FUNDING SOURCES, COMPETITIVENESS, FIRM SIZE AND PERFORMANCE OF COMMERCIAL BANKS IN KENYA

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DECLARATION

This thesis is my original work and has not been presented or submitted for any award of a degree in any other university or institution of higher learning.

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This PhD thesis has been submitted for examination with our approval as university supervisors.
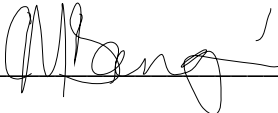
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DEDICATION

This thesis is dedicated to the people I love the most:

My children, **Victor Baraka**, **Victoria Rehema** and **Val Imani**: Daddy did this as a reminder to you that anything is possible as long as you have the grace of God, the will and the desire to do it

My wife **Millicent Makena Silas**: For the many years I had to be emotionally absent from you and the children, you covered my back and the family remained intact, I will forever be grateful. This victory is for both of us love. The many visits you made to the mountains to seek divine intervention on our behalf have paid off.

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My Brother **Seth Arodi**, you played a vital role in making me succeed. This is a testament to what is achievable when brothers are united. This is for the love of our family.

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To my future generation, let this be the foundation of our academic excellence. Always endeavor to pass this command to the next generation.

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ABBREVIATIONS AND ACRONYMS

AIFCR: Akaike Information Criterion

AR: Autoregressive process

CBK: Central Bank of Kenya

CCI: Comprehensive Industrial Concentration

CDB: Core Deposits to Borrowing Ratio

CDL: Core Deposits to Total Liabilities

CRB: Credit reference bureau

DTER: Debt to Equity ratio

DLLP: Discretionary Loan Loss Provisions

DW: Durbin-Watson statistic

EPS: Earnings per share

GFC: Global Financial Crisis

FIT: Financial Intermediation Theory

HHI: Herfindahl Hirschman Index

HTI: Hall–Tideman Index

HQC: Hannan–Quinn information criterion

IRNV: Imitable, rare, non-substitutable and valuable

KRA: Kenya Revenue Authority

LDR: Loan to deposits ratio

MDV: Mean Dependent Variable

NIM: Net Interest Margin

NSE: Nairobi Securities Exchange

PPMC: Pearson Product Moment Coefficient

PSBs: Public Sector Banks

RBV: Resource-based theory view

ROA: Return on Asset

ROE: Return on Equity

RAEA: Risk-Adjusted Equity to Asset Ratio

RSS   Residual sum of squares

SCA: Sustainable Competitive Advantage

SCP: Structure-Conduct-Performance

S.E. of Reg: Standard error of the regression

SMEs: Small and medium-sized enterprises

TFP: Total Factor Productivity

VIF: Variance inflation factor

ABSTRACT

The nature of the funding source a commercial bank decides to adopt is a key performance determinant. Ideally, banks make use of either shareholders' equity, borrowed funds, or customers' deposits to finance their operations. The liberalization in the sector has made it possible for many players (ranging from the smallest to the biggest of them in terms of size) to exist and as a result, each player has had to come up with a unique competitive way that allows them to attract and retain the best funding sources capable of yielding positive performance. Much as there are studies that have sought to investigate the concept of funding and performance in the corporate world for both developing and developed economies, this study focused on establishing the specific nature of relationships among funding sources, competitiveness, firm size and performance of commercial banks in Kenya. The study sought to establish how sources of funding influence the performance of these commercial banks, moreover, it further sought to determine the mediating and the moderating effect of competitiveness and firm size respectively on the relationship between funding sources and performance together with the need to determine the combined effect of funding sources, competitiveness and bank size on the performance of these banks. Pecking order theory was used as the anchoring theory since it supports the argument raised in this study by postulating that there is a financial responsibility on the side of the management to rank the available funding options and the one found to give the firm more benefit will be deployed first followed by other funding sources as more deployment may be required. A descriptive research design that conforms with a positivist research philosophy was adopted and used to evaluate the four hypotheses formulated for each of the study's objectives. Secondary data obtained from 35 commercial banks operating in Kenya was gathered between the years 2011 to 2021. The findings obtained revealed a direct significant association between commercials' bank performance and their funding sources as depicted by the overall F-statistics probability of 0.0000, both r-squared value and adjusted r-squared value of 0.596996 and 0.553650 respectively. On the other hand, the competitiveness of a bank was discovered to intervene in the relationship between commercials' bank performance and their funding sources. Bank size was found to be a moderator in the relationship between a bank's funding source and their performance only if customers' deposit is used as a source of funding, and the contrary is true if either deposit due to other banks or shareholders' equity is used as a funding source. For joint effect, an inspection of individual variables within the model further indicates a statistically non-significant in three out of the five explanatory variables under consideration that is, two explanatory variables that were found to have a statistically significant association were both shareholders' equity and log total assets. As a result of these findings, there is a need for bank managers to adopt techniques that enable them to source funds with relative ease and at a cheaper cost as this will enable them to maximize their profit and hence enhance performance. Managers must therefore develop a financial policy that guides them in choosing a particular funding source while taking into consideration the fluctuation of business volume, the character of the firm's asset, the level of competition, firm size, and expected stability of profit among others. In addition, banks' management must be cognizant of the fact that relying on customers' deposits for long-term funding may prove to be catastrophic if there is an avalanche of requests for withdrawal within a short period as this has in the past destabilized some banks.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

From 1930 to around 2015, the business world played host to some of the major crises in the financial sector. The eurozone crisis of 2009 to 2010 commonly known as the sovereign debt crisis in Europe was preceded by the global financial crisis (GFC) which was experienced between mid-2007 to early 2009, and the 1930 great depression are some of the crises whose impact on the financial sector was documented. The need to reflect on what led to these crises and how their effects were remedied can help to caution the financial sector from any adverse effects and help prevent any similar crises from repeating themselves. One noticeable element in all these crises is the role that commercial banks have played before, during and after particularly how the banking sector utilized funds obtained from various sources some of which led to unprecedented panic withdrawals and failure by other fund providers to avail the necessary funding due to fear that the institutions may fail to exhibit the desired performance (Davydov, 2014). Therefore in a financial crisis period, commercial banks have to contend with instances of financial crunch in relation to their available funding sources, both small and big banks have to aggressively compete for the limited funding sources and further compete for the already wounded investment opportunities in the already deplorable market this scenario has the potential of fundamentally interfered with their performance, and those banks that fail to fulfill the market needs may end up failing.

In a financial crisis period, banks may find it hard to borrow from fund providers as most of them tend to lack the requisite collateral making access to funding extremely competitive for both smaller and large players (Du & Girma, 2009). In developing countries, the banking space is considered crowded and survival depends on the ingenuity of the competitive approach adopted by the players which should allow them to gain a competitive edge over the others through the implementation of valuable marketing strategies that yield better performance (Musau, 2018). To streamline performance, managers on behalf of businesses have to rank the available funding sources to enable them to competitively operate in the market space and settle on a source(s) whose values are consistent with the organization's funding philosophy (Davydov, 2014).

The anchoring theory for this study was the pecking order theory which was not only championed out of the work done by Myers and Majluf' (1984) but was also developed by them. The theory supports the argument raised in this study by postulating that there is a financial responsibility on the side of the management to rank the available funding options and the one found to give the firm more benefit be deployed first and then followed by other funding sources as more deployment may be required (Arulraj & Annamalai, 2020). From this study, the findings demonstrate that the pecking order theory is in action by suggesting that shareholders' equity had a strong significant positive association with performance and indication, this was closely followed by customers' deposits and the deposit due to other banks was trailing. The identification of the distributional effect of financial development more so on where firms source funding and how it affects general performance is an ongoing research discussion. Financial intermediation and resource-based theories support the various arguments that currently

exist in the area of funding, competitiveness and growth of firms, a review of various scholarly works suggests that financial development is responsible for the favorable positive growth of small firms while others disproportionately suggest that this growth is what has made big firms thrive (Du & Girma, 2009).

The banking sector transformation is attributed to the emergence of a strict regulatory framework. In the recent past, banks that operate in a strictly regulated environment have had to adjust their mode of operations and those who failed to comply with the set guidelines have found themselves on the receiving end, that is some banks regardless of their peer ranking by the regulator have found themselves displaying better performance over the years while others have been struggling to keep afloat (CBK, 2018; Mutarindwa, 2019). Bank managers are tasked with the identification of available funding sources and deciding on how they can be combined to realize a certain objective measured in terms of performance, bank managers meticulously match the source of funding and investment opportunities. The traditional practice has been the use of customers' deposits for loan advancement and other investments, which, however, has been disrupted by a steady decline in the number of customers willing to save their money in banks owing to cases of bank instability which has reduced the much-needed funds required for normal businesses prompting banks to resort to other sources (Crespi & Mascia, 2018)

1.1.1 Funding Sources

Firm funding sources entail the evaluation of issues related to the restrictions on the supply of resources from specific sources (Tarantin & Do Valle, 2015). Amidu and Wolfe (2013) view funding as ways through which firms source their long-term,

medium-term, and short-term capital. Crespi and Mascia (2018) view it as the acquisition of financial resources and their utilization by the management both in the short and long term from certain sources to meet the objectives of the firm. Santoso (2019) on the other hand, defines it as ways through which firm managers decide on the funding sources required for investment financing. Shollapur and Baligatti (2010) definition of commercial banks' funding sources incorporates three possible areas from where commercial banks obtain funds from, these are capital, borrowing, and deposit. This study contextualized funding as an approach taken by the management in deciding the composition and the proportion of the available funding from the various capital channels needed to assist in the realization of a firm's objective.

Shareholders' equity acts as a protection shield against insolvency owing to its sentimental value, on the other hand, if there is an urgent need to cater for certain expansion or temporary money deficiency and the time available is insufficient to organize equity funding, commercial banks may find it appropriate to borrow from other banks. Lastly, customers' deposits constitute funds that are easily available for both operational and profitable deployment (Shollapur & Baligatti, 2010). Like any other business venture, Bank funding and sourcing depend on the relative ease with which funds from different sources are obtainable. In reality, bank managers have to come up with a financial policy that guides them in choosing a particular funding source while taking into consideration the fluctuation of business volume, the character of the firm's asset, level of competition, firm size, expected stability of profit among others (Amidu & Wolfe, 2013). The use of demandable debt often results in a mismatch in the maturity on both asset and liability since depositors may withdraw more funds that could overstretch

the supply within short notice, if not well handled by bank managers, it can trigger

liquidation and this can be costly. The need for banks to be shielded from excessive

withdrawals that outstretch fund supply becomes a key responsibility of the bank which

is ensured through the holding of a predetermined capital in reserve form (CBK, 2018).

Good funding ensures banks remain fully funded at a minimum operating cost and a

decision by a bank to invest in a project whether risky or not depends on funding supply,

this largely influences overall performance (Bikker, 2010).

Funding studies present diverse ways of measuring funding sources, Thiyagarajan and

Arulraj (2012) used the proportion of the various funding options available which include

issued debentures, equity, public deposits, institutional borrowings, and operating

liabilities. Demirgüç-Kunt and Huizinga (2010) employed the proportion of non-deposit

funding and deposits in banks as a measure of funding sources while Shollapur and

Baligatti (2010) used the cost of borrowed funds and equity. Funds obtained in the form

of capitalization from the owners are equated to owners' stake and will be referred to as

shareholders' equity in the rest of the document. In an attempt to investigate how

performance is related to funding sources, this study used the raw values of three

available funding sources which are deposits due from other banks, deposits due from

customers, and the amount of equity capital.

1.1.2 Firm Competitiveness

OECD (2021) defines competitiveness as a state where the market through the power of

consumers tends to reward firms that are innovative and efficient while at the same time

penalizing those considered inefficient which is achieved when rivalry is sufficiently

threatening the operations of an incumbent to an extent that they constantly strive to continually improve to maintain their competitive advantage. The ability of a firm's management to meticulously select and use policies, regulatory frameworks, and structures to achieve stability and profitability by assembling all their competencies, is another viable definition (Porter, 1985). Barney (1991) defines it as the ability of a firm to create and implement valuable and unique market strategies that result in a benefit.

The banking landscape is characterized by intense competition, to gain a competitive edge banks, have resorted to devising ingenious ways of luring customers and investors to them by providing what they feel is required in the market. Investors in the banking sector include both retail and institutional customers who deposit money for interest, shareholders who expect dividends, and institutional lenders. The funds obtained from this group of people are then used for both investment and operational purposes. The market structure which is the result of competition does have some influence on how banks are likely to perform and behave (Danisman, 2018). Poaching and luring talented staff who are responsible for directing performance in firms is a common practice that usually helps firms gain a competitive advantage (Musau, 2018). A bank with no competitive advantage may suffer a slow death in the long run while a bank that has a competitive edge over the other may have improved performance as it may have better market dominance

Amidu and Wolfe (2013) used Lerner's index to measure the level of market power of each bank, Danisman (2018) and Kamande et al. (2019) used Structure-Conduct-Performance (SCP) as a connection between performance and market structure. Fosu

(2013) and Musau (2018) on the other hand used the Herfindahl Hirschman Index (HHI), the number of firms and, concentration ratio while Chen et al. (2019) used the H-statistics model and Demirgüç-Kunt & Huizinga (2010) used concentration ratio as a measure of competition. This study adopted the use of The HHI as provided in the various annual Central Bank of Kenya (CBK) supervisory reports which were computed in terms of the market share index of each bank, the measure will be appropriate for the study since it limits the problems associated with concentration ratio which is associated with SCP of competition as it provides more information regarding the market strength of each player, moreover, data on the same was also easily available.

1.1.3 Firm Size

Firm size is a component of firm characteristics which is defined as a unique feature in an organization that informs various actions being undertaken to achieve set objectives and by extension improve performance (Nyaoke, 2016) while Coase (1937) defines it as the boundaries that determine how resources are allocated to save the various transaction costs. Another definition is based on the component of the unique features which are determined by the level of assets, infrastructure, and human capital resources that it controls in addition to the determination as to whether the levels of the above parameters can be used to classify a firm as either large, small, macro or micro vary from industry to industry (Mandela, 2018). Sritharan (2015) further defines firm size as a concept based on the production level, multiplicity and quantity of service being offered to customers, that is, the more diverse these parameters are the bigger the size and vice versa. Another definition of bank size is based on the market under which they operate, that is local

operations is mostly done by smaller banks as their large counterpart usually operates in the international market, the intermediate position is occupied by medium-sized banks (Bikker, 2010). From the aforementioned definitions, it is clear that there no standard definition of size that has been agreed on and one that classifies banks in different sizes. Size therefore depends on the individual study context under discussion.

Bank size parameters ideally control the funding objectives and policies that managers are likely to put forward for implementation, for instance, the GFC which began in 2007 was believed to have been triggered by how the big commercial banks in America sourced financing, and despite the advancement in the American financial space, the effect of GFC quickly escalated to even smaller banks (Van & Gasperini, 2013). Apart from this, the stringent regulatory requirement that small banks have to fulfill before they are allowed to access funds from developed financial institutions has the potential of making them enjoy disproportionate benefits compared to their large counterpart as most of them have internalized their funding sources. Moreover, access to funds by these small banks is slowed down by underlying institutional weakness, for instance, insufficient security to guarantee such funding (Du & Girma, 2009). On the flip side, larger banks tend to require huge funding needs as a result of pressure from shareholders who require profit (Nyaoke, 2016)

In measuring firm size, different approaches have been employed, for instance, the natural logarithm of the total asset has been widely employed as a measure of size in the scholarly world (Demirgüç-Kunt & Huizinga, 2010; Fosu, 2013; Mandela, 2018). Sritharan (2015) used the logarithm of total sales in hotels and the travel sector as a

measure of size. Dang et al. (2018) identify the use of the value of equity in the market, the natural logarithm of all assets and net sales as the three most popular measures of size in corporate finance. In measuring size, this study adopted the use of the natural logarithm of the total asset due to its wide acceptance among scholars who have done studies on the banking sector and the ease that comes with data collection and analysis when such is used.

1.1.4 Firm Performance

Kamande et al. (2019) define performance as the efficient and effective deployment of resources by firms to achieve set objectives, closely related, Naz et al. (2016) view it as the firm's ability to measure the actual production output against planned output and results found to be satisfactory.   Nyaoke (2016) views bank performance as an act of value creation that results in a positive change in the bank's financial state, while Bikker (2010) defines it as the contribution made by a banking institution during the creation of wealth for both the business and the consumer. Much as Performance fails to readily lend itself to a common definition due to its multidimensionality as a concept for instance, in financial terms, it is used as a measure of market value, profitability, value at risk among others. Moreover, in terms of operation, it is a yardstick for both efficiency and effectiveness (Verweire & Berghe, 2004). Taking into account the aforementioned definitions, performance, therefore, constitutes the ability of a firm to measure results emanating from its policies, activities and operations in financial term

Performance whether operational or financial is reflected by the firm's profitability which proves how well it is being managed and confirms the competencies in management in

the allocation of scarce resources and controlling of costs (Youssef & Samir, 2015). Performance measure in banks ascertains the level of compliance, success, and financial position through proper resource utilization which results in wealth and profit maximization for the shareholders. A performing bank is that which is in value addition by generating more benefits compared to the cost they incur (Apătăchioae, 2015; Naz et al., 2016). As a consequence of the ever-increasing competition, banks are assumed to have better performance if their cost of funding from a particular source is sufficient, within the recommended range, and capable of yielding quality (Danisman, 2018). To the consumers, it is the surety of them getting back their saved money whenever they require it, that is, being reliable and insolvent. (Bikker, 2010). The inherent presence of several specific banking risks do result in open competition, deregulation, or reregulation, as a result, there has been a spike in the vulnerability of bank hence more cases of failures in banks (Apătăchioae, 2015).

To measure and operationalize performance in research, Tobin's Q model has been employed by several scholars, in both Dang et al. (2018) and Okiro (2014) work, the measure was adopted. while Shollapur and Baligatti (2010) used the percentages for both returns on investments and return on advances, together with ratios for deposits to total liabilities, investments to deposits, and credit to deposits. Other scholars have opted to use specific financial ratios which are computed from the firm's final financial statement and include the adequacy of capital, the asset and management quality, the firm's earning ability in addition to its liquidity position, and how sensitive the firm is to market risk. These indicators are commonly referred to as the "CAMELS rating model" and have been widely used as a measure of general performance (Abusharbeh, 2020). This study

adopted the CAMELS rating system as a measure of performance due to its robustness as it incorporates six dimensions that indicate a multidimensional approach to performance, moreover, it also doubles up as an internal control tool used by the regulator in evaluating whether the financial institution is sound or not. This is made possible through the use of specific financial ratios computed from the firm's final financial statement and incorporates a multi-dimensional approach to performance measurement (Abusharbeh, 2020). The use was further justified by the context in which performance was used in this study where it constituted aspects of the ability of the bank to measure results emanating from their activities, policies and operations in financial terms.

1.1.5 Commercial Banks in Kenya

The Central Bank of Kenya (CBK) roll of fully registered banks as of January 2021 shows a total of 42 banks to be fully registered, and out of these, there was one mortgage institution and seven authorized non-operating holding companies. Record from the CBK website indicates that currently, one commercial bank is under statutory management and two are under receivership. In classifying the banks, the CBK has used size and ownership structure, tire one, tire two, and tire three as a basis, they have also done the classification based on whether the banks are private or public explaining the ownership on who holds a major stake in these banks. Moreover, these banks can be said to be either locally or foreign-owned if viewed based on the country where they were incorporated (CBK, 2018; Musau et al., 2018).

Commercial banks act as a catalyst to the growth of economies since they are the main source of business funds in various economies regardless of their status, to achieve this,

several commercial banks have been at the forefront of gaining a competitive advantage by improving the quality of the service they render both on the local and international stage to sustain better performance (Abusharbeh, 2020). The Kenyan banking sector is considered to be the most advanced within the East Africa region (Mdoe, 2017; Musau, 2018), characterized by intense competition, that has been experienced in the area of fund mobilization and operations.

For a long time, banks have been relying on retail customer's deposits as the main funding source, but with the majority of the population being non-banked, the few available saving clients have seen banks struggling for their attraction, and this is depicted by several media advertisements calling customers to bank with certain institutions. The increased tier 1 bank branch network has resulted in banks competing for both savings and loan clients. Poaching and luring talented staff who are responsible for directing performance for these institutions is a common practice sector (Musau, 2018). This competitive behavior has, therefore, had an impact on both the banks' funding sources and their overall performance.

1.2 Research Problem

The link between commercial banks' funding sources and performance has been of great concern to both scholars and industry players. Much as academic research work has managed to establish some explanation of how the major financial crises in recent times can be linked to bank funding and performance (Jin et al., 2017), more knowledge remains uncovered and as a result, there is a need for further research in the area. The banking sector's stability largely depends on the strategy they adopt when choosing their

funding sources, commercial bank managers have to craft their unique ways of fund mobilization, they have to determine the right proportion of the various funding sources and decide on when and where to source funds. IMF (2013) report cited the excess reliance by the majority of big banks in the United States on long-term funding sources which were abruptly demanded within the shortest time possible as one of the possible triggers of the 2007-2009 GFC. As a mitigating tool to this, banks should be in a position to generate sufficient income capable of offsetting all their operational costs to create a sustainable intermediation role and in the process create a healthy financial performance (Ongore & Kusa, 2013). In an ideal situation, bank funding should aid in the growth of banks, and be in a position that helps them minimize scenarios that can lead to any form of crisis.

As earlier mentioned, in a financial crisis period, banks may find it hard to borrow from fund providers as most of them tend to lack the requisite collateral making access to funding extremely competitive for both smaller and large players (Du & Girma, 2009). An investigation into how this phenomenon can be balanced in a way that enhances performance is one of the subject matters of this study. Furthermore, in developing countries, the banking space is considered crowded and survival depends on the ingenuity of the competitive approach adopted by the players which should allow them to gain a competitive edge over the others through the implementation of valuable marketing strategies that yield better performance (Musau, 2018). To streamline performance, managers on behalf of businesses have to rank the available funding sources to enable them to competitively operate in the market space and settle on a source(s) whose values are consistent with the organization's funding philosophy (Davydov, 2014).

