1	33	.599

**Source: Author, 2017**

- a. Predictors: (Constant), Spread
- b. Predictors: (Constant), Spread, Spread\*Efficiency
- c. Predictors: (Constant), Spread, Spread\*Efficiency, Spread\*Deposit
- d. Predictors: (Constant), Spread, Spread\*Efficiency, Spread\*Deposit, Spread\*Bank size
- e. Predictors: (Constant), Spread, Spread\*Efficiency, Spread\*Deposit, Spread\*Bank size, Spread\*Adequacy

In the first step, a regression model on the relationship between spread in branch networks and return on assets was built. The value of variance  $R^2=0.129$  indicate that 12.9% of return on assets is explained by spread in branch networks. At step 2,  $R^2$ change=0.109, so the interaction of spread and operational efficiency explains 10.9% of the variance in return on assets over and above the additive effects of spread on return assets. The change in  $R^2$  is statistically significant ( $p < 0.05$ ). This shows that operational efficiency moderates the relationship between spread of branch networks and return on assets.

The findings shows that that spread in bank networks significantly predicts return on assets and that the interaction of spread and operational efficiency significantly explain the variance in return on assets over and above the additive effects of spread on return assets. Hence operational efficiency moderates the relationship between spread of branch networks and return on assets.

At step 3,  $R^2$  change=0.001, so the interaction of spread and deposits explains only 0.1% of the variance in return on assets over and above the additive effects of spread and the interaction between spread and efficiency on return assets. The change in  $R^2$  is not statistically significant ( $p > 0.05$ ). The findings imply that deposits do not moderate the relationship between spread of branch networks and return on assets.

At step 4,  $R^2$  change=0.000, so the interaction of spread and bank size does not explain any variance in return on assets over and above additive effects of spread of branch network, the interaction between spread and efficiency and the interaction between spread and bank deposits on return on assets. The change in  $R^2$  is not statistically significant ( $p > 0.05$ ).

The results show that bank sizes do not moderate the relationship between spread of branch networks and return on assets.

At step 5,  $R^2$  change=0.006, so the interaction of spread and capital adequacy does explain only 0.6% of the variance in return on assets over and above spread of branch network, the interaction between spread and efficiency, the interaction between spread and bank deposits and the interaction between spread in branch network and bank size on return on assets. The change in  $R^2$  is not statistically significant ( $p > 0.05$ ).

The finding imply that capital adequacy do not moderate the relationship between spread of branch networks and return on assets.

**Table 4.8 Analysis of Variance of Return on Asset**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.004	1	.004	5.499	.025 <sup>b</sup>
	Residual	.028	37	.001		
	Total	.033	38			
2	Regression	.008	2	.004	5.638	.007 <sup>c</sup>
	Residual	.025	36	.001		
	Total	.033	38			
3	Regression	.008	3	.003	3.668	.021 <sup>d</sup>
	Residual	.025	35	.001		
	Total	.033	38			
4	Regression	.008	4	.002	2.673	.049 <sup>e</sup>
	Residual	.025	34	.001		
	Total	.033	38			
5	Regression	.008	5	.002	2.149	.084 <sup>f</sup>
	Residual	.025	33	.001		
	Total	.033	38			

**Source: Author, 2017**

a. Dependent Variable: ROA

b. Predictors: (Constant), Spread

- c. Predictors: (Constant), Spread, Spread\*Efficiency
- d. Predictors: (Constant), Spread, Spread\*Efficiency, Spread\*Deposit
- e. Predictors: (Constant), Spread, Spread\*Efficiency, Spread\*Deposit, Spread\*Bank size
- f. Predictors: (Constant), Spread, Spread\*Efficiency, Spread\*Deposit, Spread\*Bank size, Spread\*Adequacy

The result of the first regression model suggest that spread in branch networks significantly predicted return on assets  $F(1, 37) = 5.499$ ,  $P\text{-value} < 0.05$ . This shows that the regression model significantly predicts the outcome variable and is good fit for the data. At step two, the interaction term between spread and operational efficiency was added to the regression model. The second model accounted for a significant proportion of the variance in return on assets,  $F(2, 36) = 5.638$ ,  $P\text{-value} < 0.05$ .

At step three, the interaction term between spread and deposits was added to the regression model. The third model accounted for significant proportion of the variance in return on assets,  $F(3, 35) = 3.668$ ,  $P\text{-value} < 0.05$ . At step four, the interaction term between spread and bank size was added to the regression model. The fourth model accounted for a significant proportion of the variance in return on assets,  $F(4, 34) = 2.149$ ,  $P\text{-value} < 0.05$ . At step five, the interaction term between spread and capital adequacy was added to the regression . However, the fifth model did not account for a significant proportion of the variance in return on assets,  $F(5, 33) = 32.872$ ,  $P\text{-value} > 0.05$ . This implies that the fifth regression model did not significantly predict return on assets.

**Table 4.9 Return on Asset Regression Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.019	.006		3.362	.002
	Spread	.001	.000	.360	2.345	.025
2	(Constant)	.017	.005		3.087	.004
	Spread	.000	.000	.446	2.967	.005
	Spread*Efficiency	.001	.001	.341	2.271	.029
3	(Constant)	.017	.006		2.937	.006
	Spread	.000	.000	.409	1.594	.120
	Spread*Efficiency	.001	.001	.346	2.239	.032
	Spread*Deposit	.000	.000	.046	.177	.861
4	(Constant)	.017	.006		2.893	.007
	Spread	.000	.000	.407	1.386	.175
	Spread*Efficiency	.001	.001	.346	2.206	.034
	Spread*Deposit	.000	.000	.043	.132	.896
	Spread*Bank size	.000	.000	.005	.014	.989
5	(Constant)	.020	.008		2.559	.015
	Spread	.001	.000	.242	.561	.579
	Spread*Efficiency	.001	.001	.340	2.139	.040
	Spread*Deposit	.000	.000	.019	.057	.955
	Spread*Banks size	.000	.000	.046	.127	.900
	Spread*Adequacy	.000	.000	-.170	-.530	.599

a. Dependent Variable: ROA

**Source: Author, 2017**

Hierarchical multiple regression analysis was performed to establish the relationship between the spread in network of commercial banks and return on assets. The interaction effect of four control variables (customer deposits, bank size, operational efficiency and capital adequacy) on the relationship between the spread in network of commercial banks and return on assets was analyzed.

Spread in bank networks was the first variable to be entered in the regression model, followed by interaction between spread and operational efficiency, interaction between spread and deposits, interaction between spread and bank size and lastly interaction between spread and capital adequacy.