Through policy interventions, most governments in sub-Saharan Africa have been involved in practices meant to control the direction and the manner through which banks determine interest rates and sectorial allocations. In Kenya for instance, the interest rate-capping law passed by parliament in 2016 radically disrupted both the saving culture and at some point the regulator pointed out the inconsistency created by the law (CBK, 2018). In Ghana, the implementation of interest and exchange rate control made them realize the need to come up with even regulatory and structural frameworks, it was noted that the effect of these moves by the government has had far-reaching implications in terms of how banks fund and operate themselves. Further review of the literature on the situation in the same country reveals interesting findings, some of which present opportunities for further research based on the gaps that have been left without answers. For instance, it was found that loans to be advanced to either the secondary or primary sectors of the economy can be funded by money that is internally generated, while, funding to the tertiary sector of the economy tends to be more sensitive to wholesale funding (Alu et al., 2014). The study suggested the need to take into consideration bank-specific factors especially size when deciding on bank financing ability to the economic sectors. A conceptual gap is presented by this study as it fails to mention the effect of these funding channels on the bank's overall performance and the role of competition.

Banks have played a role in the provision of liquidity on demand which has been made possible by the ability and synergy developed in the process of deposit-taking, honoring the withdrawals of such deposits, and lending out the remaining when there is a commitment (Kashyap et al., 2002). Big banks tend to have better financial performance compared to smaller banks because of their ability to attract huge funding and reach a

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larger base of investment opportunities (CBK, 2018). On the contrary, scholars have also presented findings that reveal that a majority of small banks still tend to be highly dependent on their respective state or central banks for funding, a situation that has made them remain distressed and vulnerable during a major crisis despite the huge financial base that state banks have (IMF, 2013). These two puzzling viewpoints presented a conceptual gap that required a further interrogation of what may result in stabilizing the funding dilemma between smaller and bigger banks in an economy and probably getting answers as to whether funding sources, competition among players, and the size of the institution whether financial or not, play a role in informing the direction of performance before, during and after the crisis.

The Kenyan financial sector has had its fair share in dealing with what is considered a low-scale financial crisis, most of which is attributed to rampant corruption among state agencies, unsustainable borrowing by the government, and claims that the government is engaged in unsanctioned printing of money in the period leading to the general elections (Shulika et al., 2014). Corruption among state agencies has always been the reason why the Kenya Revenue Authority (KRA) has been missing her revenue collection targets consequently the government has on several occasions been forced to engage in borrowing activities from both internal and external markets to be able to finance the various government operations. Moreover, there have been claims that certain regimes have also engaged in unsanctioned money printing thereby making the financial market flooded with money leading to unprecedented inflation levels. Moreover, the Kenyan banking space is characterized by intense competition, rapid technology enhancement, and industry restructuring through mergers and acquisitions, all of which have been made

possible by the ongoing reforms in the sector. Interest capping law introduced in 2016 resulted in a drastic reduction of loans to small and medium-sized enterprises (SMEs), this is a direct result of the stringent screening requirements which classified the majority of them as high risk, this resulted in a decline in savings which forms a larger part of bank funding, consequently, banks have found themselves safer trading with the government as opposed to SMEs (CBK, 2018). On the other hand, big banks possess the capacity to lend the huge finances that the government may require, small banks are therefore left at the mercy of the already malnourished local SMEs, and this kind of unfavorable competition may drive the small banks out of business (Raude et al., 2015) and this study attempted to establish if this is true. A contextual gap as a result of this unique situation is an attempt to find out how Kenyan banks fund their operations and how their performance outlook can turn out to be.

Literature has extensively analyzed the link between wealth and performance and little evidence exists between the capitalization channels of banks (otherwise referred to as bank's funding sources in this thesis) and the general performance; most scholars have treated them as irrelevant balance sheet items. A further contextual gap is established from Van and Gasperini (2013) study which alludes that the bank funding problem triggered by weakness in the asset section in the statement of financial position resulted in a mismatch of currency, maturity of liabilities and assets hence creating a balance sheet pressure that ultimately exposed the performance of these banks to a series of misfortunes as they engaged in the panic sale of their asset which resulted in a compromise on the quality of their underlying asset due to a price reduction and unhealthy competition during the Global Financial Crisis. Thiyagarajan and Arulraj

(2012) study on the other hand established that funding gaps among India's non-banking institutions are effectively mitigated through short-term borrowings and this positively affects profit. This study focuses on Kenyan commercial banks' context using the general performance of commercial banks as opposed to profit which is a narrow measure of performance. A study by Jin et al. (2017) found the performance of selected banks in the US to be directly related to retail funding. The blanket use of the entire liability in the study fails to depict the correct picture since some liability items are not necessarily related to funding and the US financial market is considered more liberal with strong regulatory structures compared to the Kenyan setup, presenting a contextual gap.

A review of the various local and regional studies points to the existence of insufficient literature on how bank funding sources affect performance. Obonyo (2017) study on selected listed firms, for instance, shows that the structure of capital in a company positively influences its financial performance. Contextually, random data from listed companies in Kenya ended up providing a more general outlook as opposed to a bank-specific outlook. Raude et al. (2015) study addresses both conceptual and contextual gaps: conceptual as it looks at only the equity component of financing ignoring other components, contextual as it focuses on SMEs within a smaller geographical area of Kakamega. To distinguish this study from Raude et al. (2015) study, this study did establish how other funding sources in the banking sector and a bigger setup like Kenya address the identified gaps.

Tuyishime et al. (2015) study on the performance of Rwanda's Equity bank established that the senior bank managers have a critical role in the mobilization of retail customers'

deposit mobilization which is a key funding source. The study was however limited in scope as it only considered one source of funding and one aspect of performance which was financial, moreover, the study did consider only one commercial bank in the entire country which is comparatively smaller. In realization of the bigger and more diverse financial market in Kenya compared to Rwanda, a similar study with an expanded scope was necessary. On the same note, the Rwandan study used both secondary and primary data, this, however, presents an opportunity to further question whether it is appropriate to use both at the same time, considering that the analysis approach taken for both primary and secondary data tend to be different, that is, the aspect of primary data being used could only cover the views at one point as it is one crossectional data in nature. This study attempted to bridge this gap by incorporating commercial banks' data aided by a longitudinal panel approach in analysis, thus addressing the contextual and methodological gap.

The methodological gap is established based on how performance has been measured in various studies. The use of return on equity (ROE) and return on asset (ROA) as performance measures have been seriously questioned after the occurrence of the Global Financial Crisis, before the crisis, several banks ended up in a receivership state resulting in the majority of investors losing their servings despite exhibiting a strong financial position based on using ROA and ROE as performance measure exhibiting a positive outlook (ECB, 2010). This study bridged this gap by incorporating the CAMELS model which makes use of an index of six parameters as a measure of bank performance. The use of the CAMELS index as a measure is of benefit as it tends to reduce the risk of misclassifying raw accounting data that must be done when single-dimensional measures

such as return on equity (ROE), return on asset (ROA), and net interest margin (NIM) are deployed as performance measures (Antoun et al., 2018). In attempting to address the gaps already highlighted, this study endeavored to answer the following research question: are there relationships among funding sources, competitiveness, firm size and performance of commercial banks in Kenya?

1.3 Research Objectives

The general objective of this study was to determine the relationships among funding sources, competitiveness, bank size and performance of commercial banks in Kenya.

The specific objectives were to:

   i.   Establish the effect of funding sources on the performance of commercial banks in Kenya.

  ii.   Determine the effect of the bank's competitiveness on the relationship between funding sources and the performance of commercial banks in Kenya

 iii.   Establish the effect of the bank's size on the relationship between funding sources and the performance of commercial banks in Kenya.

  iv.   Determine the combined effect of funding sources, competitiveness and bank size on the performance of commercial banks in Kenya

1.4 Value of the Study

This study contributes to the existing body of knowledge by examining how funding sources chosen by commercial banks in Kenya affect the overall performance; this was

achieved by linking the identified theories with the variables. This study demonstrated that bank competitiveness enhances the relationship between funding sources and commercial banks' performance and therefore the management should at all times ensure that the banks are always competitive in the market space as this will ensure continuity of excellent performance. Findings further suggest that, if competitive advantage can be achieved with available funding sources, it is possible to link the concept with the pecking order theory by assessing how the various funding sources can be combined based on certain preferences. On this aspect, the study suggests that when funding is done out of customer deposits, the bank stands to gain from superior ground based on the cheap nature of using such in doing business. Banks by their orientation carry out various transactions in a particular manner with the expectation of achieving a specified desired outcome in terms of performance; this study linked this with the financial intermediation theory.

The study seeks to provide bank managers with insight into the various funding sources in the market and give them a hint on what proportion of funding to use at any given time to guarantee a maximum return. Managers will be able to understand the lenders' terms and conditions and how such terms may impact their performance and thus be in a position to set and map a realistic lender pool that can assist them in their overall objective. Knowledge of a well-performing bank will give savers of the money the comfort of knowing that their money is safe and secure. The study will further amplify the management role in the utilization of limited financial resources to obtain a favorable performance.

Based on the findings of this study, policymakers like parliamentarians, treasury, and bank regulators are likely to find the study useful as it may assist them in the designing and implementation of lending policies that regulate the source, volume, and timing of funds that can be obtained from both the local and international market and in the event there is a need for improvement on deposit policy, the study findings may be used to guide such a move. From the findings of the study, deposits due to customers were found to play a significant role in informing the overall performance, this could have been attributed to the lower cost of obtaining them. Based on this, policymakers can enhance this by coming up with policies that encourage customers to deposit their unused cash in the commercial bank. Findings further reveal that loans and deposits from other financial institutions seem not to be significant in the relationship. It is however noted that banks if better policies are put in place which make such deposits more reliable and predictable, can gain more benefits as opposed to only relying on retail customers' deposits.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter reviews four theories, the various empirical literature related to the study's objectives and a discussion of the research hypotheses. The empirical review section contains a detailed explanation of the research gaps grouped based on the four main study variables and further summarized in a table. A conceptual diagram with arrows showing the inter-relationships among the variables of the study comes at the tail end of the section.

2.2 Theoretical Foundation

Scholars have put forward an explanation of the possible relationship between funding sources, bank competitiveness, bank size, and the performance of commercial banks using several theories and hypotheses. The following theories were reviewed and critiqued in the subsequent section, pecking order theory, financial intermediation theory, resource-based theory (RBT) and Structure-Conduct-Performance Theory.

2.2.1 Pecking Order Theory

The theory was developed out of the work done by Myers and Majluf (1984), they postulated that an adverse selection tends to make firms prefer internal financing over external, and in the event, there is a need for external funding, they will then prefer to issue debt over equity due to its association with a lower transaction and information

cost. The theory suggests a hierarchical order of funding sources, internal funding being the most preferred followed by debt, equity is only used when it is insensible to increase the debt level (Frank & Goyal, 2003). The premise of information asymmetry arises from misperception by potential investors who may end up overvaluing the value of the firm whenever called upon for funding as they may expect and demand higher returns on their investment and this can result in equity mispricing, hence the non-attractiveness. In support of the transactional cost, Tahir et al. (2016) postulate that debt is the most preferred funding source compared to equity owing to the low transactional cost attached to it, that is, whenever a debt is used, the firm's value is improved as a result of the elimination of the external transactional cost.

Contrary to the pecking order theory, Frank and Goyal (2003) note that net equity issues tend to track the deficit in financing more compared to when a debt is issued. These scholars further acknowledge the presence of the pecking order behavior in large firms however they take note of insufficient evidence that can warrant the inclusion of conventional leverage factors. On the same note, the absence of a standard combination framework of the available funding sources within the banking sector is one of the major drawbacks of the pecking theory, managers are therefore left to gamble with what they think is the right combination, more often some of them get this the wrong way. Both the cash flow level and the debt ratio are inversely proportional, that is, whenever there is an increase in one aspect, it results in a decrease in the other (Davydov, 2014). When a firm has a high debt level they are more likely to incur financial distress costs which may make them not take up any emerging project with the prospect of generating a positive net present value, they mitigate this dilemma by deliberately preserving the short-term

reserve capacity for borrowing (Tahir et al., 2016). Funding operations using a combination of debt and equity enables firms to be in an advantageous position; the debt component will allow firms to benefit from a tax shield that can offer some form of protection against distress and bankruptcy. Firms, therefore, seek to have the optimal structure of funding by balancing the cost and benefit of the two sources of funds (Ramadan, 2015)

Bank managers have more information regarding the business's true value and risk compared to outside investors. Whenever a business seeks external funding, the lender attaches divergent opinions on such a move; therefore, how bank managers combine the available sources of financing to come up with the desired proportion mix informs their performance in the long run. It has been observed that firms that use internal sources in financing tend to have a more stable profit as the cost associated with such funding is way low compared to external funding (Birru, 2016). Most conventional banks, however, use external funding in most of their operation as the money required to run the operations of the banks tend to be huge and cannot fully be funded by internal sources which make borrowing by banks a norm (Davydov, 2014). The theory is therefore relevant to this study as it suggests that shareholders' equity which is considered an internal source and seed capital was found to be a major component of funding. Moreover, it was observed that customers' deposit which is considered external will be more preferred owing to the cost associated with it. The theory further highlights the role played by both asymmetric information and transactional cost in shaping the market outcome as it tends to call for a careful interpretation of the management decision on how

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they are financing new security and from which sources in order of preference, from this, it is enough to point out how the market outcomes are likely to be sharped.

Using the premises of the pecking order theory together with the findings of this study, the nature of the funding source a commercial bank decides to adopt is a key performance determinant. To ensure the performance remains optimal, commercial banks have been found to make use of either shareholders' equity, or customers' deposits to finance their operations, furthermore, the liberalization in the sector has made it possible for both small and big banks to coexist side by side since each player has to come up with a unique competitive approach that allows them to attract and retain the best funding sources capable of yielding positive performance.

2.2.2 Financial Intermediation Theory

Gurley's and Shaw's (1960) work merged both the informational asymmetry and the agency theories to come up with the financial intermediation theory (FIT). The theory is premised on three principles that are responsible for the existence of an imperfect market; these are information problems, the high cost of transactions, and the method of regulation. The imperfection in the market is caused by an asymmetry of information whose nature can either be *ex-ante* leading to an adverse selection that can trigger a moral hazard or *ex-post* that can result in the application of costly auditing and verification procedures (Scholtens & Wensveen, 2003). In assessing how information advantage assists banks in performance management and acknowledging how information gathered from not only the checking accounts but other sources, Hughes and Mester (2017) noted that they are responsible for regular monitoring of contractual performance when

required and deciding the contracts to be entered into by the bank, this is in addition to the assessment of risk and their management, and this assists in resolving any non-performance problems.

The theory emphasizes products and services as the main functions of a bank, however, in a developed financial system this no longer holds. Kathuo et al. (2015) suggest a decline in the relevance of both transactional cost and information asymmetry as the foundation block for the theory, they take note of how most institutions have shifted their focus to more market-driven needs which involve the engagement in risk-transfer activities and dealings with rising and a sophisticated maze of financial markets and instruments. Scholtens and Wensveen (2003) are in support of the existence of the theory as a result of imperfection in the market and argue that the moment the market becomes perfect, intermediation ceases to exist. The theory further alludes to both monitoring and inherent information advantages as the main catalyst for the existence of intermediaries, however, as Coval and Thakor (2005) demonstrate, the presence of both optimistic and pessimistic entrepreneurs and investors respectively are responsible for the endogenous rise of intermediaries. Some scholars argue that "monitoring and screening of borrowers as an intermediation a function that commercial banks are mandated to perform, does not only assist in minimizing the occurrence of adverse selection but also reduces problems associated with moral hazard in the banking sector which is usually triggered by the imperfect information between lenders and borrowers (Hughes & Mester, 2017). However, with the current development and regulatory framework that prevails in the banking sector, instances of imperfect information that can give a specific bank any

undue advantage may not arise due to the free credit information sharing regime made possible by the existence of CRBs, Banks may therefore not use this as leverage to better performance.

Banks usually use customers' deposits and money borrowed from other financial institutions to advance their investment agenda; this can be through the loans they advance to customers, investing in government securities, stock, and real estate among others. To ensure that prudent investment is made, banks must adopt a mechanism that continuously measures the outcome of their investments and performance, it is imperative to find out the extent to which bank size and competitiveness affect how managers combine and implement the usage of funding sources to achieve a certain desired outcome (Kathuo et al., 2015). The consequences of an imperfect market are far-reaching, it can create an environment where there is a high transaction cost, the action of a dominant player ends up influencing prices, the presence of unique borrowing and lending conditions for different participants, and the emergence of competitive advantages among specific participants among others (Scholtens & Wensveen, 2003). FIT is therefore relevant to this study as it aids in the analysis of the behavior of transactions undertaken by a firm and their effect on performance and how information advantage assists banks in performance management considering the distinctive intermediary function banks perform in the economy

2.2.3 Resource-Based Theory

A study by Barney (1991) is considered pivotal for the emergence of the resource-based theory (RBT), processes in the organization, attributes, knowledge, all assets and the firm's capabilities among others have been identified as the firm's internal resources by the theory. RBT assumes that the said resources must be imitable, rare, non-substitutable and valuable (IRNV) hence firms can attain a sustainable competitive advantage (SCA) among peers. SCA explains why there can be a difference in performance among firms operating in similar industries.

The operational validity of the views in the resource-based theory (RBT) is questionable as it expects firm managers to come up with IRNV resources without giving direction on how they can be implemented for the realization of successful performance. McGuinness and Morgan (2000) believe that the theory exaggerates and trivializes the management's abilities in forecasting the future through resource control. To achieve SCA using RBT, the price of internal resources should allow for the realization of desired economic gain, however, the imperfect market, immobility and heterogeneity explain why firms end up with different performance despite the analysis using RBT suggesting a similar result for all firms in the same industry (Gibbert, 2006). RBT and industrial organization's (IO) theory are viewed as predecessors that complement each other. RBV focuses on these resources that a firm internally generates as a source of SCA while IO theory focuses on structure-conduct performance which uses factors outside the firm hence explaining deviations in performance among firms, moreover, the successful utilization of IRNV resources and the existence of appropriate organization (O) to be in place resulting in

IRNV/O is neither necessary nor sufficient for the attainment of SCA for its lacking of empirical support (Barney, 1991)

SCA is gained through superior performance, managers need to focus on unique internal resources especially together with how they source and combine the various funding sources that distinguish them from their competitors (Mdoe, 2017). Each bank in the market may adopt different strategies when it comes to funding needs, they also have different capabilities in terms of management competencies, and reputation size among other factors. Some banks also make use of their size and unique management capabilities as a way of gaining SCA by reaching out to a wider or narrower market base. On the flip side, some smaller banks have managed to survive in the market by the mere ability of them being in a position to attract personnel with exceptional capabilities, and with these calibers of the workforce, they can afford to realize some semblance of SCA (Gibbert, 2006). The resource-based theory is therefore relevant as it takes into account all the unique features found in a bank as resources as they can be used as a way of gaining a competitive advantage thus complementing available funding sources, firms should therefore be able to combine the best funding options that others find hard to replicate by exploiting their internal strength in response to the opportunities that the environment presents, while at the same time systematically eliminating any internal threat that can negatively impact on firm's performance

2.2.4 Structure-Conduct-Performance Theory

The 1930 theory was formulated out of the work of a group of economists at Harvard University led by Edward Mason and his PhD student Joe S.Bain, they did a practical

analysis that resulted in the formulation of the "Structure-Conduct-Performance (SCP) hypothesis" (Lee, 2007). SCP proposed an arbitrary connection between "industry structure and performance" thus suggesting that firms may adopt differentiation strategies but eventually, industry structure determines profit-sharing (Iacobelli, 2017). The supposed "structure" is a representation of three components which include, the level of product differentiation by a firm, the concentration of the seller in the market space, and any possible entry barriers. "Conduct" on the other hand, denotes an entity's action which includes; "advertising, strategies for pricing, collusion, investment in capacity and research and development". "Performance" on the other hand refers to results or stability measured in terms of "allocative efficiency". SCP hypothesis envisions a chain reaction in which structure causes conduct which in turn determines the performance

A study by Tahir et al. (2016) found that SCP tends to be more relevant compared to the Relative Market Power Hypothesis (RMP) and Efficiency Structure(ES) hypotheses. There is a school of thought that believes that with RMP, bigger banks tend to be more experienced and are thus likely to dominate in profit making thus rendering SCP nugatory (Iacobelli, 2017). ES on the other hand assumes that the efficiency of the firm determines its performance and not the market structure (Tahir et al., 2016). The empirical evidence presented by Yao et al. (2018) is in favor of SCP, RMP, and ES as they affirm that between efficiency and profitability, there exists a positive association. On the contrary, some studies dispute SCP by arguing that the RMP hypothesis is more plausible, for instance, Hughes and Mester (2017) study which compared SCP and ES concluded that the ES hypothesis confirmed the same

What makes the theory relevant to this study is the sense that banks by default usually take advantage by paying little interest to depositors and charging high rates on loans resulting in consumer-unfriendly behavior and by extension creating a heavy concentration responsible for the initiation of an imperfect market (Berger, 1995). In addition, market structure governs different factors that can be categorized in terms of demand or supply (Iacobelli, 2017). However, Skeptics of SCP posit that the direction of determination may change such conduct (for instance, predatory manners or entry barriers) by causing structure thus altering the direction of the relationship. It is also argued that "the connection between conduct and performance is weak such that performance can also cause conduct in situations where a big firm may churn losses in the interim to drive a rival out of business" (Tahir et al., 2016). The hypothesis explains how financial performance is related to the structure (external factors) and conduct (internal factors) in the banking industry which determines the profit share of the actors and their competitiveness, the theory is therefore relevant to this study as it strives to explain the concept of size, competitiveness, and performance which are the key concept in this study.

2.3 Empirical Literature Review

The empirical review section contains a detailed explanation of related studies highlighting their main findings and presents the researcher's critique which assists in establishing any research gap. The order of presentation is based on the main study variables as depicted by the four specific objectives of this study, these are then further summarized in a table. A conceptual diagram with arrows showing the inter-relationships

among the variables of the study together with their respective formulated hypothesis comes at the tail end of the section.