The findings of the first model suggest that spread in bank networks significantly ( $p < 0.05$ ) predicts return on assets. The results of the second model suggest that an interaction between spread and operational efficiency significantly ( $p < 0.05$ .) predicts return on assets. In addition, the change in  $R^2$  is statistically significant ( $p < 0.05$ ). Hence operational efficiency moderates the relationship between spread of branch networks and return on assets. The third model indicate that an interaction between spread and bank deposits do not significantly ( $p > 0.05$ ) predicts return on assets similarly, change in  $R^2$  is not statistically significant ( $p > 0.05$ ). Hence deposits do not moderate the relationship between spread of branch networks and return on assets.

The fourth model suggest that an interaction between spread and bank size do not significantly ( $p > 0.05$ ) predicts return on assets. Furthermore, the change in  $R^2$  is not statistically significant ( $p > 0.05$ ). Hence bank size do not moderates the relationship between spread of branch networks and return on assets. The last model suggest that suggest that an interaction between spread and capital adequacy do not significantly ( $p > 0.05$ ) predicts return on assets. In addition, change in  $R^2$  is not statistically significant ( $p > 0.05$ ). Hence capital adequacy do not moderates the relationship between spread of branch networks and return on assets.

The regression model is given by;

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_1 * X_2 + \varepsilon$$

Where

Y= Return on assets

X<sub>1</sub>= Spread in branch networks of commercial banks

X<sub>2</sub>= Operational efficiency

β<sub>1</sub> and β<sub>2</sub>= Beta coefficients

ε= Error term

Therefore,

$$\text{Return on Assets} = 0.019 + 0.001 \text{ Spread} + 0.001 \text{ Spread} * \text{Efficiency} + 0.006$$

The model shows that unit increase each of the predictor variables increases the performance of commercial banks by a positive unit of the value of the respective factors. Spread in branch networks of commercial banks was the predictor variable which increases performance of commercial banks by a value 0.001 while the interaction effect between spread and operational efficiency increases performance by a value of 0.001. The findings imply that that spread in bank networks significantly predicts return on assets and that the interaction of spread and operational efficiency significantly explain the variance in return on assets over and above the additive effects of spread on return assets. Hence operational efficiency moderates the relationship between spread of branch networks and return on assets.



#### **4.4 Summary and Interpretation of Findings**

Hierarchical regression was used to model the relationship between spread in branch networks and return on assets. The model was built by adding the interaction of four control variables (customer deposits, bank size, operational efficiency and capital adequacy). In the first step, a regression model on the relationship between spread in branch networks and return on assets was built. The value of variance  $R^2=0.129$  indicate that 12.9% of return on assets is explained by spread in branch networks. The interaction between spread and operational efficiency was estimated. The  $R^2$ change was found to be 0.109 which shows that the interaction of spread and operational efficiency explains 10.9% of the variance in return on assets over and above the additive effects of spread on return assets. Hence operational efficiency moderates the relationship between spread of branch networks and return on assets. Nonetheless, the findings of the study suggest that the interaction between spread and deposits, bank size and capital adequacy did to significantly explain the variance in return on assets. Hence deposits, bank size and capital adequacy do not moderates the relationship between spread of branch networks and return on assets.

The study established that that spread in bank networks significantly ( $p < .05$ .) predicts return on assets. The findings of the current study are in tandem with studies conducted by Ayanda et al. (2013), Ostadi & Monsef (2014), Kamande, Zablon and Ariemba (2015). Ayanda et al. (2013) found that there is insignificant link between the number of bank branches and banks' profitability. It was found that banks that have wide network of branches have more sales avenues thus improved financial position. Spread in branch networks play an instrumental role in improving access to banking products or services and addressing specific customer needs (Ostadi & Monsef, 2014). McGrath (2001) posits that spread in branch network allows smaller

financial institutions to derive competitive gains over large firms through availing personal links and interactions with customers. Spread in branch network provides a link and convenience to several contact points within the firm.

In Kenya, commercial banks are opening new branches to access huge deposits and ease processing of loans (CBK, 2016). Kamande, Zablou and Ariemba (2015) explain that banks seek to open new branches in small and developing towns targeting to tap new customers and offer convenient banking services. Ariambe and Muturi (2015) argue that introduction of agency banking has enabled banks to offer banking services in an effective fashion that is more beneficial to customers. This way, commercial banks can leverage on multiple distribution channels that are cost effective in providing financial services

The results of the study suggest that an interaction between spread and operational efficiency significantly ( $p < 0.05$ ,) predicts return on assets. These findings concur with a study by Shankmann (2009). Accordingly, a firm achieves operating efficiency if the top management allocates its resources in an efficient manner that maximizes income generated by the same firm. To optimize the cost of operations, financial ratios are applied. The ratios that are applied to measure the quality of management are operating profit to income ratio (Shankmann, 2009).

## **CHAPTER FIVE**

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

#### **5.1 Introduction**

This chapter discusses the main study findings, a conclusion, recommendations, limitations and areas for further research. This was done in harmony with the objective of this study which was establishing the link between spread in branch network and commercial banks' financial performance.

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

The study established that spread in bank networks significantly ( $p < 0.05$ ) predicts return on assets. This shows that banks that have wider network of branches have more sales revenues and improved financial position. Spread in branch networks play an instrumental role in improving access to banking products or services and addressing specific customer needs

The interaction of spread and operational efficiency significantly explain the variance in return on assets over and above the additive effects of spread on return assets. Hence operational efficiency moderates the relationship between spread of branch networks and return on assets. However, the findings of the study suggest that the interaction between spread and deposits, bank size and capital adequacy did to significantly explain the variance in return on assets. Hence deposits, bank size and capital adequacy do not moderates the relationship between spread of branch networks and return on assets

These findings show that a firm achieves operating efficiency if the top management allocates its resources in an efficient manner that maximizes income generated by the same firm. To optimize the cost of operations, financial ratios are applied. The ratios that are applied to measure the quality of management are operating profit to income ratio.

### **5.3 Conclusion**

This study concludes that spread in bank branch networks significantly ( $p < 0.05$ ) predicts return on assets. Hence spread in branch networks play an instrumental role in improving access to banking products or services and addressing specific customer. Spread in branch network allows smaller financial institutions to derive competitive gains over large firms through availing personal links and interactions with customers. Spread in branch network provides a link and convenience to several contact points within the firm.

The study established that an interaction between spread and operational efficiency significantly ( $p < 0.05$ ,) predicts return on assets. Therefore a firm achieves operating efficiency if the top management allocates its resources in an efficient manner that maximizes income generated by the same firm. In addition, the interaction of spread and operational efficiency significantly explain the variance in return on assets over and above the additive effects of spread on return assets. Hence operational efficiency moderates the relationship between spread of branch networks and return on assets. However, the findings of the study suggest that the interaction between spread and deposits, bank size and capital adequacy did to significantly explain the variance in return on assets. Hence deposits, bank size and capital adequacy do not moderates the relationship between spread of branch networks and return on assets

#### **5.4 Recommendations**

Commercial banks should increase their spread in branch network countrywide with the view of tapping new crop of customers to open fresh accounts and increase bank deposits. In so doing, the bank hopes to boost its accessibility to customers and offer financial advisory services. This is expected to boost commercial banks' sales turnover and impact positively on financial performance.

The executive management should allocate more funds to invest in modern technologies and financial innovation. This will boost the banks' efficiency in its operations and lower costs. Moreover, through financial innovations, the bank can widen its range of its products and services resulting into improved sales and overall bank performance.

Commercial banks should maintain a proper balance of debt and equity; this will enable banks to meet their short-term financial obligations and invest. When liquid, banks can easily take advantage of opportunities and make investments that can yield a better return on investment and protect the bank from instances of financial distress.

#### **5.5 Limitations for the Study**

Due to constraints of resources and time, the researcher limited the scope of this study to commercial banks in Kenya. Hence, the findings derived from this study are restricted to commercial banks in Kenya and cannot therefore be applicable to any other sector in the banking sector.

Duration of 5 years is relatively short since the impact that some of the micro and macro-economic factors are usually felt in the long-term. This implies that the researcher cannot establish the cause and effect relationships between spread in

branch network and commercial banks' financial performance unless a longer duration is considered.

The researcher utilized secondary sources of data which is historical and highly exposed to manipulation and hence this form of data might be inaccurate and unreliable. Hence, it might not mirror the actual needs of the researcher. The researcher has no control over this form of data however; he or she has control over primary data which is deemed to be reliable.

The study limited itself to only five independent variables (bank branches, customer deposits, bank size, operational efficiency and capital adequacy) however; there are numerous factors that impact on commercial banks' financial performance that have not been factored in this study that might be of great significance in improving the accuracy of findings.

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

A replica of this study should be conducted in a different industry such as insurance industry or even in the same industry but a different context from commercial banks. This way, the researchers can do a comparison of the findings and thus a more comprehensive and reliable conclusion can be drawn.

Scholars with an interest in this field of research might need to establish the long-term effect of spread in branch network and financial performance of commercial banks in Kenya. Thus, they can conduct a similar study but change the research methodology to achieve this objective. The results obtained can therefore provide a solid base in determining the impact that spread in branch network have on financial performance of commercial banks.

The environment in which commercial banks conduct their businesses keeps on fluctuating due to technological changes, regulatory framework, stiff competition among other factors. In future, researchers consider carrying out a comparable study after a period of ten years to determine whether this relationship can hold afterwards a more reliable conclusion can be drawn.

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## APPENDICES

### APPENDIX I

#### DATA EXTRACTED FROM CBK ANNUAL REPORT ON COMMERCIAL BANKS OF KENYA FOR THE PERIOD (2012- 2016)

	<b>BANKS</b>	<b>PEER</b>	<b>SPREAD</b>
1	Kenya Commercial Bank Ltd	LARGE	186
2	Equity Bank Ltd.	LARGE	157
3	Co - operative Bank of Kenya Ltd	LARGE	137
4	Barclays Bank of Kenya Ltd	LARGE	107
5	Family Bank Ltd.	MEDIUM	79
6	National Bank of Kenya Ltd	MEDIUM	69
7	Diamond Trust Bank (K) Ltd	MEDIUM	54
8	Standard Chartered Bank	MEDIUM	39
9	Bank of Africa (K) Ltd	MEDIUM	36
10	Sidian Bank Ltd	MEDIUM	32
11	Ecobank Kenya Ltd	MEDIUM	29
12	NIC Bank Ltd	MEDIUM	29
13	I&M Bank Ltd	MEDIUM	29
14	Commercial Bank of Africa Ltd	MEDIUM	28
15	Stanbic Bank	MEDIUM	26
16	Jamii Bora Bank Ltd	MEDIUM	22
17	Trans National Bank Kenya	SMALL	19
18	First Community Bank Ltd	SMALL	18
19	Prime Bank Ltd	SMALL	18
20	Consolidated Bank of Kenya Ltd	SMALL	17
21	Gulf African Bank Ltd	SMALL	17
22	Guaranty Trust Bank Ltd	SMALL	16
23	Spire bank Ltd	SMALL	15
24	Credit Bank Ltd	SMALL	13
25	Bank of Baroda (K) Ltd	SMALL	13
26	African Banking Corporation Ltd	SMALL	12
27	Guardian Bank Ltd	SMALL	10
28	Oriental Commercial Bank Ltd	SMALL	9
29	Giro Commercial Bank Ltd	SMALL	8
30	Paramount Universal Bank Ltd	SMALL	7
31	Bank of India	SMALL	6
32	Habib Bank A.G. Zurich	SMALL	6
33	Habib Bank Ltd	SMALL	5

34	Equatorial Commercial Bank Ltd	SMALL	5
35	United Bank for Africa	SMALL	4
36	Middle East Bank (K) Ltd	SMALL	3
37	Victoria Commercial Bank	SMALL	3
38	Citibank N.A. Kenya	SMALL	3
39	Development Bank of Kenya Ltd	SMALL	3

## APPENDIX II

### OVERAL DATA EXTRACTED FROM CBK ANNUAL REPORT ON COMMERCIAL BANKS OF KENYA FOR THE PERIOD (2012-2016)

	<b>BANKS</b>	<b>PEER</b>	<b>SPREAD</b>	<b>ROA</b>	<b>DEPOSITS</b>	<b>BANK SIZE</b>	<b>ADEQUACY</b>	<b>EFFICIENCY</b>
1	Kenya Commercial Bank Ltd	LARGE	186	0.0546	294,282.20	8.6278	0.203	0.5755
2	Equity Bank Ltd.	LARGE	157	0.0698	203,106.60	8.4959	0.2062	0.6197
3	Co - operative Bank of Kenya Ltd	LARGE	137	0.0464	120,494.00	8.4388	0.2212	0.5766
4	Barclays Bank of Kenya Ltd	LARGE	107	0.0545	170,657.40	8.3466	0.1962	0.6477
5	Family Bank Ltd.	MEDIUM	79	0.0308	42,153.40	8.0086	0.2032	0.7514
6	National Bank of Kenya Ltd	MEDIUM	69	0.0086	89,271.40	7.7345	0.1846	1.0235
7	Diamond Trust Bank (K) Ltd	MEDIUM	54	0.0432	111,247.00	8.2360	0.1918	0.4648
8	Standard Chartered Bank	MEDIUM	39	0.0545	164,538.60	8.3499	0.2014	0.6266
9	Bank of Africa (K) Ltd	MEDIUM	36	0.0031	42,265.40	4.6319	0.1488	0.3348
10	Sidian Bank Ltd	MEDIUM	32	0.0948	7,826.00	8.1248	0.0958	0.8011
11	Ecobank Kenya Ltd	MEDIUM	29	-0.0303	29,137.00	8.1307	0.2546	0.5363
12	NIC Bank Ltd	MEDIUM	29	0.0418	92,417.80	7.6248	0.1884	1.6376
13	I&M Bank Ltd	MEDIUM	29	0.0545	90,067.60	8.2401	0.185	0.3880
14	Commercial Bank of Africa Ltd	MEDIUM	28	0.0338	11,203.00	7.1800	0.1676	0.5471
15	Stanbic Bank	MEDIUM	26	0.0154	3,163.00	8.2103	0.0958	0.6011
16	Jamii Bora Bank Ltd	MEDIUM	22	0.0013	6,400.20	6.9818	0.3438	0.9777
17	Trans National Bank Kenya	SMALL	19	0.0236	7,377.20	7.7400	0.0326	0.7327
18	First Community Bank Ltd	SMALL	18	0.0103	11,432.00	7.1148	0.1428	0.3954
19	Prime Bank Ltd	SMALL	18	0.0365	44,452.40	7.1904	0.1834	1.0096