2.3.1 Funding Sources and Firm Performance

Some of the current studies that have attempted to cover the area that exclusively deals with how funding sources are associated with bank performance show mixed findings. Haddawee and Flayyih (2020), Shollapur and Baligatti (2010) and Demirgüç-Kunt and Huizinga (2010) observed a direct positive association. However, Jin et al. (2017) and Kirimi et al. (2022) observations point to an inverse association.

An empirical investigation was carried out by Kirimi et al. (2022) with the sole objective of investigating the nexus between funding provided by the shareholders of various commercial banks based on the structure of ownership and banks' performance. Unbalanced audited panel data of thirty-nine commercial banks in Kenya was collected between the years 2009 to 2020 for the study. The findings point to a direct association between performance and structure ownership, in particular, the authors noted a contrary outcome when it comes to those banks in which the state has a controlling stake, as they tend to exhibit negative performance regardless of the level of equity pumped in them due to poor corporate governance associated with most state parastatals. These findings made the scholars advocate for the need to curtail the influence of the executive who tends to have major control as a result of their equity stake as this will make them come up with a sound strategic decision that is beneficial to the bank and capable of propelling them to better performance. These views are contrary to the findings contained in this study which suggest ownership stake represented by equity shareholding, tends to play a

major role in influencing the performance regardless of the structure as no bank can operate without equity as a funding component. Moreover, the study is also narrow since it only takes into account the aspect of financial performance as depicted by the measures used which are net interest margin (NIM), ROE, earnings per share (EPS), and ROA, as opposed to the general performance measured using CAMELS in which financial performance is a component, this, therefore, limits the scope hence the need for this study.

The objective of an empirical investigation carried out by Haddawee and Flayyih (2020) was to investigate the nexus between financial performance measured using profitability indicators and the banks' deposits. The study was actualized using analyzed data from the Commercial Bank of Jordan collected over five years beginning the year 2012 to 2016, moreover, in the study, deposits were categorized as either term or current or savings while performance was operationalized as ROA and ROE. A descriptive research design was used to perform a quantitative analysis of the three deposits. The findings of the investigation pointed to a strong positive association between customers' savings deposits and profitability, and the study further agrees with the propositions set out by the pecking order theory by ranking savings deposits ahead of both the time deposits and the current deposits. Much as this study tends to agree with the findings in the study by acknowledging that deposits influence performance, the narrow scope of using data covering five years from only one commercial (the Jordanian Commercial Bank) bank and taking into account two financial performance indicators which are ROE and ROA falls short of using the findings to generalize an entire industry. The study further considers only one source of funding, a situation that is likely to be corrected by this

study which has expanded the funding scope to three from one, in addition to using more data and expanding the time limit to 11 years.

Holders of cash are encouraged by commercial banks to save them in a saving scheme on condition that the banks agree to pay such holders some benefits in the form of interest. On the other hand, banks are expected to use the money obtained from the savings account to offer lending services to those who require them at a fee also known as "interest receivable". But in most cases, the cash obtained from saving accounts is hardly enough and this may trigger the banks to turn to the federal banks or other investors for additional funding. It is on the backdrop of this assertion that Ilamoya and Omar (2018) did an empirical investigation on groups of individuals working in the banking sector in the coastal region of Kenya. They used primary data obtained by use of a questionnaire with the view of finding answers as to how the cost of obtaining funds particularly deposits affects financial performance. The study findings indicated that when high interest is paid on deposits, the banks' performance is likely to decline and vice versa. Moreover, the scholars further discovered that customers do tend not to give out their deposits to banks whenever they are offering low-interest rates and consequently unfavorably impact performance. One of the major weaknesses in the study was the use of questionnaires which in most cases the data collected using them tends to be more subjective as opposed to the objectivity attitude presented by secondary data (McDonald et al., 2020)

Jin et al. (2017) carried out an empirical investigation with the sole objective of establishing if the funding strategies adopted by both private and public banks in the US

have any implications on their earnings quality. The data used for the investigations was from 12,083 individual banks covering 20 years period (1993-2012), out of which, three sub-periods were separately analyzed. The post-crisis years as one of the three periods started in the year 2010 and ended in 2012, this was preceded by the three years of GFC that is from the year 2007 to the year 2009, and finally, fourteen years (1993 -2007) before the GFC. In the study, the retail deposit was measured based on the core deposits to liabilities ratio CDL, which was calculated as the sum of all transactions deposits. The banks' earnings quality (which is a measure of performance) was measured based strength of the discretionary loan loss provisions (DLLP). The findings of the study suggest an inverse association between wholesale funding and quality of earnings while a significant positive association exists between retail customers' deposits and earnings quality. Unlike this study, the study as pointed out was done in developed economies at different periods, the dilemma of whether the same findings can be supported if done in Kenya which is considered a developing economy is answered by this study. Finally, in as much as the study looked comprehensive, the dynamics have since then changed and the need to look at the same using the most current data within a developing economy is necessary

A study by Demirgüç-Kunt and Huizinga (2010) on how risk and return (which in essence are components of performance) are influenced by both short-term funding strategies and bank activities was made possible by using data collected from 1334 banks found in 101 countries. The study made use of ROA as a performance measure and categorized sources of income as either fees or interest which were made possible by looking at funding sources as either non-deposit or deposit respectively. Key findings

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from this study were the establishment that those banks with superior performance tend to rely on only one source of income which can either be fees or interest income as opposed to relying on both categories. This finding implied that banks had to choose and explore the benefits which are associated with a specific funding source that could either be a deposit or non-deposit in nature and this leads to better performance, a decision to adopt both sources at the same time was found to be associated with a lower ROA. The fact that Demirgüç-Kunt and Huizinga (2010) relied only on a single component of performance (ROA) and categorized funding sources as either deposit or non-deposit presents an opportunity to enhance the study by expanding the scope of performance by use of other measures like the CAMELS model with an expanded scope of funding sources.

Motivated by 1991 India's financial sector reforms Shollapur and Baligatti (2010) study sought to find answers on how the cost of the various funding sources influences profitability and in more particular how the deposit component in funding affects profitability. Analysis was done on the data obtained from annual audited financial statements of twelve selected financial institutions from the Indian Public Sector Banks (PSBs) covering eight years that is, from the year 1999 to 2007. The study reclassified these banks as either low, medium, or high-profile banks using performance as the basis of the classification. The study operationalized the cost element in terms of how they are charged on deposits, borrowings, and total funds. The return element (which is a performance indicator) was operationalized using both returns on investments and advances. The findings of the study emphasized the use of deposits as the main funding source because of their lower cost which improves bank performance and further

revealed that high-profile banks can obtain funds at a relatively lower cost which results in improved performance compared to both medium and low-profile banks. The fact that this study relied on data gathered from Indian PSBs which were further categorized either as low, medium, or high-profile banks may not be applicable in the Kenyan setup and the need to have all banks incorporated in the study may enhance the value of literature in the area, further, the scope of performance measure in the study by which only considered the return on advances and return on investments is enhanced by incorporating CAMELS.

2.3.2 Funding Sources, Competitiveness and Firm Performance

Existing empirical literature on how funding sources, bank competitiveness and bank performance relate to each other points to the absence of studies where all three variables are exclusively studied together. Most of the studies reviewed here point to the existence of at least any of the two variables being studied together. Mdoe et al. (2018) study focused on competitiveness and performance variables while Amidu and Wolfe (2013), Uddin and Suzuki (2014), Roengpitya et al. (2017) and Fosu (2013) studies focused on funding sources and competition

An empirical investigation by Mdoe et al. (2018) was intended to ascertain the extent to which competition of players in the banking sector in Kenya influences performance. To establish how the dynamic of performance among banks is informed by competition, the distinguished scholars used balanced panel data obtained for the years 2001 to 2014 of thirty-six banks in Kenya. The level of persistence of profitability was estimated and used as a measure of competition through the stationary autoregressive (AR) process in the

study, moreover, performance was operationalized based on the banks' characteristics, macroeconomic factors, and the risks faced by banks. The study established that the competition level among players in the Kenyan banking space is low and the need for government intervention from time to time is necessary since competition alone cannot correct the inherent inefficiencies that if not checked may end up crippling the sector. The current move by most banks (especially the small ones) to merge and the policy pressure to increase the core capital requirement on banks by the regulator seems to agree with these findings. The study recommends increased consolidation and core capital as a way of influencing banks' performance in the future but fails to explain how competition can act as a generative mechanism between the sources of funding to the bank and banks. In addition, using the level of persistence of profitability as the competition measure is itself a potential course of a multicollinearity problem in that, the data set required are similar indicators used in computing performance in other studies.

Roengpitya et al. (2017) carried out an empirical investigation with the sole objective of experimenting with how combinations of funding items in the statement of financial position of a bank influence performance. The study relied on quantitative figures gathered from audited financial statements constituting balanced panel data of 178 commercial banks from thirty-four countries between the period 2005 and 2010. In terms of the funding component, both retail and wholesale-funded commercial banks were considered. Findings from the study acknowledge that banks tend to exploit their competitive advantage by how they access funding, blend their management capabilities, and explore the available market through a single vessel they referred to as "a business model". The study further acknowledges that by properly matching the three components

of the business model, banks stand to benefit from the result of sustainable profitability which is a key positive motivator to stakeholders. In particular, they observed two business models that mirror the features of a commercial bank, that is those relying on retail funding sources vis a viz those relying on wholesale funding sources. in relating how the business model reacts in a crisis moment, the authors noted that those business model with retail funding components tends to be more vulnerable compared to those with wholesale funding component. This study added voice to the literature by incorporating a new frontier of funding attributed to the shareholders' equity.

Motivated by the desire to establish the reason behind the accelerated competition level among banks in both developing and developed economies, and the need to explain how banks transitioned from the financial repression era to a financial deregulation era between the years 1980 and 1990. Uddin and Suzuki (2014) commissioned a study in Bangladesh whose main agenda was to find an answer to the nexus between competition and performance supported by empirical evidence. Banking sector data was obtained for the period between 1983 and 2011 and was categorized into the banking sector data and data obtained from the individual bank for analysis purposes. In the study, performance was measured using both efficiency and ROA while competition was assessed using eight structural measures. The study findings confirm the consistent increase in both the level of competition and performance though with few fluctuations during the period, however, the nexus between the two variables was found to be generally negative and this made the advocate for the adoption of stringent structural changes in the sector. It is further noted from the study that, negative social welfare is brought by excessive competition on deposits by banks hence the need for government intervention in the sector by carefully

monitoring the deposit market share as rogue banks may intentionally increase their deposit rate in a bid to attract more while at the same time increases its lending rate un-proportionally which results in degrowth in the economy.

Amidu and Wolfe (2013) carried out a study to establish how the bank's stability and diversification are influenced by the competition level. The study was made possible by using data gathered from 55 countries that were considered emerging economies, eight years period data was obtained from unconsolidated bank statements of 978 sampled banks from the year 2000 to 2007. In the study, the competition was measured using the learners' index and this was operationalized while a Z-score which is a measure of risk and by extension performance was constructed using ROA, bank equity and total assets. The study findings suggest a direct association between competition and stability which is a performance indicator, they further allude that revenue diversification is a competition channel that directly affects bank insolvency and risk in developing countries, hence the more the competition the more stable banks are likely to be, the study, however, fails in considering the unique role of bank characteristic in the relationship. And since the study combined data obtained from not only commercial banks but also from savings banks, mortgage banks, real estate, cooperative banks, and development banks, chances that the findings can exclusively be used to decide what happens in a purely commercial bank may be untrue, moreover, they are some banks which are only available in advanced economies and the findings from such may not be similar to a developing economy like Kenya

An empirical investigation by Fosu (2013) sought to establish the nature of the nexus between firm performance and their capital structure, with a special focus on how competition within the industry influences the relationship. Analysis was conducted on eleven years of panel data gathered from Audited financial statements of two hundred and fifty-seven firms in South Africa between the period 1998 to 2009. In as much as the weaknesses of ROA as a measure of performance were highlighted in the study, other measures like Tobin's Q were not used, the author found ROA to be the most appropriate during the study. The study used both leverage operationalized using a ratio of debt to assets and competition operationalized using HHI indicators as the independent variables. The study further had size measured based on log total assets as the control variable. The findings of the study point to the existence of a positive nexus between the competition of the bank and its performance. However, the study fell short in explaining the role of capital structure in the relationship despite having it as one of the main objectives.

2.3.3. Funding Sources, Size and Firm Performance

The desire to preserve and maintain the country's economic fortunes is a task that can only be well performed by insurance firms, It is, however, interesting to note that some insurance firms are thriving while others are struggling and there are also those closing their door for business. It is this dilemma that prompted McDonald et al. (2020) to commission a study with the view of comprehensively understanding and mapping out factors responsible for the success of the industry and in particular how their profitability can be continuously improved and enable them to operate as going concern entities. The distinguished scholars did a critical analysis of how the performance of 19 selected

insurance firms is influenced by their age and size. In the study, performance was operationalized using both underwritten results and gross weighted premiums, while age was operationalized by how long the company has been operating and its total assets as the indicator for size. Both age and size of the firm were found to have a direct association with performance in the study. The study strongly recommends a strategic alliance through partnerships between firms with a good reputational ability which has been acquired through many years of existence and those with huge financial muscle attributed to their size. In bringing out the role played by firm size, the study acknowledges that better performance cannot be attributed to age alone but size also matters as far as performance is concerned. In attempting to cement this assertion, a study with an expanded scope of performance that either incorporates the CAMELS model or Tobin's Q model and is contextualized in the financial sector, particularly banks is necessary as the sector tends to have consistent clean data owing to the stringent regulatory checks that are in place (Musau et al., 2018)

In both East and Central Europe, liberalization, recapitalization and privatization of the banking sector have taken center stage over the last three decades, and the need to empirically analyze the nexus between bank size, its earnings, and the asset quality as some of the factors responsible for these occurrences was actualized in Antoun et al. (2018) study whose main focus was on how the performance among banks is influenced by macroeconomic determinants, industry-specific factors and firm-specific factors. Unbalanced panel data of 128 banking institutions gathered from the year 2009 to 2014 was analyzed. The association between firm characteristics measured using size and performance using the CAMEL rating model showed a negative association, however,

the direction of the relationship changes if economic growth and bank concentration are factored in as the moderating variables. The study, however, excluded the role of funding sources on the relationship and by considering only banks in both East and Central Europe which are considered as mature economies, the findings may not be relied on to make a generalization on a developing economy like the one in Kenya. Failure by the regulators of financial sectors to provide effective and appropriate solutions capable of addressing the concerns born out of the perennial fluctuations in the system has been pointed out as some of the main triggers to some of the global financial crises witnessed in recent decades like the 2007-2009 GFC (Davydov, 2014). In a bid to correct this anomaly, most institutions in collaboration with the regulators have increased the mandate of prioritizing performance over their growth with the view of achieving sustainability and stability.

A study by Musau et al. (2018) investigated this phenomenon in the banking sector by attempting to empirically analyze how the firm's trade-off and synergies impact performance measured using both credit risk and financial inclusion. In particular, the authors looked at how financial inclusion in institutions offering banking services affects credit risk in addition to the role of competitiveness acting as a mediating factor. The authors further used how banks are accessible, the nature of their availability, and their usage as measures of financial inclusion, while HHI measured their competitiveness and level of non-performing loans ratio measured performance. With the aid of descriptive, experimental research design, data from 43 commercial banks were collected from audited financial reports for the years 2007 to 2015. The study established that the gross domestic product (GNP) moderates the relationship between bank stability and financial

inclusion, that is, an increase in GDP and promotes financial inclusion and stability. On the other hand, bank competitiveness measured using insolvency risk was partially found to intervene in the same relationship. The above notwithstanding, the study failed to take into account funding sources as one of the key influencers.

The conflicting goals between firm managers and owners have always been part of the reason why firms sometimes end up performing below expectations as a result of poor and inefficient approval, monitoring and validation of managerial decisions. These assertions prompted Mutende et al. (2017) to carry out an empirical analysis with the view of establishing how the characteristics of the firm influence the nexus between performance and its free cash flow by first evaluating the primary relationship between performance and the cash flow and then followed by establishing whether the size and the age of the firm moderates on the main nexus as the two main specific objectives. The study's findings confirm that the two variables moderate the relationship, free cash flow was however noted to fail in the positive influence performance in the absence of the moderating factor. The study, therefore, recommended that management should adopt strategies geared towards the generation of free cash flow owing to its positive impact. In support of the pecking order theory and how the size of the firm moderates the association between the structure of capital in a firm and their specific characteristics.

Cognisant of the important roles that are performed by SMEs in economic development in developing economies and the reality that the majority of them are faced with survival problems, Raude et al. (2015) commissioned a study in the western part of Kenya to establish whether the strategy employed in financing them using equity has an impact of

their performance and if the same is the course of the poor performance as exhibited by several firms. Against this backdrop, the causal linkage and the nexus between SMEs' performance and their financing strategy using equity was investigated and the same moderated by both size and ownership. To find answers to the study's objective, a descriptive research design was employed by the author on 95 sampled SMEs whose five years of data was obtained from the year 2009 to 2013. In the study, the authors measured performance based on the number of years an SME has been in existence while sources of financing were measured using equity and debt value while the size was operationalized as the logarithmic value of SMEs' total assets. The findings of the study suggest a strong positive association between equity as a funding source and SME performance, it further reveals a financially starved SME sector in Kakamega that has been pushed to depend on creditors for funding despite there being an inverse association of using such on performance.

An empirical investigation by Demirgüç-Kunt and Huizinga (2010) discussed in section 2.3.1 further utilized bank size to control how funding source which was either deposit or non-deposit influenced performance measured using ROA from 1334 banks found in 101 countries. In the study, bank size was operationalized using the logarithmic values for total asset figures. The findings of the study suggest the following: "Expansion into non-interest income-generating activities such as trading increases the rate of return on assets", as this is capable of offering some benefits as a result of diversifying risk at very low levels in banks considered large. The findings further suggest that, in as much as there are benefits associated with using non-deposit funding, wholesale funding, in contrast, lowers the rate of ROA, as they still offer "some risk reduction at commonly

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observed low levels of non-deposit funding among small banks". Not to be ignored is the fact that "a sizeable proportion of banks, however, attract most of their short-term funding in the form of non-deposits at a cost of enhanced bank fragility". Moreover, the study suggests that banks that use deposit funding and interest income tend to be much safer compared to those which use non-interest income and wholesale funding while a higher level of funding from non-deposit and non-interest income results in an increase in bank risk with no significant impact on ROA which is a measure of performance due to concerns of endogeneity.

An empirical investigation by Du and Girma (2009) on how the size of firms in China influences both financial structure and total factor productivity growth was carried out using a dataset obtained from audited financial reports between the period 1998 and 2005. Drawn from 90% of the firms contained China's statistics agency dealing with the national bureau. In the study, performance was operationalized using total factor productivity (TFP) while the share of non-domestic investments, domestic bank's loan, self-raised finance, and state finance were used as independent variable measures of funding sources whereas, for the control variable, firm size was used and operationalized using the quadratic value of the total number of employees in each firm. The study's findings suggest that private firms' performance that relies on formal financing tends to be better compared to those that rely on informal sources an aspect that is responsible for their rapid growth. However, analysis of large firm-level data from China caution in concluding that a particular source of funding is solely responsible for this growth but also depends on the firm's growth channel and ownership structure (Du & Girma, 2009).

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In assessing the nexus between bank ownership and bank performance across 119 countries Yañez et al. (2004) study picks a strong correlation between the two variables. Considering the study was within the context of a developing nation the findings showed no correlation with what happens in industrialized nations, the findings further suggest a higher cost being incurred by state-owned banks in developing nations which lowers their profitability compared to private and foreign-owned banks. Moreover, they find the entry of foreign banks in developing nations plays a role in improving the efficiency among domestic banks.

2.3.4. Funding Sources, Competitiveness, Size and Firm Performance

There is a school of thought that believes that both internal and external business environments are the main drivers as far as firm performance is concerned. If well monitored, the firm stands a chance to have sustainable and stable profitability which ensures that these entities remain operational. Motivated by these assertions Kamande et al. (2019) commissioned a study in the banking sector that sought to evaluate the nexus between financial performance and a firm's specific factors, they utilized five years of data (2011-2015) gathered from audited financial reports of 11 commercial banks. The authors used ROA as a measure of performance while bank-specific factor was operationalized by the use of the firm's liquidity, earnings, and how efficiently they operate in addition to both the quality of the asset and capital adequacy. Based on the five listed indicators for bank-specific factors, the study's specific objective was also five and attempted to find out how each of them influences performance. In answering these objectives, the authors employed an explanatory research approach to the collected panel

data, and ROA was found to be significantly positively influenced by the bank's asset quality. Moreover, findings further suggest that bank performance is positively influenced by Support from management and the financial resources it controls. This study, however, fails to state the joint effect of bank size on the entire relationship of the variable. Also notable is how the authors deliberately decided to use ROA as a performance measure and at the same time incorporate the five bank-specific factors on the other side, a keen look at the five indicates that they are indeed CAMEL indicators which are generally used as performance measure as opposed to bank's specific factor.

In realization of the important role that a bank's capital structure (considered unique) plays in informing its general performance and how production is funded using demandable debt in the payment system of an economy, Hughes and Mester (2017) empirical review made an effort in explaining how the bank's comparative advantage can be enhanced to realize these goals, in addition, the function of the size of the bank in directing the performance has been clarified. The two scholars acknowledge the existence of incentives within the banking sector that reduce risk and help banks navigate financial distress moments. This notwithstanding, the existence of other unique incentives when the size of the bank is taken into consideration was also acknowledged by the distinguished scholar, they observed contrasting incentives, that is, "Measuring the performance of banks and its relationship to size requires untangling cost and profit from decisions about risk versus expected return because both cost and profit are functions of endogenous risk-taking". Hughes and Mester (2017) further posit that Banks tend to have an incentive advantage compared to other intermediaries as a result of using a liability that has a demandable debt feature. Considering that banks usually have a high debt level

as one of the components of funding, Bank managers are naturally programmed to be diligent in coming up with a plan likely to increase the insolvency risk. Moreover, safety concerns and performance pressure in banks are heightened by the fact that insurance cannot fully cover the risk associated with the demandable debt component in the funding. An information advantage also arises from the fact that banks can lend their money to those sectors that are informally barred from borrowing in both the equity market and public debt.