20	Consolidated Bank of Kenya Ltd	SMALL	17	-0.0065	215,973.80	7.2920	0.1082	1.0576
21	Gulf African Bank Ltd	SMALL	17	0.0316	15,922.00	7.4771	0.1612	0.6768
22	Guaranty Trust Bank Ltd	SMALL	16	0.0155	18,338.60	4.2963	0.2554	0.7621
23	Spire bank Ltd	SMALL	15	0.0438	33,304.00	6.9964	0.0326	0.3014
24	Credit Bank Ltd	SMALL	13	0.0017	6,821.60	6.1839	0.2292	0.9691
25	Bank of Baroda (K) Ltd	SMALL	13	0.0421	49,349.00	7.7765	0.2538	0.2897
26	African Banking Corporation Ltd	SMALL	12	0.0198	15,812.40	7.3245	0.1584	0.7094
27	Guardian Bank Ltd	SMALL	10	0.0236	11,801.00	6.9434	0.1782	0.2517
28	Oriental Commercial Bank Ltd	SMALL	9	0.0124	5,913.80	6.8920	0.1986	0.7727
29	Giro Commercial Bank Ltd	SMALL	8	0.0287	12,016.00	4.2692	0.1082	0.4199
30	Paramount Universal Bank Ltd	SMALL	7	0.0129	7,315.00	7.1623	0.3328	0.5692
31	Bank of India	SMALL	6	0.0366	24,848.00	6.7758	0.4188	0.2117
32	Habib Bank A.G. Zurich	SMALL	6	0.0419	9,369.60	7.5448	0.373	0.4272
33	Habib Bank Ltd	SMALL	5	0.0540	6,453.80	7.1008	0.389	0.2752
34	Equatorial Commercial Bank Ltd	SMALL	5	-0.0218	12,011.40	6.9672	0.2292	0.7163
35	United Bank for Africa	SMALL	4	-0.0622	2,427.80	6.7827	0.1782	0.8876
36	Middle East Bank (K) Ltd	SMALL	3	0.0046	4,036.20	6.6704	0.35	1.4658
37	Victoria Commercial Bank	SMALL	3	0.0394	11,722.80	4.7718	0.2178	0.3835
38	Citibank N.A. Kenya	SMALL	3	0.0696	54,916.60	7.1987	0.3184	0.3742
39	Development Bank of Kenya Ltd	SMALL	3	0.0122	8,901.40	7.2074	0.261	0.5695



### APPENDIX III

#### DATA EXTRACTED FROM CBK ANNUAL REPORT ON ROA FOR THE PERIOD (2012-2016)

	BANKS	PEER	SPREAD	2012	2013	2014	2015	2016	AVERAGE
1	Kenya Commercial Bank Ltd	LARGE	186	0.0520	0.0550	0.0593	0.0501	0.0564	0.0546
2	Equity Bank Ltd.	LARGE	157	0.0740	0.0770	0.0726	0.0656	0.0600	0.0698
3	Co - operative Bank of Kenya Ltd	LARGE	137	0.0480	0.0470	0.0443	0.0414	0.0515	0.0464
4	Barclays Bank of Kenya Ltd	LARGE	107	0.0700	0.0580	0.0544	0.0501	0.0402	0.0545
5	Family Bank Ltd.	MEDIUM	79	0.0270	0.0400	0.0424	0.0355	0.0091	0.0308
6	National Bank of Kenya Ltd	MEDIUM	69	0.0170	0.0190	0.0190	-0.0134	0.0014	0.0086
7	Diamond Trust Bank (K) Ltd	MEDIUM	54	0.0490	0.0490	0.0447	0.0369	0.0364	0.0432
8	Standard Chartered Bank (K) Ltd	MEDIUM	39	0.0590	0.0600	0.0642	0.0383	0.0510	0.0545
9	Bank of Africa (K) Ltd	MEDIUM	36	0.0130	0.0200	0.0033	-0.0207	-0.0003	0.0031
10	Sidian Bank Ltd	MEDIUM	32	0.2352	0.1853	0.0325	0.0195	0.0013	0.0948
11	Ecobank Kenya Ltd	MEDIUM	29	-0.0480	-0.0330	-0.0109	0.0018	-0.0613	-0.0303
12	NIC Bank Ltd	MEDIUM	29	0.0420	0.0460	0.0444	0.0399	0.0366	0.0418
13	I&M Bank Ltd	MEDIUM	29	0.0520	0.0550	0.0564	0.0566	0.0527	0.0545
14	Commercial Bank of Africa Ltd	MEDIUM	28	0.0400	0.0360	0.0257	0.0314	0.0360	0.0338
15	Stanbic Bank	MEDIUM	26	0.0000	0.0000	0.0320	0.0237	0.0216	0.0154
16	Jamii Bora Bank Ltd	MEDIUM	22	0.0150	0.0130	0.0073	0.0022	-0.0312	0.0013
17	Trans - national Bank Ltd	SMALL	19	0.0370	0.0230	0.0186	0.0239	0.0153	0.0236
18	First Community Bank Ltd	SMALL	18	0.0290	0.0180	0.0067	0.0007	-0.0028	0.0103
19	Prime Bank Ltd	SMALL	18	0.0270	0.0380	0.0418	0.0399	0.0357	0.0365
20	Consolidated Bank of Kenya Ltd	SMALL	17	0.0100	-0.0080	-0.0182	0.0035	-0.0199	-0.0065
21	Gulf African Bank Ltd	SMALL	16	0.0280	0.0270	0.0311	0.0442	0.0278	0.0316