Comparatively, the capital market in Africa is still developing, and as such only a few banks can manage to raise funds through them, but at the same time, scholars tend to agree on the fact that the bank's intermediation role is that which an economy cannot function without. Balancing between the funding approach and where to invest the obtained fund triggered Alu et al. (2014) to carry out an empirical investigation among Ghanaian banks using a panel dataset of 22 banks collected between the period 2005 to 2011. The authors' main objective was to establish the nexus between funding strategy on the lending patterns of banks. In the study, banks were found to have three unique lending patterns in either tertiary or secondary Primary economic sectors by either using internally generated funds or wholesale funding or deposits. From the study findings, it was suggested that the use of wholesale funding has gained preference compared to internally generated funds and customer deposits. They further prove that the primary and secondary sectors of the economy are mainly financed by the bank's internally generated funds. The study however failed to acknowledge the role of performance in the nexus and neither did it mention the role of competitiveness.

In many economies around the world, it is almost a common phenomenon to find a foreign bank operating alongside local banks, this comes with its fair share of merits and demerits. Rank higher among the merits is their ability to stimulate economic growth and sharing of risk, on the flip side, the presence of these banks has always been blamed on capital flight (Hajer & Anis, 2018). In line with the above observations, Chen et al. (2019) presented a study whose main objective was to assess how the risk-taking behavior of banks is affected by the entry of a foreign bank and bank competition. The authors used the Two-stage Least Squares model and the pooled regression model on the banking sector from 95 countries collected between the period 2000 to 2016. The study documents a decrease in risk-taking behavior occasioned by the entry of a foreign bank and a U-shaped association with financial stability, their findings further acknowledge a positive association between financial fragility with both the entry of foreign banks and competition among banks. Moreover, the study further suggests that a bank that successfully acquires funds used for loan advancement to different sectors of the economy is more likely to have an SCA over the others. Curiously noted from this subsection is the fact that the studies so far highlighted fails to bring out the intervening role of competition in the relationship between funding sources and performance in a developing economy.

2.4 Summary of the Previous Studies and Knowledge Gaps

The findings of the literature review examining the association of funding sources, bank competitiveness, bank size, and Bank performance have been in one way or another contradictory. Most of the studies have been done in isolation and not enough attention

has been paid to the inter-relationship among the variables and their counterfactual effects. Different contextual and methodologies have also been used by different scholars. The review has identified conceptual, methodological, and contextual research gaps. Table 2.1 summarizes selected studies that have been reviewed and highlights the knowledge gaps in these studies

Table 2. 1: Summary of Knowledge Gaps from Literature Review

Author and year of study	Main focus	Methodology	Findings	Knowledge gaps identified by the researcher	How to address the Knowledge gaps
Yañez et al. (2004)	Assessment of the relationship between bank ownership and bank performance	Cross-sectional regression analysis using data from Bankscope for 119 countries for the period 1995-2002	A strong correlation between the two variables of the study in developing nations and no correlation in industrialized nations. The high cost of operations of state-owned banks lowers profitability	The study fails to take into account the funding strategies used by banks	This study incorporated unique ways through which banks fund their operations and how it affects the overall performance, that is customers' deposit and shareholders' equity was found to be the better option.
Demirgüç-Kunt and Huizinga (2010)	How short-term funding strategies and activities of banks affect performance in the banking sector	Cross-sectional correlation analysis of non-deposit funding shares and fee income with return and bank risk using a sample of 1334	The use of deposit funding and interest income improves bank performance while the use of non-interest income and wholesale	Only sampled listed banks across 101 countries, hence giving a more generalized result ignoring specific country characteristics and	The study will take the specific country scenario and use the CAMEL model to measure performance to widen the scope of analysis and

		banks across 101 countries from 1995 to 2007	funding. result in an increase in bank risk with no significant impact on performance due to concerns about endogeneity	unlisted banks. The use of the Z-score in measuring performance provides a limited scope	depth will be enhanced by focusing on a specific country
Shollapur and Baligatti (2010)	Benefits vis a viz funds Management in Banks	Cross-sectional regression analysis using annual report data from 12 India's public sector banks from 1999- 2000 to 2006-2007	Customers' deposits are cheap when used for funding thus improving performance. Find management policies assist in Improved profitability and efficiency among banks are possible when	The study is done in the Indian context and does not incorporate the use of both bank competitiveness and bank characteristics as intervening and moderating variables respectively	This study addressed the Kenyan scenario which is considered a developing economy compared to India
Uddin and Suzuki (2014)	How competition in the banking sector affects performance	Data envelopment analysis employed on data from Bangladesh banking sector from	A negative association between competition and bank performance as a result of excessive	The study recommends government intervention in the era of liberalization	This study addressed the Kenyan scenario which is considered a developing economy compared to

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		1983 to 2011 and individual bank data from 2001 to 2011	competition on deposits by banks		India and incorporated other funding sources
Raude et al. (2015)	An investigation on how equity financing and performance contribute to SME's failure	Descriptive Survey Research Design SMEs in Kakamega county observation made at different periods, between 2009-2013	A positive correlation between Equity financing and financial performance of SMEs in Kakamega in	The scope of the study was narrow as it only considered SMEs in Kakamega County and equity funding	This study focused on the happening in the banking industry with a bigger sample of all banks operating in Kenya
Jin et al. (2017)	Implications of funding strategies on the Quality of Earning in US Private and public banks	Time-series and cross-sectional regression analysis of Data for 12083 individual sampled banks obtained from the call reports of the Federal Reserve Bank of Chicago for the Period 1993-2012 which cumulatively adds to 146,343 bank-year	wholesale funding inversely influences the quality of earnings in a bank Retail customers' deposits directly influence the bank's earnings quality Banks with high CDL	The study has not taken into account the effect of both bank competitiveness and bank characteristics as the intervening and moderating variables respectively	This study brought on board both bank competitiveness and bank characteristics as the intervening and moderating variables.

		observations.	tend to have reduced chances of meeting earnings benchmarks and are more exposed to lower deterioration on the risk of their assets		
Mutende et al. (2017)	How firm characteristic moderates the relationship between financial performance and free cash flow of firms	Regression analysis on panel data from all firms listed at the Nairobi Securities Exchange (NSE) between the period 2006 to 2015	Free cash flow tends to have a unidirectional impact on financial performance. However, with the introduction of firm size as a moderating variable, the relationship changes to a negative	The study fails to acknowledge the role of funding sources in the relationship and only focuses on listed firms despite the majority of banks not being listed.	A focused approach on funding sources adopted by all banks in the market and broadening the scope to the performance
Hughes and Mester (2017)	explaining how the bank's comparative advantage can be enhanced to realize better performance and the function of the size of the bank in directing the	Regression analysis on panel data from all firms listed at the Nairobi Securities Exchange (NSE) between the period 2006 to 2015	Acknowledging the existence of incentives within the banking sector that reduce risk and help banks navigate financial distress moments	Considering that banks usually have a high debt level as one of the components of funding, Bank managers are naturally programmed to be diligent in coming up with a plan likely to	A focused approach on funding sources adopted by all banks in the market broadens the scope of the performance and incorporates size as a moderating variable

			increase the insolvency risk and this was not captured by the study	
Musau et al. (2018)	An empirical analysis of how the firm's trade-off and synergies impact performance	With the aid of descriptive, experimental research design, the data was collected for the period between 2007 to 2015 from audited annual financial statements of 43 commercial banks operating in Kenya	The gross domestic product (GNP) moderates the relationship between bank stability and financial inclusion, that is, an increase in GDP, and promotes financial inclusion and stability. Bank competitiveness was partially found to intervene in the same relationship.	the study failed to take into account funding sources as one of the key influencers	This study took into account all the funding sources available for banks in addition to incorporating the effect of bank size as a moderating variable
Antoun et al. (2018)	The focus was on how the performance among banks is influenced by macroeconomic determinants, industry-specific factors and firm-specific factors.	Unbalanced panel data of 128 banking institutions gathered from the years 2009 to 2014 was analyzed.	The association between firm characteristics measured using size and performance using the CAMEL rating model showed a negative association, however, the direction of the relationship changes if economic growth and bank concentration are	The study excluded the role of funding sources in the relationship and considered only banks in both East and Central Europe which are considered mature economies. The findings may not be relied on to generalize about a developing economy	The study looked at the local context and used more recent data. Moreover, This study brought on board both bank competitiveness and bank characteristics as the intervening and moderating variables

			factored in as the moderating variables	like the one in Kenya.	
Kamande et al. (2019)	Bank-Specific Factors and Financial Performance of Commercial Banks Operating in Kenya	Data from 11 listed banks at NSE for the Period 1993-2012 2011-2015	A positive relationship between bank-specific factors and performance of commercial banks.	The study has a narrow scope of only 11 listed banks out of the 43 registered commercial banks	This study incorporated the ways through which banks fund their operations and how it affects overall performance in addition to using data from all the banks operating in Kenya
Chen et al. (2019)	how the risk-taking behavior of banks is affected by the entry of a foreign bank and bank competition	used the Two-stage Least Squares model and the pooled regression model on the banking sector from 95 countries collected between the period 2000 to 2016.	The study documents a decrease in risk-taking behavior occasioned by the entry of a foreign bank and a U-shaped association with financial stability, their findings further acknowledges a positive association between financial fragility with both the entry of foreign bank and competition among banks	the study further suggests that a bank that successfully acquires funds used for loan advancement to different sectors of the economy is more likely to have an SCA over the others but fails to acknowledge other funding sources	This study incorporated the ways through which banks fund their operations and how it affects overall performance in addition to using data from all the banks operating in Kenya

Kirimi et al. (2022).	An investigation on the nexus between funding provided by the shareholders of various commercial banks based on the ownership structure and the financial performance of the banks.	The study relied on unbalanced panel data obtained from audited financial statements of 39 commercial banks in Kenya between the period 2009-2020	The study's findings point to a direct association between performance and structure ownership, in particular, the authors noted a contrary outcome when it comes to those banks in which the state has a controlling stake, as they tend to exhibit negative performance regardless of the level of equity pumped in them.	The study is narrow since it only takes into account the aspect of financial performance as depicted by the measures used which are ROE, ROA, earnings per share (EPS), and the net interest margin (NIM)	These views are contrary to the findings of this study as ownership stake was found to play a major role in influencing the performance regardless of the structure as no bank can operate without an equity funding component. Performance was measured using CAMELS

Source: Author (2023)

2.5 Conceptual Framework

This study assessed the nature of the relationship between a bank's funding sources and performance and further assessed the intervening and moderating effect of bank competitiveness and bank size respectively on the relationship as depicted in Figure 2.1. This study used the proportion of all the available funding sources categorized as Deposits due from other banks, deposits from customers and total equity as the independent variable (IV) which was used in assessing whether a bank relies on any of them for funding and focusing on how they influence performance.

The CAMELS rating model was used in measuring the performance of a bank which is the dependent variable (DV), it was computed as the composite vector for the six key performance indicators which include capital adequacy status, the quality of the asset, the capability of management, earnings strength of the firm, liquidity status and sensitivity status. The capital adequacy status specifically deals with factors that reflect the bank's financial soundness to absorb unexpected losses and avoid insolvency. Bank asset quality is composed of current assets, permanent assets, credit portfolio, and various investments among others, in practice the quality of loans that the bank gives out determines the quality of the assets that the bank holds on its balance sheet. The Management's efficiency demonstrates the ability of the management to attract deposits capable of giving out quality loans with a lower probability of defaults which can result in losses. Earning quality on the other hand is the efficiency of a bank in controlling costs and making profits while liquidity as the fifth indicator refers to the bank's ability to honor its

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short-term financial obligations, it is normally explained by the composition of bank assets and clarifies income sources and measures the liquid assets held in loans

The market share index approach adopted in this study was the intervening variable. It was calculated as a ratio of each bank's sales and banking industry sales during the year under consideration, which was the measure of Bank competitiveness. Similar studies have made use of the size of the bank as the measure for the bank characteristic which is the moderating variable and was measured as the natural logarithm of each bank's total asset in each year. Owing to the difficulties experienced during data collection, the study ended up adopting the use of already available market share index figures as provided by the CBK regulator.
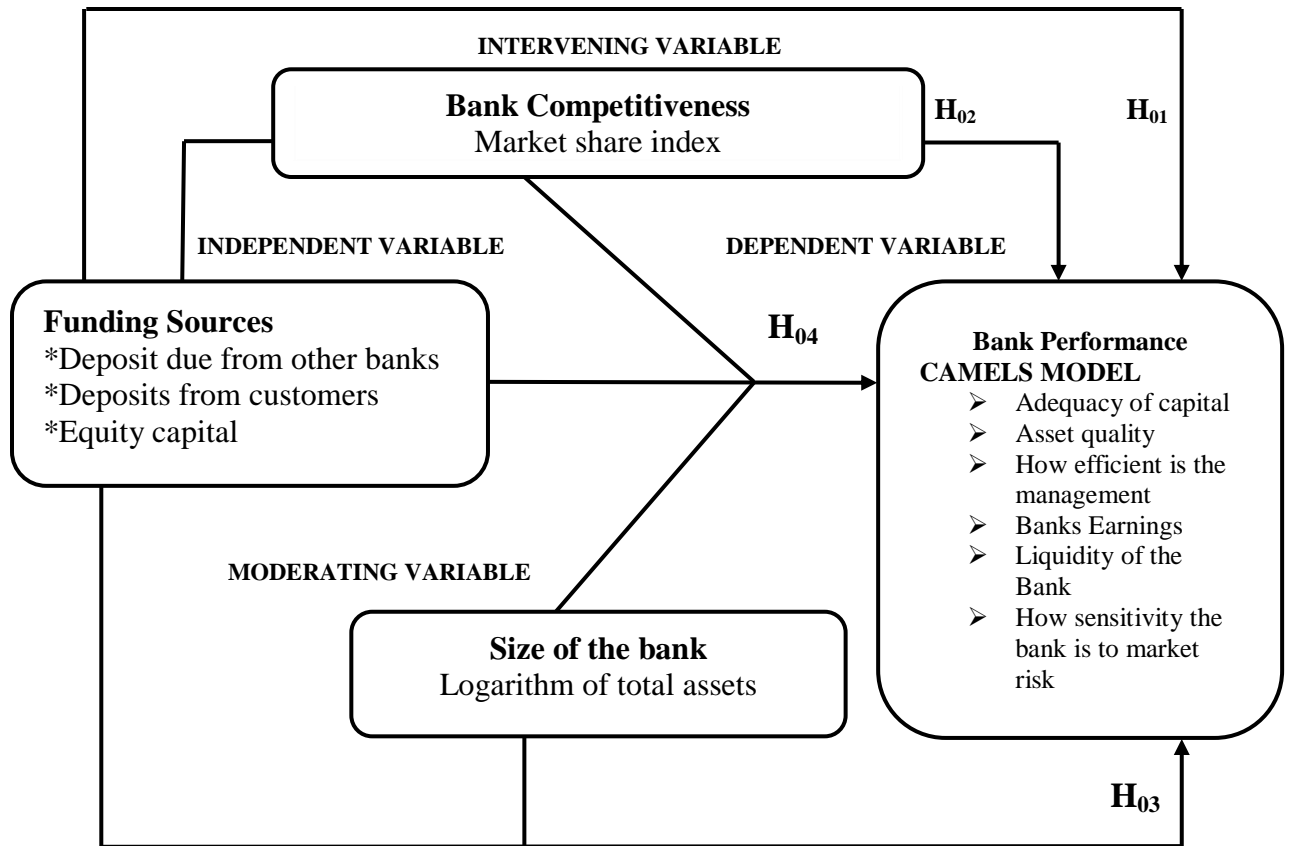
Figure 2. 1: Conceptual Model

Source: Author (2023)

2.6 Research Hypotheses

From the above conceptual model, the following null hypotheses have been formulated and tested:

H_{01}:   Funding sources do not have an effect on the performance of the commercial banks in Kenya

H_{02}:   Bank's competitiveness does not intervene in the relationship between funding sources and the performance of the commercial banks in Kenya.

H$_{03}$:   The size of a bank does not moderate the relationship between funding sources and the performance of commercial banks in Kenya.

H$_{04}$:   Funding sources, Bank competitiveness, and Bank size do not jointly have an effect on the performance of commercial banks in Kenya

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Discussed in this chapter is the research methodology that was used to achieve the research objectives. The chapter is organized as follows; the research philosophy, then the research design, the target population and the sampling procedure, which is then followed by how the data was collected and sampled. The next section incorporates the various diagnostic testing methods, operationalization of variables and how the analysis was done.

3.2 Research Philosophy

The research philosophy aids in promoting knowledge development and highlights the views of the researcher about the world (Saunders et al., 2009). The study tested several quantitative hypotheses as highlighted in the previous chapter and adopted a positivist research philosophy because it allows for the search for truth "out there" on realism grounding and facilitates the discovery of new knowledge using scientific methods based on real facts as presented in the data obtained from audited financial statements which are considered neutral and were objectively measured and analyzed (Blumberg et al., 2005).

The appropriateness of the chosen philosophy was justified by the fact that the philosophy assists in the verification and quantification of the universal scientific prepositions defined by beliefs and constructs by objectively and quantitatively

measuring large samples of data to empirically test their properties with a view of establishing whether the relationship between the study's variables can be predicted through scientific analysis (Blumberg et al., 2005). This study did seek to reveal an unbiased truth that was conveyed mathematically, the positivist approach bridged this gap as it facilitated the collection, analysis and presentation of quantitative data using a quantitative approach that aids the testing of assumptions to establish any hidden rules of cause and effect (Saunders et al., 2009).

3.3 Research Design

The researcher was guided by a research design which is essentially a blueprint that contains the research objectives, data source, constraints to be expected and ethics that aided in guiding the process. A researcher can choose to use one of the three available research designs, which can either be descriptive, exploratory, or causal (Saunders et al., 2009). Descriptive research design describes a population based on variables considered important, while exploratory design attempts to explain how current observation fits in existing theories and causal design establishes the reasons for the existence of various relationships. Descriptive research design is further divided into three main methods, these are, correlation, survey and developmental. The use of correlation is relevant when there is a need to assess variable relationships while the status quo is described by survey and developmental descriptive research design is relevant if there is a need to determine how changes in variables occur over a period (Sekaran & Bougie, 2016)

This study adopted a descriptive research design taking the approach of correlation research since the study's objective called for the need to assess the relationships between

key variables of the study. The data collected was for 11 years period on similar variables and this justified the use of longitudinal panel data. The design was preferred as the nature of the data chosen requires a repeated observation of similar variables to establish the nature of the relationships over a long period. Moreover, there was a need to describe the relationship between variables as they exist in their natural setting. The design further assisted the researcher in comprehending the character of the variables of the study by describing relevant information needed for analysis

3.4 Population and Sampling

A population is a complete set of objects with common observable features (Sekaran & Bougie, 2016). In this study, 42 commercial banks registered by CBK as of January 2021 were targeted and since this number was fairly manageable, there was no need for sampling. However, upon sorting and cleaning the collected data, 35 commercial banks were found to have had complete data as they have been in constant business during the period under review representing 83.33% of the earlier projected population size. Data that were not used were either from those banks that were under statutory management receivership or were deregistered commercial or registered after 2011. Following Kithinji et al. (2017) who only considered data for the commercial banks that had been in constant business over a period, the use of 35 commercial banks for the final analysis was justified. Concerning the period of study, an initial target of ten years of time series panel data set running from the year 2011 to 2020 had been proposed, but since data for the year 2021 was already available at the time of data collection, it was included thereby making the study to end up with an eleven years time series panel data set. A panel data

set of eleven years for time-series data is considered substantive enough for a meaningful analysis as depicted by many scholars who have adopted a minimum of five years for time-series data (Jin et al., 2017; Mdoe, 2017; Mdoe et al., 2018; Raude et al., 2015).

3.5 Data Collection

Secondary data collected from banks' annual financial reports released by the banks and banking sector supervision reports that are released on an annual or quarterly basis by the CBK was used in the study. Informed by the need for the researcher to collect information that is divergent in practice while at the same time taking into account the financial variables over a certain time horizon, secondary data was thus considered appropriate as most of what is contained in those reports was either audited or provided by a reputable regulator and chances of getting unreliable information was almost next to nill (Thiyagarajan & Arulraj, 2012). A uniform data collection form (shown in Appendix One) containing 11 years (2011-2021) was used in gathering the data. Data that were not included for purposes of this study were for banks that were completely missing data from both Annual supervisory reports as provided by the CBK as a result of either being under statutory management or having been deregistered

Much of the banking reforms were initiated from the year 2010, more so after the promulgation of the 2010 constitution which gave the regulator more independence hence the ability to strictly enforce the various regulatory requirements like the enforcement of the minimum capital requirement level to be maintained by all banks, most banks had also started recovering the effect of the 2007/2008 post-election violence and the effect of the GFC. With a vibrant parliament, some major laws like the interest capping law of

2016 came into effect, the same was however amended in the year 2019. Also, in this period, a tight regulatory approach was adopted by the CBK and several banks were put under receivership and others even closed. With the aforementioned, the period selected provided a comprehensive outlook on the Kenyan banking sector.

The independent variable (IV) in this study was the funding source, data collected included deposits due from other banks, deposits from customers, and equity capital. This data enabled the researcher to establish the extent to which a bank manager relies on either retail or wholesale funding or paid-up capital. Data related to deposits due to other banks were operationalized by taking items on the liability side of a bridged financial statement data which specifically summed up items related to balances due to the CBK, liability deposit balances due to local banking institutions, liability deposits, and balances due to banking institutions abroad and liability balances due to banking institutions in the group. For deposits due to customers and equity share capital, their raw figures were collected and populated in the Excel data sheet.

The bank performance which is the DV was measured using the CAMELS rating model which is the composite rank for the six indicators making it up. The approach taken in computing each rank was in line with the approach used in Abusharbeh (2020) study. Bank Competitiveness is the intervening variable that was collected using the CBK-provided measure of each bank's computed market share index, this information was available in all 11 years of annual supervisory reports that were reviewed. Data for the moderating variable for the study was bank size, information on each bank's total assets was obtained for this purpose.

3.6 Diagnostic Testing

For a researcher to uphold or decline the assumption of Ordinary Least Square (OLS) panel regression using pre-estimation procedures, a diagnostic test must be done as it assists in this decision criterion (Njagi, 2017), the test further assists in ascertaining whether the collected secondary data are suitable for use in running the various regression models. In this study, six diagnostic tests were done, these are multicollinearity test, heteroscedasticity test, normality test, linearity test, model specification test, stationarity test and serial correlation. Each of these tests possesses unique matrices, assumptions, decision criteria and treatment in the event the test fails as discussed below. Table 3.1 provides a summary of all the diagnostic tests that were done, the decision criteria and possible cure in the event the desired outcome was not obtained.

3.6.1 Multicollinearity Test

When secondary data are used a researcher may have a hard time fitting and interpreting the regression model if two or more explanatory variables are highly correlated due to multicollinearity. This situation arises when one or more of the explanatory variables is capable of being expressed as a combination of the other thereby creating a weakness in the model due to the inherent risk of it failing to provide the much-needed unique information. Moreover, where multicollinearity exists, the researcher also runs the risk of ending up with both insignificant and wrong signs in the regression models, hence, wrong conclusions as the results of such are highly sensitive to any small changes in the data set, which is occasioned by the existence of a high standard error in their regressions output

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this usually results in low t-statistics which in return results in a high p-value (Mohamed & Elsayed, 2021)

With the help of the Variance inflation factor (VIF) test, it is possible to detect the anomaly created by multicollinearity before the regressions are run. VIF metric measures the strength and the decision criteria, in the event, that an unaccepted level of multicollinearity is detected, that is a mean VIF of above 10, the researcher can adopt a curative measure on the data set by either dropping the variable set with high VIF or performing model transformation using logarithmic values, alternatively, the acquisition of a new data sample can be done or doing a principal component analysis. The treatment so adopted will depend on the prevailing circumstances that a researcher is in. Moreover, a VIF result of below 3 indicates the absence of multicollinearity, while a result of between 3 to 10 indicates the possibility of multicollinearity. In both cases, however, the need to perform any of the curative procedures suggested above is eliminated (Mohamed & Elsayed, 2021)

VIF mean was found to be 13.51 as shown in Table 4.2 which is above the acceptable range, this was cured by the researcher applying a treatment remedy considered best suitable under the prevailing circumstances. Under consideration was the dropping of the variable with the highest centered VIF which in this case was shareholders' equity which had a VIF of 28.79934, this could not however be done since it touches on one of the major funding sources in the banking sector and it is rare to find a bank operating without the contribution from shareholders as it represents owners interest. Consideration was then made to transform the said variable only into logarithmic form an approach that has

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been undertaken by several scholars (Akinwande et al., 2015) and the result of the new VIF was found to be within the acceptable range with a mean value of 6.910907 as shown in Table 4.3

3.6.2 Heteroscedasticity Test

Sometimes a researcher may fail to reject a false hypothesis based on the coefficient output generated out of an analysis and in the process commits a type ii error due to the inflation of standard errors which occurs when a data set is considered heteroscedastic. from the data set, it was possible to monitor both variance and standard deviation of all the predictor variables over time and it was established that they were nonconstant. The implication of this is that the predictor variables data sets if visualized in a graph will tend to be scattered all over thus resulting in them being declared to be heteroscedastic. Moreover, if a regression line is drawn from the data set, one should be in a position to visualize the distribution to fun out over time around the estimated regression line, the ideal situation which is rarely found however should be such that a distribution variance of the errors should always be constant thereby depicting a perfect normalcy situation otherwise referred to as data set being homoscedastic (Van Zyl, 2011).

The result of this study points to the absence of heteroscedasticity in the dataset hence the corresponding results of the various coefficient estimates were found to be unbiased and more precise hence the likelihood of these estimates being slightly the same as the correct values as exists in the actual population is a possibility. To help the reader visualize the presence of heteroscedasticity in the model without plotting the entire data set in a graph, the researcher used the Breusch Pagan Godfrey Test (Likelihood Ratio Test) whose

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decision criteria are such that heteroscedasticity exists if the p-value of the result is less than 0.05 and absent if the p-value is greater than 0.05. The presence of heteroscedasticity in the model can be removed by employing either the use of weighted least squares or the heteroscedasticity autocorrelation consistent (HAC) test (Van Zyl, 2011).

3.6.3 Normality Test

The data to be used in providing sound statistical output while doing proper hypothesis testing demands them to be statistically normally distributed, that is, the respective frequency distribution of the data set should assume a bell curve if plotted in a graph. To establish the presence or absence of normality in the data set, scholars can either use graphical or analytical models (Tsagris & Pandis, 2021). The use of histogram plots and quantile-quantile plots are the two major graphical methods available for use in visualizing normality through a graphical lens. On the other hand, the Jarque-Bera Test, the Shapiro-Wilk Test, the Anderson-Darling Test, and the Kolmogorov-Smirnov Test are considered the best-known tests that can be analytically done. The choice of which of these tests to adopt depends on the sample size, in that, for a sample below 50 Shapiro-Wilk test is more preferred while in a larger sample, Kolmogorov-Smirnov Test takes precedence (Mishra et al., 2019; Tsagris & Pandis, 2021).

In all these four tests, testing is done on the basis that the various frequencies distribution of the data is normally distributed and a decision of either to reject or accept the null hypothesis depends on whether the p-value is greater or less than 0.05, a p-value lower than this threshold is considered a significant deviation and such a distribution is assumed

to be non-normal and while a value greater than the threshold is assumed to be normally distributed. Establishing normality using the graphical method is becoming more popular since the p-value is known to reduce as the sample size increases even though the said sample comes from the same population (Mishra et al., 2019). A blend of the two nonetheless will be the most appropriate, on this basis a consideration was made to use the histogram normality test and Jarque-Bera Test in eviews whose output is a blend of both graphical and analytical as it gives a histogram plot and a p-value.

3.6.4 Model Specification Test

Estimation of individual regression coefficients can be done using either variance fixed effect or the random effect model. The decision on the most appropriate model that was used was made based on the results from the Hausman Test which gave yield to a p-value. In deciding on whether to reject or accept the formulated null hypothesis which was stated as "the random effect model is more appropriate" the alternative hypothesis was "the fixed effect model is more appropriate". A decision criterion was that the null hypothesis was to be rejected anytime the p-value was less than 0.05 and the fixed model became appropriate for use (Hausman, 1978; Holly, 1988).

3.6.5 Stationarity test

Regression estimations are only possible when the time series of the variables are stationary, that is, their statistical properties as defined by their mean, covariance, and variance are constant over time. Such a time series variable is usually characterized by the absence of a trend. A series with a unit root otherwise known as non-stationary is capable of producing a spurious regression estimate which is meaningless and the need to

inspect this in each of the five variables of this study was made possible through the use of the stationarity test called Levin-Lin-Chu's test (Hlouskova & Wagner, 2005).

The default null hypothesis for the test was that there is a unit root in the time series variable being tested and this was to be rejected if the p-value was below 0.05. the test was done and summary results of all the tests available were obtained first on the level and individual intercept. A cure as a result of the presence of a unit root after the first test triggered a second test which was to be done on the first and second difference was done till the p-value could fit into the researcher's expectation.

3.6.6 Serial Correlation

One of the problems of time series emanates from the fact that data collected over different times may have their residuals otherwise referred to as error terms being correlated with each other in these different periods. To avoid the possibility of ending up in a situation where there is an inefficiency of regression estimators, the error terms should not only be independent of each other but should also be random, and this is only possible if there is an absence of serial correlation in the dataset (Savin & White, 1977; Tang & MacNeill, 1993). Scholars have cited some of the reasons why these error terms may end up being serially correlated, and they include but are not limited to, the omission of variables considered key during data collection or a culture where the researcher ends up making errors during the measurement of certain variables, or the misspecification of the function by the researcher (Tang & MacNeill, 1993)

The possibility that any of the factors that have been identified as the possible cause of serial correlation problems may have been present during the data collection stage cannot

be overlooked since all those factors were beyond the researcher's control before, during and after the data collection period. The Durbin-Watson statistic (DW) results whose results range from 0 to 4 were used to check the presence or absence of serial correlation. The thumb rule for interpreting the result stated that "if DW is 2, then there is no serial correlation while less than 2 depicts the presence of a positive serial correlation while greater than 2 indicates the existence of a negative serial correlation in the data set" (Maxwell & David, 1995).

In the event a serial correlation is established, its severity is measured using the Breusch-Godfrey Serial Correlation LM Test by having a null hypothesis which states that there is no serial autocorrelation and this assertion is accepted if the p-value>0.05. The presence of serial correlation can be corrected by either adding other relevant variables (s) or performing the heteroscedasticity autocorrelation consistent (HAC) test which generates new regression results free from serial correlation if the researcher does not intend to add any other variable to the model (West, 2010). The latter was preferred since the study had already taken into account all five explanatory variables and there was no other that could be added.

Table 3. 1: Diagnostic Testing

Diagnostic Test	Test to be conducted	Criteria for decision	Treatment
Multicollinearity Test	Variance Inflation Factor (VIF)	VIF > 10, High multicollinearity: possible treatment is recommended $3 \leq VIF \leq 10$: There is a possibility of multicollinearity however treatment is not necessary $VIF \leq 3$, absence of multicollinearity	Variable transformation if high multicollinearity is detected
Heteroscedasticity Test	Likelihood Ratio Test	$p \leq 0.05$ model is Heteroscedastic: cure recommended $p \geq 0.05$, Absence of Heteroscedasticity in the : No treatment is required	Need to redefine the variables if present or Performing a HAC test
Normality Test	Jarque-Bera Test	If a p-value is equal to or less than 0.05 it results in the rejection of the assertion	natural logarithms are used to normalize if not normally distributed
Model Specification Test	Hausman test	If the P-value is less than 0.05: use a fixed model P-value>0.05 random effect	Use a random effect model if the fixed effect model is not appropriate.
Stationarity test	Levin-Lin-Chu's test	$p \leq 0.05$ presence of stationarity	If present, do another Levin-Lin-Chu's Test at First difference and Individual Intercept
Serial Correlation	Durbin-Watson statistics Test Breusch-Godfrey Serial Correlation LM Test	$DW < 2$: Positive serial correlation $DW = 2$: Absense of serial correlation $DW > 2$: negative serial correlation p-value of less than 0.05 of the LM test indicates the presence of a serial correlation.	Performing a HAC test to get a new regression estimate free from serial correlation error

Source: Author, (2023)

3.7 Operationalization of the Study Variables

To understand the construct of a research study, the variables need to be explicitly specified in a way that makes their measurements possible through operationalization (Sekaran & Bougie, 2016). The studies that have been reviewed provide the ground that was used in measuring the four variables of this study. The independent variable (IV) in this study was the funding source which was measured using deposits due from other banks, deposits from customers, and equity capital. The measure that was used to measure the extent to which a bank manager relies on either retail or wholesale funding or paid-up capital. Data related to deposits due to other banks were operationalized by taking items on the liability side of a bridged financial statement data which specifically summed up items related to balances due to the CBK, liability deposit balances due to local banking institutions, liability deposits, and balances due to banking institutions abroad and liability balances due to banking institutions in the group. For deposits due to customers and equity share capital, their raw figures were collected and populated in the Excel data sheet.

The bank performance which is the DV was measured using the CAMELS rating model which is the composite rank for the six indicators making it up. The approach taken in computing each rank was in line with the approach used in Abusharbeh (2020) study. In computing the rank for adequacy of capital which represents the "C" component of the model, a ratio of each bank's capital to their risk-weighted asset was computed. The asset quality represented by "A" in the model was operationalized by computing the ratio of gross non-performing loans to gross loans and advances. Management efficiency

represented by "M" in the model was operationalized by computing the ratio of operating expenses to operating income while the earnings ability which is represented by "E" in the model was operationalized using two rations whose composite value was used to come up with a single rank for "E". ROA and ROE figure obtained from the various annual supervisory reports were extracted and their average computed. Each bank's liquidity position and its sensitivity to market risk were represented by "L" and "S" respectively in the model. L was computed as a ratio of cash on hand and cash in other banks to total assets. The figures used to represent cash in hand and cash at the bank were arrived at after adding up the following items found on the asset side of the financial statement local and foreign cash deposits by the bank, deposits by the CBK in local banks, and balances due from local banking Institutions, deposits, and balances due from banking institutions abroad in addition plus tax recoverable and balances due from banking institutions in the Group. Finally, S was operationalized as a ratio of total securities to total assets. The respective ranking for all six parameters and the final composite rank was based on the parameters set in Table 3.2

Bank Competitiveness is the intervening variable that was measured using the CBK computed market share index, this information was available in all 11 years of annual supervisory reports that were reviewed. The competitiveness of each bank was operationalized by computing the composite value using net assets for each bank, their number of deposit accounts, and the respective total deposits they hold in addition to the number of loan accounts. A review of the various CBK's supervisory reports revealed that the figure provided for the composite market share index was arrived at by taking the average of the market share of each bank based on their market share for net assets,

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market share based on the strength of for deposits from customers and market share-based capital. Also included were the market share-based number of deposit accounts and the market share-based number of loan accounts. The size of the bank used as the moderating variable was operationalized by computing the respective log values of total assets. Table 3.3 provides a summary of how specific measures will be operationalized.

Table 3. 2 CAMELS Rating Classification Parameters.

CAMELS INDICATORS	Composite Rankings				
	1	**2**	**3**	**4**	**5**
C	$C > 0.13$	$0.12 \leq C \leq 0.1299$	$0.08 \leq C \leq 0.1199$	$0.06 \leq C \leq 0.0799$	$C < 0.0599$
A	$A < 0.015$	$0.015 \leq A \leq 0.025$	$0.026 \leq A \leq 0.035$	$0.036 \leq C \leq 0.055$	$A > 0.056$
M	$M < 0.60$	$0.60 \leq M \leq 0.749$	$0.75 \leq M \leq 0.899$	$0.9 \leq M \leq 0.999$	$M > 1$
E	$E > 0.01$	$0.006 \leq E \leq 0.0099$	$0.005 \leq E \leq 0.00599$	$0.003 \leq E \leq 0.00499$	$E < 0.0029$
L	$L > 0.50$	$0.40 \leq L \leq 0.499$	$0.30 \leq L \leq 0.399$	$0.2 \leq L \leq 0.299$	$L < 0.199$
S	$S > 0.80$	$0.71 \leq S \leq 0.80$	$0.65 \leq S \leq 0.70$	$0.60 \leq S \leq 0.64$	$S < 0.60$

Source: (Abusharbeh, 2020; Masood et al., 2016)

Table 3. 3: Operationalization of Study Variables

Type of variable	Variables	What the variable seeks to Measure	Measurement	Supporting Sources
Independent Variable Funding source	Deposits due from other banks	This measure represents the component of funding that comes from what is considered a loan to banks. This component is usually attached to some form of interest and indicates the extent of wholesale funding to commercial banks	Balances due to CBK + Deposit from local banking institutions + Deposit from foreign banks + Balances from banking institutions in the group	Thiyagarajan and Arulraj (2012)
	Deposits from customers	The measure that will be used to measure the extent to which a bank manager relies on either retail or wholesale funding or paid-up capital.	Raw figures as shown on the statement of financial position-liability side	Demirgüç-Kunt and Huizinga (2010)
	Equity capital	The measure that will be used to measure the extent to which a bank manager relies on funding provided by shareholders through fully paid-up capital.	Log values of the raw figures as they appear on the liability side of the balance sheet	Jin et al. (2017)

Source: Author, (2023)

Type of variable	Variables	What the variable seeks to Measure	Measurement	Supporting Sources
Dependent Variable Bank Performance (CAMELS MODEL)	Capital adequacy C	The measure used to assess the financial soundness of the bank A higher ratio is a representation of adequate capital	Bank capital/Risk-weighted assets	Abusharbeh (2020) (Antoun et al. (2018), Youssef and Samir (2015)
	Quality of asset A	This ratio is used to represent credit risk and the higher the value the lower the danger	The ratio of non-performing loans to total loans advanced	
	Quality of the Management M	The ability of the management to efficiently utilize the bank's resources by maximizing the output while reducing costs	Operating expenses/Operating income	
	Earnings (ROA) E$_1$	The efficiency of a bank controls costs and makes profits. Measures earning strength of the bank asset	Net income/total assets	
	Earnings (ROE) E$_2$	This ratio shows the rate of return from invested equity and the expectation of the bank shareholders The higher the ratios, the better the performance.	Net income/total equity	
	Liquidity L	Measures to what extent current liabilities can be covered by assets in the short run.	Cash on hand and cash in other banks/ Total assets	
	How sensitive the market risk is toward risk. S	Measures the extent to which bank assets are covered by secured investments.	$\dfrac{\text{Total securities}}{\text{Total assets}}$	

Source: Author, (2023)

Type of variable	Variables	What the variable seeks to Measure	Measurement	Supporting Sources
Intervening Variable Bank competitiveness	The weighted composite index of market share.	Determine how competitive each bank is compared to other banks and measure the market share of each bank in an industry in a given year computing the composite value using net assets for each bank, their number of deposit accounts, and the respective total deposits they hold in addition to the number of loan accounts.	Amount of each component as it appears in the CBK Bank's annual supervisory report	Fosu (2013) and Musau (2018) Various CBK annual supervisory reports that were reviewed
Moderating Bank characteristics	Bank Size	Determine the size of the bank based on the bank's total asset	Natural logarithm of each bank's total asset	Musau (2018) McDonald et al. (2020)

Source: Author (2023)

3.8 Data Analysis

A combination of inferential and descriptive statistics aided by panel data analysis was used in examining the extent to which bank performance is influenced by funding sources. Panel regression analysis aided in ascertaining the association among the independent, dependent, intervening and moderating variables. To establish the relationship among the variables, different statistics were derived and interpreted in line with the objectives of the study a summary of all these is presented in Table 3.4.

3.8.1 Effect of Funding Sources on the Performance of Commercial Banks

To assess the interrelations that exist between funding sources and the performance of registered commercial banks operating in Kenya as depicted by the first objective of the study. The null hypothesis that funding sources do not have an effect on the performance of the commercial banks in Kenya was tested using a fixed effect panel regression model which regressed CAMELS against the three funding sources. The data was run through the data analytic tool to generate the linear regression output for the following equation:

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}FS2 + \beta_{3a,in}FS3 + \varepsilon_{a,in}$$

Where:
$$\left.\begin{array}{l}FS1\\FS2\\FS3\end{array}\right\} \text{Funding sources}$$

FS: Deposit due to other banks, FS2: Deposit from Customers, FS3: Equity

P_{in}=Bank performance measured using CAMELS

$\beta_{0a,in}$Intercept, $\beta_{3a,in}, \beta_{2a,in}$ β_{1ain}=coefficients

ε_{ain} = error term, $_{in}$=From ith year to nth year

To operationalize these two key areas, funding sources were contextualized and measured using three indicators, which are, deposits that other banks have placed with the bank under consideration, deposits from customers other than banking institutions and the bank's shareholder equity (Jin et al., 2017). Performance, on the other hand, was measured using CAMELS rank which is a product of the composite value obtained after collecting certain specific data as discussed in sections 2.5 and 3.7 these were then used to come up with CAMELS rank following pre-established parameters (Abusharbeh, 2020; Masood et al., 2016). The results of this linear regression output are presented in Table 5.1

3.8.2 The Mediating Effect of the Bank's Competitiveness on the Relationship between Funding Sources and the Performance of Commercial Banks

To interrogate in depth the relationship between DV and IV, a third variable known as a mediator (intervener) was introduced in the model. The inclusion or omission of an intervener variable has an operational role of either speeding up or slowing down the nature of the association between the dependent and IVs as it provides the platform that is capable of influencing the relationships between the two, and in as much as the moderator variable establishes the time duration of when a certain effect holds, a mediator explains why and how they occur (Baron & Kenny, 1986).

To contextualize the effect of a mediator in this study, commercial banks' competitiveness was introduced as the intervening variable and was measured using the market share index. The second null hypothesis was then formulated to aid in answering whether bank competitiveness affects the relationship between funding sources and the

performance of commercial banks in Kenya. In seeking to answer the dilemma posed by the second objective of the study, the null hypothesis that the bank's competitiveness does not intervene in the relationship between funding sources and the performance of the commercial banks in Kenya was framed and tested using a fixed effect panel regression model

The decision criteria to find answers to the above null hypothesis followed Baron and Kenny (1986) four-step approach of comparing regressions in a certain predefined order and had to satisfy the four conditions in a stepwise regression approach before a variable was declared as either having an intervening effect or not. In declaring bank competitiveness as the intervening variable in this study, the study had to account for the existence of an association between independent and dependent variables which are represented by funding sources and commercial bank performance respectively and this was done as follows.

3.8.2.1 Data Analysis for the Mediating Effect: Step One

Step one involved testing the existence of the direct association between the independent and dependent variables and the absence of the identified mediator. This was actualized by running a regression using a fixed model approach which had CAMELS as a performance measure for the dependent variable and the three funding sources acting as the IVs. The same procedure highlighted in section 3.8.1 of this study was followed and the results of this linear regression output are presented in Table 5.1 forming the first line of the decision criteria.

3.8.2.2 Data Analysis for the Mediating Effect: Step Two

The second step in establishing the intervening effect entails obtaining a fixed model regression output by regressing the intervening variable which is measured using the market share index to represent competitiveness against the IVs representing funding sources. The result of this regression output as emphasized by Baron and Kenny (1986) must be significant.