22	Guaranty Trust Bank Ltd	SMALL	15	0.0000	0.0160	0.0208	0.0186	0.0223	0.0155
23	Spire bank Ltd	SMALL	13	0.1464	0.1268	0.0000	0.0000	-0.0544	0.0438
24	Credit Bank Ltd	SMALL	13	0.0130	0.0100	-0.0102	-0.0174	0.0130	0.0017
25	Bank of Baroda (K) Ltd	SMALL	12	0.0360	0.0480	0.0435	0.0365	0.0467	0.0421
26	African Banking Corporation Ltd	SMALL	11	0.0290	0.0290	0.0149	0.0161	0.0099	0.0198
27	Guardian Bank Ltd	SMALL	10	0.0190	0.0300	0.0259	0.0225	0.0205	0.0236
28	Oriental Commercial Bank Ltd	SMALL	9	0.0180	0.0250	0.0107	0.0049	0.0036	0.0124
29	Giro Commercial Bank Ltd	SMALL	8	0.0170	0.0280	0.0313	0.0303	0.0370	0.0287
30	Paramount Universal Bank Ltd	SMALL	7	0.0120	0.0120	0.0132	0.0160	0.0111	0.0129
31	Bank of India	SMALL	6	0.0240	0.0410	0.0374	0.0349	0.0457	0.0366
32	Habib Bank A.G. Zurich	SMALL	6	0.0420	0.0430	0.0529	0.0353	0.0365	0.0419
33	Habib Bank Ltd	SMALL	6	0.0650	0.0620	0.0563	0.0474	0.0394	0.0540
34	Equatorial Commercial Bank Ltd	SMALL	5	-0.0460	0.0100	-0.0278	-0.0453	0.0000	-0.0218
35	UBA Kenya Ltd	SMALL	5	-0.1360	-0.0750	-0.0697	-0.0391	0.0089	-0.0622
36	Middle East Bank (K) Ltd	SMALL	5	0.0080	0.0140	0.0128	0.0075	-0.0193	0.0046
37	Victoria Commercial Bank Ltd	SMALL	3	0.0480	0.0430	0.0368	0.0338	0.0355	0.0394
38	Citibank N.A. Kenya	SMALL	3	0.1040	0.0700	0.0522	0.0633	0.0584	0.0696
39	Development Bank of Kenya Ltd	SMALL	3	0.0080	0.0180	0.0188	0.0105	0.0058	0.0122

## APPENDIX IV

### DATA EXTRACTED FROM CBK ANNUAL REPORT ON SPREAD IN BRANCH NETWORK FOR THE PERIOD (2012-2016)

	<b>BANK</b>	<b>PEER</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>AVERAGE</b>
1	KCB	LARGE	166	182	190	193	198	186
2	Equity Bank	LARGE	145	153	154	167	164	157
3	Co-Operative Bank	LARGE	123	138	141	142	142	137
4	Barclays Bank of Kenya	LARGE	107	107	106	108	108	107
5	Family Bank	MEDIUM	66	71	78	88	91	79
6	National Bank of Kenya	MEDIUM	49	71	73	81	73	69
7	Diamond Trust Bank	MEDIUM	46	50	51	59	63	54
8	Standard Chartered Bank	MEDIUM	38	39	37	38	42	39
9	Bank of Africa	MEDIUM	28	31	34	42	45	36
10	Sidian Bank Ltd	MEDIUM	35	24	25	37	39	32
11	Ecobank Kenya	MEDIUM	25	27	31	31	31	29
12	I&M Bank	MEDIUM	21	29	24	34	36	29
13	NIC Bank	MEDIUM	21	27	29	31	35	29
14	Commercial Bank of Africa	MEDIUM	22	23	27	31	35	28
15	Stanbic Bank	MEDIUM	24	24	28	27	27	26
16	Jamii Bora Bank	SMALL	14	19	24	27	27	22
17	Trans National Bank Kenya	SMALL	17	13	19	21	26	19
18	Prime Bank Kenya	SMALL	16	18	18	20	20	18

19	First Community Bank	SMALL	18	18	18	18	18	18
20	Consolidated Bank of Kenya	SMALL	17	17	18	17	18	17
21	Housing Finance Bank	SMALL	11	12	18	19	27	17
22	Gulf Development Bank	SMALL	13	16	17	17	19	16
23	Guaranty Trust Bank	SMALL	15	15	15	16	16	15
24	Credit Bank	SMALL	8	11	15	15	18	13
25	Spire bank Ltd	SMALL	13	13	12	13	15	13
26	Bank of Baroda	SMALL	11	11	12	13	14	12
27	Guardian Bank	SMALL	9	9	11	10	11	10
28	M-Oriental Commercial Bank Limited	SMALL	7	9	9	9	9	9
29	Giro Commercial Bank	SMALL	8	7	7	8	9	8
30	Paramount Universal Bank	SMALL	5	6	7	7	8	7
31	Bank of India	SMALL	5	5	5	7	7	6
32	Habib Bank AG Zurich	SMALL	5	5	6	6	6	6
33	Habib Bank	SMALL	4	4	4	6	6	5
34	Middle East Bank Kenya	SMALL	4	4	5	5	5	5
35	United Bank for Africa	SMALL	4	4	4	4	4	4
36	Victoria Commercial Bank	SMALL	3	3	3	4	4	3
37	Dubai Bank	SMALL	5	5	5	0	0	3
38	Citibank N.A. Kenya	SMALL	3	3	3	3	3	3
39	Development Bank of Kenya	SMALL	3	3	3	3	3	3