For purposes of this analysis a linear regression equation that:

$$MS_{in} = \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}FS2 + \beta_{3a,in}FS3 + \varepsilon_{a,in}$$

Where:

MS_{in}=Market share index

was formulated and tested. The linear regression output results are presented in Table 5.3. where the relationship between funding sources and the competitiveness of the commercial banks in Kenya was examined.

3.8.2.3 Data Analysis for the Mediating Effect: Step Three

With results from steps 1 and 2 being statistically significant Baron and Kenny (1986) guidelines prescribe a third inspection procedure before intervention can be proved in a fixed model regression output of performance against bank competitiveness. For purposes of this analysis, another linear regression model that was found necessary to be formulated to aid the researcher in establishing with certainty how bank competitiveness influences the performance of commercial banks in Kenya was formulated and tested. The data was then run through an analytic tool to generate the linear regression output.

The linear regression output results are presented in Table 5.4 and fulfill the following model

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}MS + \varepsilon_{a,in}$$

Where:

P_{in}=Bank performance measured using CAMELS

MS: Market share (competitiveness)

$\beta_{0a,in}$Intercept,

β_{1ain}=coefficients

ε_{ain} = error term, $_{in}$ (from i[th] year to n[th] year)

3.8.2.4 Data Analysis for the Mediating Effect: Step Four

Baron and Kenny (1986) in their work provide a fourth and final step with the corresponding conditions that had to be fulfilled before concluding whether a given variable indeed provided an intervening effect on a relationship, in this study that variable was measuring commercial banks' competitiveness. Following the guideline, as presented by the distinguished scholars, a final regression where the supposed mediator variable is used to control the effect of the IV on the dependent variable was obtained, and this was done by introducing it (the mediator) as part of the explanatory variable in the relationship. For purposes of this analysis, the researcher came up with a linear regression equation that explains the nature of the relationship bank's funding sources and competitiveness which was then tested and the linear regression output results are presented in Table 5.5. Below is the linear regression equation that was formulated and inspected.

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}FS2 + \beta_{3a,in}FS3 + \beta_{4a,in}MS + \varepsilon_{a,in}$$

3.8.3 The Moderating Effect of the Bank's Size on the Relationship between Funding Sources and the Performance of Commercial Banks

The moderating effect of a Commercial bank's size on the main relationship between the three funding sources and the performance of these banks was the third objective. In seeking answers to this objective a null hypothesis that the size of a bank does not moderate the relationship between funding sources and the performance of commercial banks in Kenya, was formulated and tested. Following Baron and Kenny (1986), a three-step regression procedure was employed on the data.

The first procedure involved testing the main relationship, that is, how the three independent variables affect the performance of commercial banks. The procedure was performed and the results as earlier explained in section 3.8.1 of this chapter and results as presented in section 5.2 points out the presence of a significant association.

3.8.3.1 Data Analysis for Moderating Effect: Step Two

In the quest to ascertain the moderation status of bank size on the main relationship, a second procedure was undertaken as prescribed in Baron and Kenny (1986) work. In this study, the procedure involved evaluating whether commercial banks' performance was influenced by their size. A linear regression showing how performance is influenced by Bank size was formulated and the results are presented in Table 5.6. The linear regression output for the following equation:

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}BS + \varepsilon_{a,in}$$

Where:
BS: Bank size

3.8.3.2 Data Analysis for Moderating Effect: Step Three

With results from steps 1 and 2 being statistically significant Baron and Kenny (1986) guideline prescribed a third and final inspection procedure before moderation can be proved. In this study, the procedure was actualized by an investigation on whether bank size playing the role of a moderator has a significant influence on the effect of funding sources on the performance of commercial banks. Considering that funding sources were found to have a significant influence on commercial bank performance as discussed in section 5.2, the significance of the moderator (bank size) was tested in the context of each funding source by the log of total asset interaction, that is the combined effect of each funding source measure and bank size measure on performance with the aid of two-way interaction.

Each of the variables used in the interaction testing has specific roles, funding sources played the role of a focal predictor while log total assets played the role of a moderator. The interaction variables were then created in EVIEWS and three sets of fixed regression outputs were generated. To aid in the analysis, three linear regression equations were formulated for each of the interactions. The first among the three was to help in deciding whether Bank size acting as a moderator and measured using the log of total assets has a significant influence on the effect of deposits due from other banks (when used as a funding source) on the performance of commercial banks. The second linear regression equation was to aid in the decision on whether Bank size acting as a moderator and measured using the log of total assets has a significant influence on the effect of deposits from customers (when used as a funding source) on the performance of commercial banks. The last linear regression equation was to help decide whether Bank size acting as

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a moderator and measured using the log of total assets has a significant influence on the effect of shareholders' equity (when used as a funding source) on the performance of commercial banks.

To make a final determination on the moderation effect as supported by the main hypothesis.   Three linear regression equations were respectively formulated and interpreted as per the regression results presented in Tables 5.7, 5.8 and 5.9, their interpretation is in sections 5.4.2. These three linear regression equations were:

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}BS + \beta_{3a,in}(FS1)(BS) + \varepsilon_{a,in}$$

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS2 + \beta_{2a,in}BS + \beta_{3a,in}(FS2)(BS) + \varepsilon_{a,in}$$

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS3 + \beta_{2a,in}BS + \beta_{3a,in}(FS3)(BS) + \varepsilon_{a,in}$$

3.8.4 The Joint Effect of Funding Sources, Competitiveness and Size on the Performance of Commercial Banks

The joint effect of funding sources, competitiveness and bank size on the performance of the commercial bank in Kenya was the fourth objective of the study. In seeking answers to this objective the null hypothesis that funding sources, Bank competitiveness, and Bank size do not jointly influence the performance of commercial banks in Kenya was formulated and tested and the linear regression output results are presented in Table 5.10. The data was then run through EVIEWS and STATA to generate the linear regression output for the following equation:

$$P_{in} = \beta_{0,it} + \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}FS2 + \beta_{3a,in}FS3 + \beta_{4a,in}MS + \beta_{5,in}BS + \varepsilon_{a,in}$$

Table 3. 4: Summary of the Research Objectives, Hypotheses, Analytical Method and Interpretation

Research Objectives	Proposed null hypotheses Formulated	Analytical Method	Interpretation
To establish the effect of funding sources on the financial performance of commercial banks in Kenya.	H_{01}: Funding sources do not have an effect on the performance of the commercial banks in Kenya	Linear regression $$P_{i-n} = \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}FS2 + \beta_{3a,in}FS3 + \varepsilon_{a,in}$$	If the probability for the F-statistics value is statistically significant the null hypothesis is rejected
To determine the intervening effect of the bank's competitiveness on the relationship between funding sources and the financial performance of commercial banks in Kenya	H_{02}: Bank's competitiveness does not intervene in the relationship between funding sources and the performance of the commercial banks in Kenya.	A four-step hierarchical regression analysis: **1st Step:** $$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}FS2 + \beta_{3a,in}FS3 + \varepsilon_{a,in}$$ **2nd Step:** $$MS_{in} = \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}FS2 + \beta_{3a,in}FS3 + \varepsilon_{a,in}$$ **3rd Step:** $$P_{in} = \beta_{0a,in} + \beta_{1a,in}MS + \varepsilon_{a,in}$$ **4th Step:** $$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}FS2 + \beta_{3a,in}FS3 + \beta_{4a,in}MS + \varepsilon_{a,in}$$	If the probability for the F-statistics value is statistically significant the null hypothesis is rejected

Source: Author, (2023)

Research Objectives	Proposed null hypotheses Formulated	Analytical Method	Interpretation
To determine the moderating effect of the bank's size on the relationship between funding sources and the financial performance of commercial banks in Kenya.	H_{03}: The size of a bank does not moderate the relationship between funding sources and the performance of commercial banks in Kenya.	Three-step regression procedure **1st Step:** $$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}FS2 + \beta_{3a,in}FS3 + \varepsilon_{a,in}$$ **2nd Step:** $P_{in} = \beta_{0a,in} + \beta_{1a,in}BS + \varepsilon_{a,in}$ **3rd Step: testing for the interaction effect** $$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}BS + \beta_{3a,in}(FS1)(BS) + \varepsilon_{a,in}$$ $$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS2 + \beta_{2a,in}BS + \beta_{3a,in}(FS2)(BS) + \varepsilon_{a,in}$$ $$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS3 + \beta_{2a,in}BS + \beta_{3a,in}(FS3)(BS) + \varepsilon_{a,in}$$	If the probability for the F-statistics value is statistically significant the null hypothesis is rejected
To determine whether the joint effect of funding sources, bank's competitiveness and bank size on the financial performance of commercial banks in Kenya	H_{04}: Funding sources, Bank competitiveness, and Bank size do not jointly have an effect on the performance of commercial banks in Kenya	$$P_{in} = \beta_{0,it} + \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}FS2 + \beta_{3a,in}FS3 + \beta_{4a,in}MS + \beta_{5,in}BS + \varepsilon_{a,in}$$	If the probability for the F-statistics value is statistically significant the null hypothesis is rejected

Source: Author, (2023)

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CHAPTER FOUR

DESCRIPTIVE DATA ANALYSIS AND RESULTS

4.1 Introduction

Discussed in this chapter are the results of the descriptive data analysis employed in the quest to find answers to the four specific objectives of this research. The chapter is divided into various subsections, the first being a discussion on the response rate followed by a brief on the nature of the descriptive statistics that were employed, then the results of the seven diagnostic tests that were performed on the secondary data which was collected from specific individual banks' audited financial statements and CBK's annual supervisory reports. The last section of the chapter discusses the correlation analysis of the variables of the study of the data

4.2 Characteristics of the Respondents

This research targeted all the 42 commercial banks registered by CBK as of January 2021, and since this number was fairly small, there was no need for sampling. Upon sorting and cleaning the collected data, 35 commercial banks which were consistently appeared in all the annual supervisory reports from 2011 to 2021, moreover they were found to have an active repository where certain specific data required for the study could be mined. The selected banks were also found to have been in constant business during the period under review representing a perceived success response rate of 83.3%. Mugenda and Mugenda (2003) and Kothari (2011) agree that a response rate of above 70% is very good and sufficient for a study, Njagi (2017) study had a response rate of

71%, a response rate of 83.3% for this research is perceived satisfactory. Data for the remaining 7 commercial banks were completely missing, a factor attributed to either the lack of an active website due to the deregistration of some commercial banks or some of them being placed under statutory management.

4.3 Descriptive Statistics

In attempting to describe the data, a researcher can use the usual basic graphical analysis, however, this may not fully describe some silent features like how the data is distributed around the mean, among others. In this research, the challenges were overcome by adopting Sekaran and Bougie (2016) approach of computing descriptive statistic measurements on the collected data as the foremost analytic approach to the collected data. By so doing, the researcher was able to get a clear picture of the respective means of the variables, and both values for minimum and maximum, in addition to their standard deviation, variance coefficient of deviation, skewness and kurtosis. The relevance of each of these aspects as presented in Table 4.1 are discussed in the next paragraph.

Table 4.1 shows that there were 35 commercial banks whose data was collected and this resulted in 385 observations of each variable of the study. A look at the three IVs measured using the amount of deposits from other banks, deposits from customers and equity capital shows a mean of 14729.13, 80551.53 and 16524.12 respectively. The average data points for the three IVs are highly distant from their means as indicated by the more than 100% measure of the coefficient of variation (CV).

Table 4. 1: Summary of Descriptive Statistics

	IV			Intervening variable	Moderating variable	Dependent variable
	DEPOSIT DUE TO OTHER BANKS	DEPOSIT FROM CUSTOMERS	SHAREHOLDERS EQUITY	MARKET SHARE INDEX	LOG TOTAL ASSET	CAMELS RANK
Mean	14729.12824	80551.53	16524.12	2.800051948	10.676672	3.2779
Standard Deviation	26969.0988	112767.33	22631.41	3.479702528	1.458454	0.6135
Sample Variance	727332290.1	12716470127	512180523.44	12.10832968	2.127089	0.3763
Coefficient of variation	183.1%	140.0%	136.0%	124.3%	13.7%	18.7%
Kurtosis	22.3681	5.7236	3.7578	1.6962	1.2507	-0.6079
Skewness	4.0474	2.2599	1.9631	1.5658	-0.2749	-0.1011
Minimum	20 (millions)	393 (millions)	-1820 (millions)	0	2.556141	1.8333
Maximum	241421.579 (millions)	652204 (millions)	123823 (millions)	14.52	13.684735	4.6667
Count	385	385	385	385	385	385

Source: Research Findings (2023)

An in-depth analysis of these three variables reveals the presence of outliers, a factor attributed to the existence of data from both large and small banks being analyzed together. Their minimum and maximum values (in terms of millions of shillings) for the deposit from other banks are 20 and 241422, while for the deposit from customers is 393 and 652204 equity capital on the other hand had -1820 and 123823. This notwithstanding, the majority of the data set is found to be skewed to the positive side with skewness measurements of 4.047, 2.260 and 1.963 respectively an indication that most banks have higher funding sources. A conclusion that the data set on funding sources was mesokurtic and had a heavier tail compared to that of a normal distribution was reached as the Kurtosis measure for all three IVs was more than three.

The dependent variable was measured using the composite rank of all the ranks of the CAMELS indicator and had a mean rank of 3.2780 which indicates that on average the commercial banks that were reviewed had a fair performance (Masood et al., 2016). On the other hand, the minimum rank of 1.8333 lies in the territory of strong performance while the maximum value of 4.6667 depicts an unsatisfactory performance (Abusharbeh, 2020; Masood et al., 2016). The variability of the data set was relatively low as depicted by a CV of 18.7%. the data set was moderately negatively skewed as depicted by the -0.101 output and almost flat as the Kurtosis measure of -0.608 suggests.

The intervening variable was measured using the market share index had a mean of 2.8001 with a minimum of 0 and a maximum of 14.52 suggesting that only a few banks control the larger market share, this is further supported by observing the average data points for this entire data set which is highly distant from their mean as indicated by the more than 100% CV. The skewness and kurtosis lie within the normal rate. The moderating variable which was representing bank size in this research was measured using the log of total assets and had a mean of 10.6767 with 2.5561 being the minimum and 13.6847 as the maximum. The CV of 13.7% is an indication of low variability in the data set while -0.275 skewness points to a highly negatively skewed data set with a thin tail of 1.251 Kurtosis measure

4.4 Results of Diagnostic Tests

To ascertain whether the collected secondary data was suitable for use in running the various regression models six diagnostic tests were done on the collected panel data,

these are multicollinearity test, heteroscedasticity test, normality test, model specification test, stationarity test and serial correlation.

4.4.1 Panel Data Multicollinearity Test-Variance Inflation Factor (VIF)

The presence or absence of multicollinearity was tested using the VIF test on the original data set before any modification was done. Table 4.2 shows the result of the test as run in the EVIEWS software. From the table, the VIF mean was found to be 13.51 which is above the acceptable range of 3-10 an indication of the presence of high collinearity within the data set. To cure this, the researcher had the option of applying any of the treatment remedies considered best suitable under the prevailing circumstances.

Table 4. 2: Results of Multicollinearity Test - VIF Test 1

Variable	Coefficient Variance (CV)	Uncentered VIF	Centered VIF
DEPOSIT DUE TO OTHER BANKS	2.06E-12	2.325904	1.790459
DEPOSIT FROM CUSTOMERS	1.65E-12	37.85216	25.04151
SHAREHOLDERS EQUITY	4.70E-11	44.19242	28.79934
MARKET SHARE INDEX	0.000585	13.98717	8.48119
LOG TOTAL ASSET	0.001354	188.6032	3.446076
C	0.129	154.4138	N/A
Mean			13.511715

Source: Research Findings (2023)

Consideration was then made to transform the said variable only into logarithmic form an approach that has been undertaken by several scholars (Akinwande et al., 2015) and the result of the new VIF was found to be within the acceptable range with a mean value of 6.910907 as shown in Table 4.3, therefore, this form the basis of using the logarithmic values for shareholders' equity in subsequent analysis

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Table 4. 3: Results of Multicollinearity Test - VIF Test 2

Variable	CV	Uncentered VIF	Centered VIF
DEPOSIT DUE TO OTHER BANKS	1.94E-12	2.295061	1.765105
DEPOSIT FROM CUSTOMERS	4.33E-13	10.41007	6.862942
LOG SHAREHOLDERS EQUITY	0.02196	410.5810	9.847537
MARKET SHARE INDEX	0.000515	12.86824	7.764357
LOG TOTAL ASSET	0.003163	458.0242	8.305406
C	0.132	164.0639	N/A
Mean			6.90907

Source: Research Findings (2023)

4.4.2 Panel Data Heteroscedasticity Test

To detect whether Heteroscedasticity was either present or absent, a regression model of likelihood test was applied to the regression analysis taking CAMELS figures as the dependent variable and other variables as the explanatory variables. This was made possible by the formation of a null hypothesis (H_0) that the model has no heteroscedasticity given that the probability value of greater than 0.05 leads to the acceptance of H_0 and no further action is warranted under such circumstances. Alternatively, a p-value of less than 0.05 implies that the model is assumed to have heteroscedasticity and this will call for a cure.

Results for the likelihood test as shown in Table 4.6 show a p-value greater than 0.05 leading to a conclusion that the model is homoscedastic and fit for use as it is

Table 4. 4: Results of Heteroscedasticity – Likelihood Test

Panel Period Heteroskedasticity LR Test			
Equation: Homosktr1			
Specification: CAMELS RANK DEPOSIT DUE TO OTHER BANKS DEPOSIT FROM CUSTOMERS LOG SHARE EQUITY MARKET SHARE INDEX LOG TOTAL ASSETS			
	Value	df	Probability
Likelihood ratio	21.37776	35	0.9659
Summary of LR test			
	Value	df	
Restricted LogL	-313.5313	376	
Unrestricted LogL	-302.8425	376	

Source: Research Findings (2023)

4.4.3 Panel Data Normality Test

The Jarque-Bera statistics shown in diagram 4.1 with a probability value of 0.003098 were used to evaluate normality. The finding implies that the null hypothesis is rejected. However, considering the larger sample size of 385 and the explanation given in section 3.6.2 in the previous chapter, the shape of the histogram suggests that the data is fairly normal and is indeed assuming a bell-shaped though skewed to the left. Moreover considering the ratio of Kurtosis in the table below to the standard error which was generated from summary descriptive statistics in section 4.3 the result is greater than +2, this further leads to the rejection of the null hypothesis and concludes that the data set is fairly normal and the researcher can proceed to do further analysis

Series: Standardized Residuals	
Sample 1 385	
Observations 382	
Mean	-1.96e-16
Median	0.024348
Maximum	1.321079
Minimum	-1.467954
Std. Dev.	0.550535
Skewness	-0.424743
Kurtosis	2.934461
Jarque-Bera	11.55426
Probability	0.003098
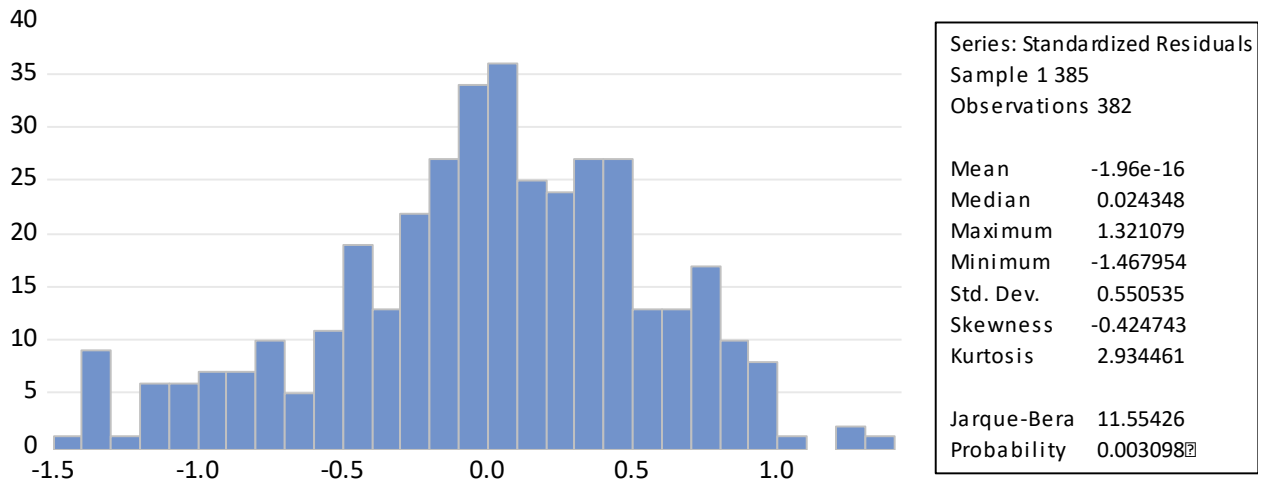
Figure 4. 1: Panel Data Normality Test-Jargue-Bera

Source: Research Findings (2023)

4.4.4 Panel Data Model Specification Test- Hausman Test

The decision on the suitability of the regression model to be adopted was made between a fixed effect or random effect model aided by a Hausman test which was performed on the data. The rule of thumb dictates that whenever the p-value of this test is less than 0.05 then a fixed model effect is appropriate (Hausman, 1978). Table 4.5 shows the Hausman Test result generated from EVIEWS software.