## APPENDIX V

### DATA EXTRACTED FROM CBK ANNUAL REPORT ON OPERATIONAL EFFICIENCY FOR THE PERIOD (2012-2016)

	<b>BANKS</b>	<b>SPREAD</b>	<b>PEER</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>AVERAGE</b>
1	KCB	186	LARGE	0.4978	0.6532	0.6399	0.5762	0.5105	0.5755
2	Equity Bank	157	LARGE	1.1650	0.0744	0.7388	0.5727	0.5476	0.6197
3	Co-Operative Bank	137	LARGE	0.5723	0.5808	0.5814	0.5878	0.5605	0.5766
4	Barclays Bank of Kenya	107	LARGE	0.6284	0.6670	0.6877	0.5902	0.6653	0.6477
5	Family Bank	79	MEDIUM	0.8504	0.6524	0.6399	0.6846	0.9296	0.7514
6	National Bank of Kenya	69	MEDIUM	1.4018	0.6452	0.9139	1.1714	0.9852	1.0235
7	Diamond Trust Bank	54	MEDIUM	0.5600	0.3695	0.4007	0.5197	0.4739	0.4648
9	Standard Chartered Bank	39	MEDIUM	0.5379	0.7153	0.7084	0.6389	0.5326	0.6266
8	Bank of Africa	36	MEDIUM	0.6696	-	-	-	1.0044	0.3348
10	Sidain	32	MEDIUM	0.9670	0.6352	0.6538	0.7743	0.9752	0.8011
12	NIC	29	MEDIUM	0.6590	0.4136	0.4336	0.5356	0.6398	0.5363
14	EcoBank	29	MEDIUM	2.6427	0.6325	0.6988	0.9693	3.2446	1.6376
11	I&M	29	MEDIUM	0.4915	0.2845	0.2963	0.3998	0.4679	0.3880
13	Commercial Bank of Africa	28	MEDIUM	0.6916	0.4025	0.4225	0.6548	0.5638	0.5471
15	Stanbic Bank	26	MEDIUM	0.5790	0.6231	0.6322	0.5671	0.6038	0.6011
16	Jamii Bora	22	MEDIUM	1.4233	0.5321	0.5852	0.9648	1.3831	0.9777
17	Transnational Bank	19	SMALL	0.9130	0.5524	0.5777	0.7684	0.8519	0.7327
18	Prime Bank	18	SMALL	0.5771	0.2136	0.2749	0.4253	0.4859	0.3954
20	First Community Bank	18	SMALL	1.0330	0.9862	1.0082	0.9920	1.0286	1.0096
21	Consolidated Bank	17	SMALL	1.1131	1.0021	1.0045	0.9758	1.1925	1.0576

22	Gulf Development Bank	16	SMALL	0.6510	0.7025	0.7202	0.6180	0.6920	0.6768
23	Guaranty Trust Bank	15	SMALL	0.8388	0.6854	0.7076	0.8762	0.7026	0.7621
19	Spire bank Ltd	13	SMALL	0.3181	0.2847	0.3118	0.5925	-	0.3014
24	Credit Bank	13	SMALL	1.1329	0.8053	0.8166	1.2187	0.8720	0.9691
25	Bank of Baroda	12	SMALL	0.3962	0.1832	0.2058	0.3859	0.2774	0.2897
27	ABC	11	SMALL	0.9626	0.4563	0.4863	0.7883	0.8537	0.7094
28	Guardian Bank	10	SMALL	0.5034	-	-	-	0.7552	0.2517
29	M-Oriental	9	SMALL	1.1204	0.4251	0.4485	0.9172	0.9525	0.7727
30	Giro Commercial Bank	8	SMALL	0.5835	0.2563	0.2652	0.5066	0.4879	0.4199
32	Paramount Bank	7	SMALL	0.9053	0.2331	0.2560	0.6703	0.7812	0.5692
31	Bank of India	6	SMALL	0.2908	0.1325	0.1512	0.2780	0.2057	0.2117
33	Habib Zurich	6	SMALL	0.5332	0.3212	0.3354	0.4693	0.4769	0.4272
34	Habib Bank	6	SMALL	0.2964	0.2541	-	0.4168	0.4089	0.2752
26	Equatorial Commercial Bank Ltd	5	SMALL	1.4326	-	-	-	2.1490	0.7163
35	Middle East Bank	5	SMALL	1.3101	0.4652	0.4752	0.8850	1.3027	0.8876
37	UBA Kenya Bank	5	SMALL	1.3632	1.5685	1.6111	1.8711	0.9154	1.4658
36	Victoria Bank	3	SMALL	0.5313	0.2356	0.2475	0.4653	0.4376	0.3835
38	City Bank	3	SMALL	0.3253	0.4232	0.4348	0.3595	0.3284	0.3742
39	Development Bank	3	SMALL	0.9733	0.1657	0.1988	0.6660	0.8436	0.5695

## APPENDIX VI

### DATA EXTRACTED FROM CBK ANNUAL REPORT ON CUSTOMER DEPOSITS FOR THE PERIOD (2012-2016)

	<b>BANK</b>	<b>PEER</b>	<b>SPREAD</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>AVERAGE</b>
1	Kenya Commercial Bank Ltd	LARGE	186	210,174.00	223,493	237,213	276,750.00	347,564.00	386,391.00	294,282.20
2	Equity Bank Ltd	LARGE	157	21,774.00	140,286	158,527	202,560.00	237,025.00	277,135.00	203,106.60
3	Co-operative Bank of Kenya Ltd	LARGE	137	142,705.00	162,267	174,776	219,416.00	266,614.00	256,796.00	215,973.80
4	Barclays Bank of Kenya Ltd	LARGE	107	124,207.00	137,915	151,122	176,915.00	188,820.00	198,515.00	170,657.40
5	Family Bank Ltd	MEDIUM	79	21,444.00	24,630	34,615	47,318.00	62,731.00	41,473.00	42,153.40
6	National Bank of Kenya Ltd	MEDIUM	69	56,728.00	55,191	77,993	104,458.00	110,864.00	97,851.00	89,271.40
7	Diamond Trust Bank Ltd	MEDIUM	54	59,772.00	72,505	84,672	102,060.00	126,577.00	170,421.00	111,247.00
8	Standard Chartered Bank Ltd	MEDIUM	39	122,323.00	140,525	154,720	161,904.00	174,462.00	191,082.00	164,538.60
9	Bank of Africa Ltd	MEDIUM	36	23,986.00	35,100	36,740	49,674.00	53,167.00	36,646.00	42,265.40
10	Sidian Bank Ltd	MEDIUM	32	-	-	-	12,066.00	13,380.00	13,684.00	7,826.00
11	Ecobank Ltd	MEDIUM	29	16,566.00	21,475	25,351	32,363.00	34,257.00	32,239.00	29,137.00
12	NIC Bank Ltd	MEDIUM	29	62,009.00	77,466	84,236	91,997.00	104,988.00	103,402.00	92,417.80
13	I & M Bank Ltd	MEDIUM	29	56,944.00	65,640	74,494	87,185.00	104,466.00	118,553.00	90,067.60
14	Commercial Bank of Africa Ltd	MEDIUM	28	67,303.00	79,996	90,993	121,963.00	148,321.00	161,197.00	120,494.00
15	stanbic bank	MEDIUM	26	74,335.00	22,968	26,589	36,310.00	41,881.00	38,772.00	33,304.00
16	Jamii Bora Bank Ltd	MEDIUM	22	393.00	1,213	3,421	8,497.00	10,946.00	7,924.00	6,400.20
17	Trans-National Bank Ltd	SMALL	19	5,283.00	6,535	7,181	7,659.00	7,589.00	7,922.00	7,377.20
18	First Community Bank Ltd	SMALL	18	7,812.00	8,833	9,932	13,339.00	12,396.00	12,660.00	11,432.00
19	Prime Bank Ltd	SMALL	18	28,872.00	36,715	40,562	45,022.00	50,798.00	49,165.00	44,452.40
20	Gulf African Bank Ltd	SMALL	17	10,865.00	11,684	12,970	15,335.00	18,408.00	21,213.00	15,922.00