Table 4. 5: Results of Panel Data Model Specification Test- Hausman Test

Hausman Test				
Equation name: Hausmantest1				
Summary of the test		Chi-Square. Statistic	Chi-square. df.	Prob.
Cross-sections random		53.352445	5	0.0000
Cross-section random effect test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
DEPOSIT DUE TO OTHER BANKS	0.000000	-0.000001	0.000000	0.0847
DEPOSIT FROM CUSTOMERS	0.000001	0.000003	0.000000	0.0000
LOG SHAREHOLDERS EQUITY	0.445417	0.026950	0.003423	0.0000
MARKET SHARE INDEX	-0.022025	-0.115578	0.000857	0.0014
LOG TOTAL ASSET	0.117617	0.068536	0.000140	0.0000
Cross-sectional random effect test equation:				
Dependent Variable (DV): CAMELS RANK				
Method: Panel Least Squares				
Data for 11 years time Period				
Number of Commercial Banks considered: 35				
observations: 382				
Variable	β −Coefficient	Standard. Error	t-Statistics	Probability.
C	0.294357	0.545352	0.539757	0.5897
DEPOSIT DUE TO OTHER BANKS	0.000000103	0.00000141	0.072493	0.9423
DEPOSIT FROM CUSTOMERS	0.000000941	0.000000585	1.608295	0.1087
LOG SHAREHOLDERS EQUITY	0.445417	0.1450450	3.070887	0.0023
MARKET SHARE INDEX	-0.022025	0.037930	-0.580680	0.5618
LOG TOTAL ASSET	0.117167	0.047258	2.479295	0.0136
Cross-section fixed dummy variables (CRF DV)				
R^2 Measure	0.604429	Mean dependent variable (MDV)		3.268761
Adjusted R^2 Measure	0.559320	S.D. dependant		0.606400
Standard error of the regression (S.E. of Reg)	0.402551	Akaike info criterion (AIFCR)		1.116824
Residual sum of squares (RSS)	55.420140	Schwarz criterion		1.529957
Log likelihood	-173.3133	Hannan–Quinn information criterion (HQC)		1.280723
F-statistics	13.399310	Durbin-Watson stat		1.295783
F-statistics Probability	0.000000			

Source: Research Findings (2023)

The Hausman Test results are summarized in Table 4.5 above, and the p-value of 0.00000 is obtained, this is less than the 0.05 p-value used for determination. The implication is therefore to reject the null hypothesis and conclude that the fixed effect model is more appropriate, and this will be used in all the subsequent regressions

4.4.5 Panel Data Stationarity Test

In inspecting whether all five variables of the study were stationary or non-stationary, Levin-Lin-Chu's test was performed on all of them. The default null hypothesis for the test was that there is a unit root in the time series variable being tested and this was to be rejected if the p-value was below 0.05. and conclude that the respective variable is stationary. The test for root was done in eviews and summary results at the level and individual intercept category of all variables are shown in Table 4. 6

Table 4. 6: Levin-Lin-Chu's Test at Level and Individual Intercept

	CAMELS-RANK	DEPOSIT DUE TO OTHER BANKS	DEPOSIT FROM CUSTOMERS	LOG SHAREHOLDERS EQUITY	MARKET SHARE INDEX	LOG TOTAL ASSET
Statistics	-3.60676	-0.38998	2.94731	-14.6795	-8.53196	-4.29530
Prob.	0.0002	0.3483	0.9984	0.0000	0.0000	0.0000

Source: Research Findings (2023)

From Table 4.6, all the variables except deposits due to other banks and deposits from customers were found to be stationary when tests were done at the level since their p-values were below 0.05. The two exceptional variables were subjected to a further test at the first difference as their respective p-values were way above the recommended

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threshold, that is 0.3483 and 0.9984 these figures pointed out the presence of a unit root which had to be cured before any regression is run. The result of the second Levin-Lin-Chu's test at the first difference and individual intercept shown in Table 4.9 fulfills the conditions set out for declaring the variables as stationary were met, hence, there was no need for further testing at the second difference.

Table 4. 7: Results for Levin-Lin-Chu's Test at First Difference and Individual Intercept

	DEPOSIT DUE TO OTHER BANKS	DEPOSIT FROM CUSTOMERS
Statistics	-6.407	-3.85904
Prob.	0.0000	0.0001

Source: Research Findings (2023)

4.4.6 Panel Data Serial Correlation

The Durbin-Watson statistic (DW) results whose results range from 0 to 4 were used to check the presence or absence of serial correlation. The results were interpreted based on the thumb rule which states that "if DW is 2, then there is no serial correlation while less than 2 depicts the presence of a positive serial correlation while greater than 2 indicates the existence of a negative serial correlation in the data set" (Maxwell & David, 1995). To actualize this test a simple regression was run as shown in Table 4.8 and the result for DW was observed.

Table 4. 8: Results of Simple regression showing DW Results

DV: CAMELS RANK				
Method: L S				
Sample: 385				
Observations: 382				
Variable	Coefficient	Std. Error	t-Statistics	Prob.
DEPOSIT DUE TO OTHER BANKS	-0.000000156	0.00000139	-0.11204	0.9109
DEPOSIT FROM CUSTOMERS	0.00000371	0.000000658	5.630512	0.0000
LOG SHAREHOLDERS EQUITY	-0.663109	0.148192	-4.474657	0.0000
MARKET SHARE INDEX	-0.074106	0.022702	-3.264278	0.0012
LOG TOTAL ASSET	0.069155	0.056243	1.229584	0.2196
C	4.9800000	0.363185	13.71201	0.0000
R^2 Measure	0.175765	MDV		3.268761
Adjusted R^2 Measure	0.164804	S.D. dependant		0.606400
S.E. of Reg	0.554183	AIFCR		1.672939
RSS	115.4767	Schwarz criterion		1.734909
Log likelihood	-313.5313	HQC		1.697524
F-statistics	16.0361	Durbin-Watson stat		0.784261
F-statistics Probability	0.000000			

Source: Research Findings (2023)

Results in Table 4.10 above show DW to be 0.784261 depicting the presence of a positive serial correlation. The severity of this serial correlation was measured using the Breusch-Godfrey Serial Correlation LM Test which had the null hypothesis stated as "there is no serial autocorrelation" and this assertion is accepted if the p-value greater than 0.05 and the results of the same are shown in Table 4.9

Table 4. 9: Results for Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test			
Null hypothesis: No serial correlation			
F-statistics	222.189	Prob. F(1375)	0.000
Obs*R-squared	142.1262	Probability.Chi-Squared (1)	0.000

Source: Research Findings (2023)

Results in Table 4.9 confirm the earlier assertion that there was a serial correlation in the model. The presence of this serial correlation was corrected by performing the heteroscedasticity autocorrelation consistent (HAC) test which generated new regression results free from serial correlation as the researcher did not intend to add any other variable to the model since the study had already taken into account all the five explanatory variables and there was no other that could be added. After the application of HEC, the new DW value becomes irrelevant. Table 4.10 shows the results of the new simple regression estimate.

Table 4. 10: HAC Standard Errors & Covariance

DV: CAMELS RANK				
Method: L S				
Sample: 1 385				
Observations: 382				
HAC standard errors and covariance (Bartlett kernel, Newey-West fixed bandwidth=6.0000)				
Explanatory Variable	Coefficient	Std. Error	t-Statistics	Prob.
DEPOSIT DUE TO OTHER BANKS	-0.000000156	0.0000019	-0.082059	0.9346
DEPOSIT FROM CUSTOMERS	0.00000371	0.000000896	4.136378	0.0000
LOG SHAREHOLDERS EQUITY	-0.663109	0.212302	-3.123428	0.0019
MARKET SHARE INDEX	-0.074106	0.031929	-2.320966	0.0208
LOG TOTAL ASSET	0.069155	0.093416	0.740299	0.4596
C	4.9800000	0.642739	7.748091	0.0000
R^2 Measure	0.175765	MDV		3.268761
Adjusted R^2 Measure	0.164804	S.D. dependant		0.606400
S.E. of Reg	0.554183	AIFCR		1.672939
RSS	115.4767	Schwarz criterion		1.734909
Log likelihood	-313.5313	HQC		1.697524
F-statistics	16.0361	Durbin-Watson stat		0.784261
F-statistics Probability	0.000000	Wald F-statistics		8.026278
Prob(Wald F-statistics)	0.000000			

Source: Research Findings (2023)

4.5 Correlation Analysis

Correlation analysis is a statistical technique that scholars and industry players use to establish the strength of the connection between any two variables in a distribution. This strength is defined by the slope of an arbitrary linear plot assumed to have been created in a graph of any of these two variables if plotted. The results of correlation usually oscillate between -1 to +1, and these determine whether there exists a positive or negative linear association depending on the nature of relationships between the variables (Samuel &

Okey, 2015). That is, the two variables are said to be positively correlated if their results range from greater than 0 to +1, that is their corresponding changes tend to follow a similar direction. On the other hand, those variables whose corresponding changes follow different directions do have their results ranging from -1 to less than 0 and they are said to have a negative correlation finally, a correlation or linear relationship fails to exist if the result of the correlation is 0, and such variables, if plotted, will end up scattered throughout the distribution space with no visible pattern, moreover, a correlation result of greater than 0.8 between any two variable is an indication of the presence of multicollinearity between the variables (Zaid, 2015)

This research had three independent indicators while the dependent, moderating and intervening variables had one indicator each. To ensure that none of these variables were collinear, Pearson Product Moment Coefficient (PPMC) was generated using SPSS data analysis functionality whose appropriateness of use was based on the fact that the variables of the study were measured using a ratio scale and was also done at 0.05 and 0.01 level of significance in line with previous studies (Njagi, 2017; Onguka, 2021). Results of the PPMC are shown in Table 4.15

Table 4. 11: PPMC Results of Correlation

	DEPOSIT FROM OTHER BANKS	DEPOSIT FROM CUSTOMERS	SHAREHOLDERS EQUITY	MARKET SHARE INDEX	LOG TOTAL ASSET	CAMELS' RANK
Correlations						
DEPOSIT FROM OTHER BANKS	1	$.650^{**}$	$.623^{**}$	$.604^{**}$	$.583^{**}$	$-.107^{*}$
		.000	.000	.000	.000	.035
DEPOSIT FROM CUSTOMERS	$.650^{**}$	1	$.978^{**}$	$.914^{**}$	$.803^{**}$	$-.121^{*}$
	.000		.000	.000	.000	.017
SHAREHOLDERS EQUITY	$.623^{**}$	$.978^{**}$	1	$.930^{**}$	$.812^{**}$	$-.173^{**}$
	.000	.000		.000	.000	.001
MARKET SHARE INDEX	$.604^{**}$	$.914^{**}$	$.930^{**}$	1	$.832^{**}$	$-.235^{**}$
	.000	.000	.000		.000	.000
LOG TOTAL ASSET	$.583^{**}$	$.803^{**}$	$.812^{**}$	$.832^{**}$	1	$-.267^{**}$
	.000	.000	.000	.000		.000
CAMELS RANK	$-.107^{*}$	$-.121^{*}$	$-.173^{**}$	$-.235^{**}$	$-.267^{**}$	1
	.035	.017	.001	.000	.000	

**. The P-value < 0.01

*. The P-value < 0.05

Source: Study Findings (2023)

Analysis of how deposit due to other banks correlates with deposit due to customers, shareholders' equity, market share index and log total assets as depicted in the correlation table 4.15 reveal a p-value of 0.00 at 0.01 level of significance with a respective correlation strength of 0.650^{**}, 0.623**, 0.604^{**}, and 0.583^{**}. All these four r-values represent a moderately positive correlation implying that a rise in deposit due to other banks moderately result in a slight rise in any of the four variables and since the value is not close to +1 the variables are easily accepted to be used in running a regression. Contrary to the positive correlation results portrayed by the four r-values so far

highlighted at 0.01 level of significance, the r-value for deposits due to other banks and the CAMELS'rank of -0.107* and a p-value of 0.035 is an indication of a weak negative correlation as at 0.05 level of significance since the figure is close to 0. This shows that a rise in one of these variable result in a slight decrease in the other.

Table 4.11 further shows how the deposit due to customers correlates with either the shareholders' equity or the market share index or log of total assets or CAMELS' at 0.01 level of significance and a p-value of 0.00 to be 0.978^{**}, 0.914^{**}, 0.803^{**} and -0.121^{*} respectively. The p-value for CAMELS rank was however found to be 0.017. while the result was found to be significant at 0.05. Based on these results the conclusion made in the previous paragraph still holds. On the other hand, shareholder equity has an r-value of 0.930** with the market share index with a p-value of 0.000 and 0.812** and a p-value of 0.000 with log total assets representing a moderately and strong positive correlation respectively at 0.01 level of significance and this is an indication of the one-direction nature of the association between these variables. But for shareholders' equity and CAMELS' rank, the r-value is -0.173^{**} while its p-value was 0.001 at 0.01 level of significance pointing to a weak negative correlation.

The r-value of the market share index and log of total assets of 0.832^{**} and the market share index and the CAMELS' rank of -0.235^{**} represent both positive and weak negative association between them respectively at 0.01 levels of significance. Finally, the r-value for log total asset and CAMELS rank was found to be -0.267^{**} at a 0.01 level of significance with a p-value of 0.000. In conclusion, CAMELS' rank is found to be weakly correlated with all other variables with the lowest r-value of -0.267^{**} at 0.01 level

of significance to the highest of -0.107[*] at 0.05 level of significance pointing out the preliminary finding that an increase in any of the explanatory variables under consideration results in a minor decrease in performance and vice versa

4.6 Summary of the Chapter

Presented in this chapter were the results of the descriptive data analysis employed in the quest to find answers to the four specific objectives of this research. The chapter was divided into various subsections, the first being a discussion on the response rate followed by a brief on the nature of the descriptive statistics that were employed, then the results of the various diagnostic tests that were performed on the secondary data which was collected from specific individual banks' audited financial statements and CBK's annual supervisory reports. The immediate last section of the chapter discusses the correlation analysis of the variables of the study of the data

CHAPTER FIVE

DISCUSSION OF HYPOTHESES TESTING AND FINDINGS

5.1 Introduction

This chapter discusses the findings and interpretation of all four null hypotheses that were highlighted in chapter two while at the same time linking them to the specific research objectives highlighted in chapter one. The chapter is organized in a sequential approach based on how the objectives of the study were stated, beginning with the first objective of this research which was answered using the first null hypothesis, that is, whether funding sources influence the performance of commercial banks in Kenya. This is then followed by a discussion on whether the bank's competitiveness intervenes in the relationship between funding sources and the performance of commercial banks in Kenya. The discussion will then be followed by a detailed write-up on both the third objective and its corresponding null hypothesis on whether a bank's size moderates the relationship between funding sources and the performance of commercial banks. The chapter is wrapped up by a discussion on whether there is a joint effect among all three explanatory variables (funding sources, bank competitiveness and bank size) and the performance of commercial banks in Kenya.

5.2 Effect of Funding Sources on the Performance of Commercial Banks

The study sought to assess the interrelations that exist between funding sources and the performance of registered commercial banks operating in Kenya. Funding sources were contextualized and measured using three indicators, these are, deposits that other banks

have placed with the bank under consideration, deposits from customers other than banking institutions and the bank's shareholder equity. Performance, on the other hand, was measured using CAMELS rank which is a product of the composite value obtained after collecting data for the six key performance indicators which include capital adequacy status, the quality of the asset, the capability of management, earnings strength of the firm, liquidity status and sensitivity status.

In computing the rank for adequacy of capital which represents the "C" component of the model, a ratio of each bank's capital to their risk-weighted asset was computed. The asset quality represented by "A" in the model was operationalized by computing the ratio of gross non-performing loans to gross loans and advances. Management efficiency represented by "M" in the model was operationalized by computing the ratio of operating expenses to operating income while the earnings ability which is represented by "E" in the model was operationalized using two rations whose composite value was used to come up with a single rank for "E". ROA and ROE figure obtained from the various annual supervisory reports were extracted and their average computed. Each bank's liquidity position and its sensitivity to market risk were represented by "L" and "S" respectively in the model. L was computed as a ratio of cash on hand and cash in other banks to total assets. The figures used to represent cash in hand and cash at the bank were arrived at after adding up the following items found on the asset side of the financial statement local and foreign cash deposits by the bank, deposits by the CBK in local banks, and balances due from local banking Institutions, deposits, and balances due from banking institutions abroad in addition plus tax recoverable and balances due from banking institutions in the Group. Finally, S was operationalized as a ratio of total

securities to total assets. The respective ranking for all six parameters and the final composite rank was based on the parameters set in Table 3.2

To find the answer to the dilemma posed by the first objective of the study, the null hypothesis for the study framed as H_{01}: Funding sources do not have an effect on the performance of the commercial banks in Kenya, was tested using a fixed effect panel regression model which regressed CAMELS against the three funding sources. The data was run through EVIEWS to generate the linear regression output satisfying the equation:

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}FS2 + \beta_{3a,in}FS3 + \varepsilon_{a,in}$$

shown earlier in section 3.8.1. The outcome of the regression results as obtained in Table 5.1 indicates that the three funding sources that were under consideration had a statistically significant positive impact on commercial banks' performance measured as depicted by the prob (F-statistics), the R-squared and adjusted R-squared value of 0.00000, 0.596996 and 0.553650 respectively. The 0.596996 for R-squared values is an indication that 59.6996% of commercial banks' performance measured using CAMELS rank is explained using the three funding sources and on the same note if adjusted R-squared value 0.553650 is used for the same explanation, then the percentage changes to 55.365%.

The overall significance of the model as indicated by the Prob (F-statistics) of 0.000000 is smaller than the standard alpha (α) of 0.05 used for decision making, this does not only suggest that the model as it is, is good enough but also is an indication that the null

hypothesis that, funding sources do not have an effect on the performance of the commercial banks in Kenya, is rejected and the study. This leads to the conclusion that funding sources indeed do influence performance based on the model output.

Table 5. 1: Effect of Funding Sources on the Performance of Commercial Banks

DV: CAMELS RANK (P)

Method: L   S

Sample: From 2011 to 2021

Data for 11 years Time Period

Number of Commercial Banks considered: 35

Independent Variable	Coefficient	Std. Error	t-Statistics	Prob.
DEPOSIT DUE TO OTHER BANKS	0.000000307	0.00000142	0.216609	0.8286
DEPOSIT FROM CUSTOMERS	0.000000978	0.000000491	1.990443	0.0473
EQUITY 1	0.593884	0.131113	4.529540	0.0000
C	0.910188	0.483193	1.883694	0.0604
R^2 Value	0.596996	MDV		3.268761
Adjusted R^2 Value	0.553650	S.D. dependant		0.606400
S.E. of Reg	0.405132	AIFCR		1.124968
RSS	56.461480	Schwarz criterion		1.517444
Log likelihood	-176.8689	HQC		1.280673
F-statistics	13.77271	Durbin-Watson stat		1.265712
Prob (F-statistics)	0.000000			

Source: Research Findings (2023)

A look at how the individual funding sources affect commercial banks' performance reveals that both deposits from customers and shareholders' equity do have a significant influence on the performance of these commercial banks and assuming a null hypothesis was done for each of them, the same could have been rejected as the above p-values of

0.0473 and 0.0000 respectively is way below the standard alpha (α) of 0.05. Deposit due to other banks as an explanatory variable could not however be said to have any significant influence on the performance of these commercial banks as the p-value of 0.8286 is more than the standard alpha (α) of 0.05 which is used as a benchmark of either rejecting or accepting the null hypothesis. These findings notwithstanding, the overall conclusion remains that the null hypothesis stands rejected based on the Prob (F-statistics) of 0.000000 and a conclusion is therefore reached that funding sources indeed positively affect the performance of commercial banks in Kenya.

The coefficients as shown in the findings suggest a general positive association between commercial bank performance and all three sources of funding that were considered. Deposits due to other banks, deposits from customers, equity share capital and the constant term in the regression equation were found to have 0.000000307, 0.000000978, 0.593884 and 0.910188 as coefficients respectively. The 0.000000307 coefficient for deposits due to other banks suggests that for every unit increase in it, the performance of commercial banks measured using CAMELS will increase by 0.000000307 units keeping all other factors constant, however, this, may not be true considering the implication caused by the higher p-value of the same as earlier explained. The 0.000000978 coefficient for the deposit from customers as a source of funding suggests that for every unit increase in it, the performance of commercial banks measured using CAMELS will increase by 0.000000978units keeping all other factors constant and with its lower p-value of 0.0473 the assumption is considered solid and can be relied on. In a nutshell, this is a clear indication that the performance of commercial banks is more likely to be better

should the customer number be found to be increasing. This may be a possible explanation as to why most banks are aggressively calling for retail customers' deposits as most of them are considered a cheap source of funds for banks (Baidoo et al., 2018; Haddawee & Flayyih, 2020).

On the same note, the 0.593884 coefficient for equity shareholding in the commercial banks suggests that the performance of these banks as measured using CAMELS increases by 0.593884 units for every unit increase in shareholders' equity keeping all other factors constant and with its lower p-value the assumption is considered solid and can be relied on. In a nutshell, this is a clear indication that the performance of commercial banks is more likely to be better in a bank with solid shareholding backup, such banks are likely to borrow less as most of their funding needs are easily taken care of by shareholders probably at much fewer conditions with are associated to both borrowings and holding customers deposits. This may be a possible explanation as to why most banks are encouraged to have certain core capital before being allowed to operate (CBK, 2013)

5.3 Intervening Effect of the Bank's Competitiveness on the Relationship between Funding Sources and the Performance of Commercial Banks

In seeking to answer the dilemma posed by the second objective of the study, the second null hypothesis was then formulated to aid in answering whether bank competitiveness affects the already established positive association between funding sources and the performance of commercial banks in Kenya. The null hypothesis was framed as H_{02}:

Bank's competitiveness does not intervene in the relationship between funding sources and the performance of the commercial banks in Kenya.

In the quest to find answers to the above null hypothesis, a third variable known as a mediator (intervener) was introduced in the model. The inclusion or omission of an intervener variable has an operational role of either speeding up or slowing down the nature of the association between the dependent and independent variables as it provides the platform that is capable of influencing the relationships between the two (independent and dependent). To contextualize the effect of a mediator in this research, commercial banks' competitiveness was introduced as the intervening variable and was measured using the market share index whose figures were computed and made available in the various annual supervisory reports which were reviewed

The decision criteria to find answers to the above null hypothesis followed Baron and Kenny (1986) four-step approach of comparing regressions in a certain predefined order and had to satisfy the conditions for the step before a variable was declared as either having an intervening effect or not. In declaring bank competitiveness as the intervening variable in this research, the study had to account for the existence of an association between independent and dependent variables which are represented by funding sources and commercial bank performance respectively and this was done as follows.