21	Consolidated Bank of Kenya Ltd	SMALL	17	12,010.00	13,325	11,711	11,125.00	10,319.00	9,535.00	11,203.00
22	Guaranty Trust Bank Ltd	SMALL	16	-	13,747	18,447	23,030.00	19,418.00	17,051.00	18,338.60
23	Spire bank	SMALL	15	-	6,650	9,165	-	-	-	3,163.00
24	Credit Bank Ltd	SMALL	13	3,937.00	4,781	5,512	7,323.00	7,520.00	8,972.00	6,821.60
25	Bank of Baroda Ltd	SMALL	13	30,264.00	38,382	41,877	48,683.00	52,929.00	64,874.00	49,349.00
26	African Banking Corporation Ltd	SMALL	12	10,471.00	15,255	15,905	16,050.00	15,774.00	16,078.00	15,812.40
27	Guardian Bank Ltd	SMALL	10	7,648.00	10,374	11,181	12,643.00	12,494.00	12,313.00	11,801.00
28	Oriental Commercial Bank Ltd	SMALL	9	3,694.00	4,806	5,377	6,231.00	6,218.00	6,937.00	5,913.80
29	Giro Commercial Bank Ltd	SMALL	8	10,069.00	10,420	11,457	12,455.00	12,806.00	12,942.00	12,016.00
30	Paramount Universal Bank Ltd	SMALL	7	3,674.00	6,084	6,601	8,035.00	8,147.00	7,708.00	7,315.00
31	Bank of India Ltd	SMALL	6	18,475.00	18,282	22,778	24,668.00	26,660.00	31,852.00	24,848.00
32	Habib A.G. Zurich	SMALL	6	6,661.00	7,748	8,336	8,929.00	10,082.00	11,753.00	9,369.60
33	Habib Bank Ltd	SMALL	5	4,718.00	5,195	5,599	6,399.00	6,861.00	8,215.00	6,453.80
34	Equatorial Bank Ltd	SMALL	5	9,834.00	12,963	13,856	14,331.00	10,376.00	8,531.00	12,011.40
35	UBA Kenya Bank Ltd	SMALL	4	1,270.00	1,343	2,483	3,136.00	3,446.00	1,731.00	2,427.80
36	Middle East Bank Ltd	SMALL	3	2,703.00	3,907	3,649	4,632.00	4,099.00	3,894.00	4,036.20
37	Citibank N.A.	SMALL	3	46,534.00	44,012	43,762	56,518.00	65,121.00	65,170.00	54,916.60
38	Development Bank of Kenya Ltd	SMALL	3	4,171.00	6,953	8,419	10,800.00	11,700.00	6,635.00	8,901.40
39	Victoria Commercial Bank Ltd	SMALL	3	5,907.00	7,561	9,044	12,289.00	14,024.00	15,696.00	11,722.80



## APPENDIX VII

### DATA EXTRACTED FROM CBK ANNUAL REPORT ON BANK SIZE FOR THE PERIOD (2012-2016)

	BANKS	PEER	SPREAD	2012	2013	2014	2015	2016	AVERAGE
1	KCB	LARGE	186	8.4845	8.5096	8.6950	8.7467	8.7031	8.6278
2	Equity Bank	LARGE	157	8.3341	8.3770	8.5373	8.6315	8.5995	8.4959
3	Co-Operative Bank	LARGE	137	8.3003	8.3596	8.4554	8.5347	8.5441	8.4388
4	Barclays Bank of Kenya	LARGE	107	8.2674	8.3160	8.3538	8.3818	8.4141	8.3466
5	National Bank of Kenya	MEDIUM	79	7.8271	7.9661	8.0902	8.0984	8.0611	8.0086
6	Family Bank	MEDIUM	69	7.4911	7.6384	7.7912	7.9100	7.8416	7.7345
7	Diamond Trust Bank	MEDIUM	54	7.9755	8.0574	8.3254	8.4339	8.3876	8.2360
8	Standard Chartered Bank	MEDIUM	39	8.2911	8.3435	8.3473	8.3692	8.3984	8.3499
9	Bank of Africa	MEDIUM	36	7.6898	7.7217	-	-	7.7482	4.6319
10	I&M Bank	MEDIUM	32	7.9615	8.0426	8.1880	8.2170	8.2151	8.1248
11	NIC Bank	MEDIUM	29	8.0076	8.0528	8.1642	8.2196	8.2091	8.1307
12	Ecobank Kenya	MEDIUM	29	7.5020	7.5671	7.6621	7.7196	7.6732	7.6248
13	Stanbic Bank	MEDIUM	29	8.1251	8.2323	8.2339	8.2979	8.3115	8.2401
14	Sidian Bank Ltd	MEDIUM	28	6.9798	7.1205	7.1987	7.2812	7.3196	7.1800
15	Commercial Bank of Africa	MEDIUM	26	8.0020	8.0965	8.2955	8.3337	8.3240	8.2103
16	Jamii Bora Bank	MEDIUM	22	6.5416	6.8457	7.1179	7.2073	7.1966	6.9818
17	Prime Bank Kenya	SMALL	19	7.6382	7.6943	7.7397	7.8129	7.8151	7.7400
18	First Community Bank	SMALL	18	6.9982	7.0533	7.1841	7.1633	7.1750	7.1148
19	Consolidated Bank of Kenya	SMALL	18	7.2553	7.2248	7.1783	7.1503	7.1435	7.1904
20	Gulf Development Bank	SMALL	17	7.1323	7.2056	7.2956	7.3928	7.4339	7.2920
21	Guaranty Trust Bank	SMALL	16	7.2343	7.4089	7.6585	7.6124	7.4716	7.4771

22	Spire bank Ltd	SMALL	15	7.1495	7.1921	-	-	7.1400	4.2963
23	Trans National Bank Kenya	SMALL	13	6.9445	6.9849	7.0103	7.0226	7.0197	6.9964
24	Housing Finance Bank	SMALL	13	7.6094	7.6698	7.7851	7.8553	-	6.1839
25	Bank of Baroda	SMALL	12	7.6220	7.7162	7.7920	7.8336	7.9186	7.7765
26	ABC	SMALL	11	7.2804	7.2931	7.3439	7.3544	7.3507	7.3245
27	Credit Bank	SMALL	10	6.8067	6.8639	6.9477	7.0123	7.0864	6.9434
28	M-Oriental Commercial Bank Limited	SMALL	9	6.7937	6.8455	6.8953	6.9292	6.9965	6.8920
29	Guardian Bank	SMALL	8	7.0699	7.1084	-	-	7.1675	4.2692
30	Giro Commercial Bank	SMALL	7	7.0892	7.1343	7.1785	7.1989	7.2108	7.1623
31	Paramount Universal Bank	SMALL	6	6.8606	6.9047	7.0171	7.0223	6.0744	6.7758
32	Bank of India	SMALL	6	7.3958	7.4874	7.5362	7.6249	7.6796	7.5448
33	Habib Bank AG Zurich	SMALL	6	6.9867	7.0418	7.0845	7.1596	7.2313	7.1008
34	Habib Bank	SMALL	5	6.8460	6.9073	6.9754	7.0099	7.0972	6.9672
35	Middle East Bank Kenya	SMALL	5	6.7686	6.7609	6.7740	6.8910	6.7188	6.7827
36	United Bank for Africa	SMALL	5	6.4660	6.5694	6.6772	6.8910	6.7483	6.6704
37	City Bank	SMALL	3	-	-	7.8998	7.9452	8.0140	4.7718
38	Development Bank of Kenya	SMALL	3	7.1277	7.1926	7.2290	7.2289	7.2153	7.1987
39	Victoria Commercial Bank	SMALL	3	7.0138	7.1349	7.2366	7.3015	7.3503	7.2074

## APPENDIX VIII

### DATA EXTRACTED FROM CBK ANNUAL REPORT ON CAPITAL ADEQUACY FOR THE PERIOD (2012-2016)

	BANK	PEER	SPREAD	2012	2013	2014	2015	2016	AVERAGE
1	Kenya Commercial Bank Ltd	LARGE	186	0.2270	0.2250	0.2100	0.1540	0.1990	0.2030
2	Equity Bank Ltd.	LARGE	157	0.3010	0.2360	0.1770	0.1620	0.1550	0.2062
3	Co - operative Bank of Kenya Ltd	LARGE	137	0.2380	0.2110	0.2160	0.2130	0.2280	0.2212
4	Barclays Bank of Kenya Ltd	LARGE	107	0.2580	0.1730	0.1870	0.1840	0.1790	0.1962
5	Family Bank Ltd.	MEDIUM	79	0.2270	0.1890	0.2030	0.1890	0.2080	0.2032
6	National Bank of Kenya Ltd	MEDIUM	69	0.2840	0.2410	0.1390	0.1400	0.1190	0.1846
7	Diamond Trust Bank (K) Ltd	MEDIUM	54	0.1980	0.2100	0.1890	0.1770	0.1850	0.1918
8	Standard Chartered Bank (K) Ltd	MEDIUM	39	0.1800	0.2080	0.1980	0.2120	0.2090	0.2014
9	Bank of Africa (K) Ltd	MEDIUM	36	0.1320	0.1270	0.1590	0.1640	0.1620	0.1488
10	Sidian Bank Ltd	MEDIUM	32	0.2550	0.2100	0.2200	0.1870	0.1830	0.211
11	Ecobank Kenya Ltd	MEDIUM	29	0.3250	0.3060	0.1980	0.2500	0.1940	0.2546
12	NIC Bank Ltd	MEDIUM	29	0.1640	0.1480	0.2090	0.2050	0.2160	0.1884
13	I&M Bank Ltd	MEDIUM	29	0.1730	0.1900	0.1890	0.1920	0.1810	0.185
14	Commercial Bank of Africa Ltd	MEDIUM	28	0.1610	0.1350	0.1790	0.1790	0.1840	0.1676
15	Stanbic Bank	MEDIUM	26	0.2150	0.2140	0.2060	-	-	0.127
16	Spire bank Ltd	MEDIUM	23	0.4630	0.1720	0.2180	-	-	0.1706
17	Jamii Bora Bank Ltd	MEDIUM	22	0.8360	0.2580	0.2610	0.1630	0.2010	0.3438
18	Trans - National Bank Ltd	SMALL	19	0.3870	0.3140	0.2170	0.2150	0.2080	0.2682
19	First Community Bank Ltd	SMALL	18	0.1580	0.1480	0.1150	0.1530	0.1400	0.1428
20	Prime Bank Ltd	SMALL	18	0.1700	0.1840	0.1680	0.1730	0.2220	0.1834
21	Consolidated Bank of Kenya Ltd	SMALL	17	0.1500	0.1080	0.1100	0.0940	0.0790	0.1082

22	Gulf African Bank Ltd	SMALL	16	0.1450	0.1810	0.1350	0.1580	0.1870	0.1612
23	Guaranty Trust Bank Ltd	SMALL	15	0.1320	0.3380	0.2590	0.2770	0.2710	0.2554
24	Credit Bank Ltd	SMALL	13	0.3070	0.2660	0.1880	0.1570	0.2280	0.2292
25	Bank of Baroda (K) Ltd	SMALL	12	0.2350	0.2160	0.2420	0.2710	0.3050	0.2538
26	African Banking Corporation Ltd	SMALL	11	0.1440	0.1510	0.1720	0.1650	0.1600	0.1584
27	Guardian Bank Ltd	SMALL	10	0.1730	0.1800	0.1660	0.1760	0.1960	0.1782
28	M-Oriental Bank Limited	SMALL	9	0.3020	0.3040	0.2560	0.3420	0.3870	0.3182
29	Giro Commercial Bank Ltd	SMALL	8	0.2950	0.2890	0.2380	0.2410	0.2580	0.2642
30	Paramount Universal Bank Ltd	SMALL	7	0.4750	0.4190	0.2550	0.2410	0.2740	0.3328
31	Bank of India	SMALL	6	0.4050	0.4150	0.3940	0.4230	0.4570	0.4188
32	Habib Bank A.G. Zurich	SMALL	6	0.5690	0.3320	0.3720	0.2690	0.3230	0.3730
33	Habib Bank Ltd	SMALL	6	0.4210	0.3710	0.3280	0.3720	0.4530	0.3890
34	Equatorial Commercial Bank Ltd	SMALL	5	0.0890	0.1230	0.1070	0.1750	-	0.2292
35	UBA Kenya Ltd	SMALL	5	0.7270	0.4690	0.5860	0.2380	0.3870	0.4814
36	Middle East Bank (K) Ltd	SMALL	5	0.4030	0.3630	0.3370	0.3310	0.3160	0.3500
37	Victoria Commercial Bank Ltd	SMALL	3	0.2510	0.1980	0.1920	0.1930	0.2550	0.2178
38	Citibank N.A. Kenya	SMALL	3	0.4180	0.3540	0.2730	0.2830	0.2640	0.3184
39	Development Bank of Kenya Ltd	SMALL	3	0.2490	0.2360	0.2960	0.2730	0.2510	0.2610