5.3.1 Test for Intervening Effect- Step One

Step one involved testing the existence of the direct association between the independent and dependent variables in the absence of the identified mediator. The test was done and the results are shown in Table 5.2.

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The regression outcome as obtained in Table 5.2 indicates that the three funding sources that were under consideration had a statistically significant positive impact on commercial banks' performance measured using CAMELS as depicted by the prob (F-statistics), the R-squared measure and adjusted R-squared measure of 0.00000, 0.596996 and 0.553650 respectively. The 0.596996 for R-squared values is an indication that 59.6996% of commercial banks' performance measured using CAMELS rank is explained using the three funding sources and on the same note if adjusted R-squared value 0.553650 is used for the same explanation, then the percentage changes to 55.365%. The overall significance of the model as indicated by the Prob (F-statistics) of 0.000000 is smaller than the standard alpha (α) of 0.05 used for decision making, this does not only suggest that the model as it is, is good enough but also is an indication that there is a significant relationship between banks funding sources and performance as was envisaged by the first linear regression equation used in testing for mediation as suggested by Baron and Kenny (1986). The formulated regression equation for the first step was:

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}FS2 + \beta_{3a,in}FS3 + \varepsilon_{a,in}$$

To note nonetheless is that the direct relationship is significant and this warranted the move to the second step as shown in the next step.

Table 5. 2: Step 1 Effect of Funding Sources on the Performance of Commercial Banks

DV: CAMELS RANK

Method: L S

Sample: From 2011 to 2021

Data for 11 years Time Period

Number of Commercial Banks considered: 35

TP (Unbalanced) Obs: 382

Variable	Coefficient	Std. Error	t-Statistics	Prob.
DEPOSIT DUE TO OTHER BANKS	0.000000307	0.00000142	0.216609	0.8286
DEPOSIT FROM CUSTOMERS	0.000000978	0.000000491	1.990443	0.0473
EQUITY 1	0.593884	0.131113	4.529540	0.0000
C	0.910188	0.483193	1.883694	0.0604
R - squared	0.596996			
Adjusted R-squared	0.553650			
F-statistics	13.77271			
Prob (F-statistics)	0.000000			

Source: Research Findings (2023)

5.3.2 Test for Intervening Effect- Step Two

The second step in establishing the intervening effect entails obtaining a fixed model regression output by regressing the intervening variable which is measured using the market share index to represent competitiveness against the independent variables representing funding sources. The result of this regression output as emphasized by Baron and Kenny (1986) must also be significant. The result of this fixed model regression output satisfying the equation shown in section 3.8.2.2 is shown in Table 5.3.

The outcome of the regression results as obtained in Table 5.3 indicates that the three funding sources that were under consideration had a statistically significant positive

impact on the competitiveness of commercial banks measured using the market share index as depicted by the prob (F-statistics), the R-squared measure and adjusted R-squared measure of 0.00000, 0.975645 and 0.973025 respectively. The 0.973025 for R-squared values is an indication that 97.3025 % of the competitiveness of commercial banks measured using the market share index is explained using the three funding sources and on the same note if adjusted R-squared value 0.973025 is used for the same explanation, then the percentage changes to 97.3025%. The overall significance of the model as indicated by the Prob (F-statistics) of 0.000000 is smaller than the standard alpha (α) of 0.05 used for decision making, this does not only suggest that the model as it is, is good enough but also is an indication that commercial bank's funding sources significantly influence the competitiveness of these banks measured using market share index. The requirement for testing mediation in step 2 as suggested by Baron and Kenny (1986) is fulfilled.

The coefficients as shown in the findings suggest a mixed association between the competitiveness of commercial banks measured using the market share index and all three sources of funding that were considered. Both deposits due to other banks and equity amount for the shareholder point to an insignificant association despite the general association being significant as indicated by Prob (F-statistics) of 0.000000. Deposits due to other banks, deposits from customers, equity share capital and the constant term in the regression equation were found to have -0.0000039, 0.00000882, and 0.328255 as coefficients respectively. The -0.0000039 coefficient for deposits due to other banks suggests that for every unit increase in it, the competitiveness of commercial banks

measured using the market share index will decrease by -0.0000039 units keeping all other factors constant, however, this, may not be true considering the implication caused by the higher p-value of 0.0519.

Table 5. 3: Step 2 Effect of Funding Sources on the Competitiveness of Commercial Banks

Dependent Variables: Market share index			Method: L S	
Sample: From 2011 to 2021			Data for 11 years Time Period	
Number of Commercial Banks considered: 35			TP (Unbalanced) Obs: 382	
Variable	Coefficient	Std. Error	t-Statistics	Prob.
DEPOSIT DUE TO OTHER BANKS	-0.0000039	0.000002	-1.950590	0.0519
DEPOSIT FROM CUSTOMERS	0.00000882	0.000000696	11.85836	0.0000
EQUITY 1	0.328255	0.185226	1.772181	0.0772
C	0.954464	0.682616	1.398245	1.1629
R-squared	0.975645			
Adjusted R-squared	0.973025			
F-statistics	372.44210			
Prob (F-statistics)	0.000000			

Source: Research Findings (2023)

On the same note, the 0.328255 coefficient for equity shareholding in the commercial banks suggests that the competitiveness of commercial banks measured using the market share index increases by 0.328255 units for every unit increase in shareholders' equity keeping all other factors constant this, may not be true considering the implication caused by the higher p-value of 0.0772 pointing to an insignificant association between the two variables.

The 0.00000882 coefficient for the deposit from customers as a source of funding, on the other hand, suggests that for every unit increase in it, the competitiveness of commercial banks measured using the market share index will increase by 0.00000882 units keeping all other factors constant and with its lower p-value of 0.0000 the assumption is considered solid and can be relied on. In a nutshell, this is a clear indication that a bank with more deposits is more likely to be competitive compared to those with fewer deposits. To note nonetheless is that the general relationship in this stage is significant and this warranted the move to the third step as shown in the next section.

5.3.3 Test for Intervening Effect- Step Three

With results from steps 1 and 2 being statistically significant Baron and Kenny (1986) guidelines prescribe a third inspection procedure before intervention can be proved using a fixed model regression output of performance against bank competitiveness.

For purposes of this analysis, a third linear regression equation examining whether there is a significant relationship between bank competitiveness (used as the independent variable) and the performance of commercial banks (dependent variable) as earlier shown in section 3.8.2.3 of chapter three as:

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}MS + \varepsilon_{a,in}$$

The above regression output result is captured in Table 5.4 and indicates that Banks' competitiveness measured using the market share index had a statistically significant impact on the performance of commercial banks measured using the market share index as depicted by the R-squared value of 0.556750 which explains 55.675% of commercial

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banks' performance and the adjusted R-squared of 0.512298 in an indication that

51.2298% of banks performance is explained by their competitiveness. Moreover, the

Prob (F-statistics) of 0.000000 is smaller than the standard alpha (α) of 0.05 used for

decision-making, thus suggesting the existence of a statistically significant association

between competitiveness and performance among commercial banks. This, therefore,

fulfilled the third condition of testing mediation hence creating an avenue of proceeding

to the final inspection criteria of mediation as set out (Baron & Kenny, 1986). In

addition, the Prob (F-statistics) of 0.000000 is also a strong indicator that the model as it

is, is good and the association is significant.

Table 5. 4: Step 3 Effect of Banks' Competitiveness on the Performance of Commercial Banks

DV: CAMELS RANK			Method: L S	
Sample: From 2011 to 2021		Data for 11 years Time Period		
Number of Commercial Banks considered: 35		TP (Unbalanced) Obs: 385		
Variable	Coefficient	Std. Error	t-Statistics	Prob.
MARKET SHARE INDEX	0.105	0.0304	3.463162	0.0006
C	2.983153	0.087872	33.94903	0.0000
R-squared	0.556750			
Adjusted R-squared	0.512298			
F-statistics	12.52476			
Prob (F-statistics)	0.000000			

Source: Research Findings (2023)

The 0.105 coefficient for bank competitiveness measured using the market share index

suggests that for every unit increase in it, the performance of commercial banks measured

using CAMELS will increase by 0.105 units keeping all other factors constant and with

its lower p-value of 0.0006 the assumption is considered solid and can be relied on. In a nutshell, this is a clear indication that the performance of commercial banks is more likely to be better should we find that the bank is more competitive. The key highlight in this step is the fact that the general relationship in this stage is significant and this warranted the move to the fourth and final step as shown in the next section.

5.3.4 Test for Intervening Effect- Step Four

Baron and Kenny (1986) suggested that a final regression where the supposed mediator variable is used to control the effect of the independent variable on the dependent variable be obtained, and this is done by introducing it (the mediator) as part of the explanatory variable in the relationship. The result of this regression output should then point to a significant association based on the obtained F-statistics probability which must be smaller than the standard alpha (α) of 0.05 used for decision-making. They further suggested that the coefficients of regression equations obtained in step 3 above be compared with the coefficient or regression outputs obtained in step 4 and they should be in a manner that the predicted direction in the fourth regression output is less compared to the results revealed by the third step.

For purposes of this analysis, the output of the linear regression equation showing how the bank's funding sources with competitiveness introduced as an intervening variable influences the performance of the commercial banks in Kenya as earlier highlighted in section 3.8.2.4 was obtained are results displayed in Table 5.5

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}FS2 + \beta_{3a,in}FS3 + \beta_{4a,in}MS + \varepsilon_{a,in}$$

The result in Table 5.5 provides answers to the above-suggested conditions. The outcome of the regression results, as obtained, indicates that the three funding sources (the independent variables) that were under consideration and the mediator variable (market share index) introduced as an intervening variable had a statistically significant impact on the performance of commercial banks measured using the CAMELS as depicted by the R-squared value of 0.597319 which shows 59.7319% of the commercial bank's performance measured using CAMELS' rank is explained by the four explanatory variables, moreover, when Adjusted R-squared value of 0.552707 is used, it shows that 55.2707% of the commercial bank's performance measured using CAMELS' rank is also explained by the four explanatory variables.

To decide whether to reject or accept the assertion of the model, the conditions set out by Baron and Kenny (1986) are also fulfilled as they suggest an overall significant association based on the fact that the overall F-statistics probability for the entire model is 0.000000 which is less than the standard alpha (α) of 0.05 and further indicates that the model is fit for use as it is. Evaluation of the direction of coefficients market share index in both table 5.4 and table 5.5 shows 0.105 and -0.020004 respectively. The latter is smaller compared to the former an indication that all the conditions as set out by Baron and Kenny (1986) are met and therefore the results lead to an overall conclusion that bank competitiveness mediates the relationship between funding and performance of commercial banks in Kenya.

Table 5.5: Step 4 Effect of Funding Sources and Banks' Competitiveness on the Performance of Commercial Banks

DV: CAMELS RANK			Method: L S	
Sample: From 2011 to 2021			Data for 11 years' Time Period	
Number of Commercial Banks considered: 35			TP (Unbalanced) Obs: 382	

Variable	Coefficient	Std. Error	t-Statistics	Prob.
DEPOSIT DUE TO OTHER BANKS	0.000000228	0.00000142	0.160332	0.8727
DEPOSIT FROM CUSTOMERS	0.00000114	0.000000584	1.957763	0.0511
EQUITY 1	0.600462	0.13185	4.554142	0.0000
MARKET SHARE INDEX	-0.020004	0.038205	-0.524532	0.6002
C	0.929315	0.485075	1.915816	0.0562
R-squared	0.597319	MDV		3.268761
Adjusted R-squared	0.552707	S.D. dependent		0.060640
S.E. of Reg	0.405560	AIFCR		1.129402
RSS	56.416230	Schwarz criterion		1.5352207
Log likelihood	-176.5170	HQC		1289204
F-statistics	13.38925	Durbin-Watson stat		1.261908
Prob (F-statistics)	0.000000			

Research Findings (2023)

5.4 Moderating Effect of the Bank's Size on the Relationship between Funding Sources and the Performance of Commercial Banks

The moderating effect of a Commercial bank's size on the main relationship between the three funding sources and the performance of these banks was the third objective. In seeking answers to this objective, a null hypothesis that the size of a bank does not moderate the relationship between funding sources and the performance of commercial banks in Kenya was formulated and tested. Following the approach proposed by Baron and Kenny (1986), a three-step regression procedure was employed on the data as explained in the subsequent sections.

5.4.1 Test for Moderation Effect- Step One

The first procedure involved testing the main relationship, that is, how the three independent variables affect the performance of commercial banks. The procedure was performed and the results as earlier explained in section 5.2 of this chapter point out the presence of a significant association. The key highlight in this step is the fact that the general relationship in this stage is significant and this warranted the move to the second step.

5.4.2 Test for Moderation Effect- Step Two

In the quest to ascertain the moderation status of bank size on the main relationship, a second procedure was undertaken as prescribed in Baron and Kenny (1986) work. In this research, the procedure involved evaluating whether commercial banks' performance was influenced by their size. To aid in establishing the needs of this step, the output of the linear regression equation shown below (earlier stated in section 3.8.3.1 of chapter 3) was obtained and results displayed in Table 5.6

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}BS + \varepsilon_{a,in}$$

The model was tested using a fixed effect panel regression model which regressed CAMELS against log total assets which is a measure of banks' size.

The outcome of the regression results as obtained indicates that the bank size had a statistically significant impact on commercial banks' performance measured using CAMELS as depicted by the R-squared value of 0.586258 which explains 58.6258% of firm performance, and when Adjusted R-squared is used we find it to have 0.544765

which indicating that 54.4765% of commercial bank performance is explained three

funding sources. Moreover, the probability F-statistics value of 0.000000 is smaller than

the standard alpha (α) of 0.05 used for decision-making, thus suggesting that bank size

indeed does influence performance as per the model. The probability F-statistics value of

0.000000 is a further indication that the model is good. A look at how bank size affects

performance reveals a significant association based on its p-value of 0.0000 which is way

below the standard alpha (α) of 0.05.

Table 5. 6: Step 2 Moderation Effect- Effect of Bank Size on the Performance of Commercial Banks

DV: CAMELS RANK			Method: L S	
Sample: From 2011 to 2021			Data for 11 years' Time Period	
Number of Commercial Banks considered: 35			TP (Unbalanced) Obs: 382	
Variable	**Coefficient**	**Std. Error**	**t-Statistics**	**Prob.**
LOG TOTAL ASSET	0.236773	0.038542	6.143198	0.0000
C	0.749978	0.412042	1.820142	0.0696
R-squared	0.586258	MDV		3.277922
Adjusted R-squared	0.544765	S.D. dependent		0.613461
S.E. of Reg	0.413909	AIFCR		1.162500
RSS	59.79087	Schwarz criterion		1.532154
Log likelihood	-187.7812	HQC		1.309106
F-statistics	14.12915	Durbin-Watson stat		1.291210
Prob (F-statistics)	0.000000			

Source: Research Findings (2023)

The coefficient as shown in the findings suggests a general positive association between

commercial bank performance and Bank size. The 0.236773 coefficient for bank size

suggests that for every unit increase in it, the performance of commercial banks measured using CAMELS will increase by 0.236773. These findings lead to the overall conclusion the null hypothesis as started stands rejected based on the Probability F-statistics value of 0.000000 and a conclusion is therefore reached that bank size indeed positively affects the performance of commercial banks in Kenya. The key highlight in this step is the fact that the general relationship in this stage is significant and this warranted the move to the third and final step as shown in the next section.

5.4.3 Test for Moderation Effect- Step Three

With results from procedures 1 and 2 being statistically significant Baron and Kenny (1986) guideline prescribed a third and final inspection procedure before moderation can be proved. In this research, the procedure was actualized by an investigation on whether bank size plays the role of a moderator on the relationship between funding sources and the performance of commercial banks. Considering that funding sources were found to have a significant influence on commercial bank performance as was discussed in section 5.2, the significance of the moderator (bank size) was tested in the context of each funding source by the log of total asset interaction, that is the combined effect of each funding source measure and bank size measure on performance with the aid of two-way interaction. Each of the variables used in the interaction testing has specific roles, Funding sources played the role of a focal predictor while log total assets played the role of a moderator. The interaction variables were then created in EVIEWS and three sets of fixed regression outputs were generated.

To aid in the analysis, three different linear regression models were formulated for each of the interactions. The first among the three was to help in deciding whether Bank size acting as a moderator and measured using the log of total assets has a significant influence on the effect of deposits due from other banks (when used as a funding source) on the performance of commercial banks. The second linear regression model was to aid in the decision on whether Bank size acting as a moderator and measured using the log of total assets has a significant influence on the effect of deposits from customers (when used as a funding source) on the performance of commercial banks. The third linear regression model was to help decide whether bank size acting as a moderator and measured using the log of total assets has a significant influence on the effect of shareholders' equity (when used as a funding source) on the performance of commercial banks. The output fulfilling these three linear regression models was respectively formulated and interpreted as per the results presented in tables 5.7, 5.8 and 5.9

5.4.3.1 Test for Moderation-Interaction 1

Results and interpretation of the test for the first linear regression model formulated for the first interaction are presented in Table 5.7. The results from the table were used to satisfy the model earlier stated in section 3.8.3.2 which was:

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}BS + \beta_{3a,in}(FS1)(BS) + \varepsilon_{a,in}$$

The model assisted in establishing that bank size significantly influences the relationship between deposits due to other banks and their performance.

Regression results presented in Table 5.7 show that 54.5135% of the change in performance of commercial banks is attributed to both changes in deposits due to other banks and the size of the bank if the interpretation is based on the adjusted R-squared value of 0.545135 and 58.8963% of the same if the interpretation is based on the R-squared value of 0.588963. The overall F-statistics probability of 0.000000 is an indication that the model as presented is statistically significant.

Table 5. 7: Influence of Bank Size on the Relationship between Deposits Due to Other Banks and Commercial Banks' Performance

DV: CAMELS RANK			Method: L S	
Sample: From 2011 to 2021			Data for 11 years Time Period	
Number of Commercial Banks considered: 35			TP (Unbalanced) Obs: 385	

Variable	Coefficient	Std. Error	t-Statistics	Prob.
DEPOSIT DUE TO OTHER BANKS	-0.000013	0.0000204	-0.634438	0.5262
LOG TOTAL ASSETS	0.218279	0.040654	5.369152	0.0000
INTERACTION 1: BANK DEPOSIT_LOGTOTAL ASSETS	0.00000114	0.00000158	0.721656	0.4710
C	0.933452	0.435042	2.145659	0.0326
R-squared	0.588963	MDV		3.277922
Adjusted R-squared	0.545135	S.D. dependant		0.613461
S.E. of Reg	0.413741	AIFCR		1.166329
RSS	59.39993	Schwarz criterion		1.556520
Log likelihood	-186.5184	HQC		1.321080
F-statistics	13.43800	Durbin-Watson stat		1.308346
Prob (F-statistics)	0.000000			

Source: Research Findings (2023)

On the flip side, findings on how deposits due from other banks affect performance show a statistically negative non-significant association as depicted by a $\beta\ coefficient\ value\ of\ -0.000013$, t-statistics of -0.634438 and p-value of 0.5262. Moreover, results in Table 5.7 further indicate the presence of a statistically positive interaction between bank size and bank performance as depicted by a $\beta\ coefficient\ of\ 0.218279$, t-statistics of 5.369152 and p-value of 0.0000. The 0.218279 beta coefficient implies that for every unit increase in the value of the log of total assets, the performance of the commercial bank will increase by 0.218279 in CAMELS' ranking. Finally $\beta\ coefficient\ of\ 0.00000114$, t-statistics of 0.721656 and p-value of 0.0000 for the interaction term between deposit due to other from other banks and log of total asset suggests a statistically positive association, that is, bank performance increases by 0.00000114 unit of CAMELS' ranking for every unit increase of the interaction term in the association. an overall conclusion that bank size measured by the log of total assets perfectly moderates the relationship between funding and performance of commercial banks in Kenya if deposit due to other banks is used as a source of funding.

5.4.3.2 Test for Moderation-Interaction 2

Results and interpretation of the test for the second linear regression model formulated for the second interaction are presented in Table 5.8. The results from the table were used to satisfy the model earlier stated in section 3.8.3.2 which was:

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS2 + \beta_{2a,in}BS + \beta_{3a,in}(FS2)(BS) + \varepsilon_{a,in}$$

The model assisted in establishing that bank size significantly influences the relationship between deposits due from customers and their performance. Regression results presented in Table 5.8 show that 57.6757% of the change in performance of commercial banks is attributed to both changes in customer deposits and the size of the bank if the interpretation is based on the adjusted R-squared value of 0.576757 and 61.7538% of the same if the interpretation is based on the R-squared value of 0.617538. The overall F-statistics probability of 0.000000 is an indication that the model as presented is statistically significant

The findings on how customers' deposits affect performance show a statistically positive significant association as depicted by a β $coefficient$ $value$ of 0.0000437, t-statistics of 4.268878 and p-value of 0.0000. this shows that for every unit increase in customers' deposits, the performance of commercial banks increases by 0.0000437 unit increase in CAMELS' ranking. Moreover, results in Table 5.8 further indicate the presence of a statistically positive interaction between bank size and bank performance as depicted by a β of 0.112857, t-statistics of 2.547507 and p-value of 0.0113.

The 0.112857 beta coefficient implies that for every unit increase in the value of the log of total assets, the performance of the commercial bank will increase by 0.112857 in CAMELS' ranking. Finally β of $-$ 0.00000308, t-statistics of 0.721656 and p-value of 0.0000 for the interaction term between deposit due to other from other banks and log of total asset suggest a statistically negative association, that is, bank performance decreases by 0.00000308 unit of CAMELS' ranking for every unit increase of the interaction term in the association. The overall conclusion is that bank size measured by the log of total

assets moderates the relationship between funding and the performance of commercial banks in Kenya if customer deposits are used as a source of funding.

Table 5. 8: Influence of Bank Size on the Relationship Between Deposits from Customers and Commercial Banks' Performace

DV: CAMELS RANK			Method: L S	
Sample: From 2011 to 2021			Data for 11 years Time Period	
Number of Commercial Banks considered: 35			TP (Unbalanced) Obs: 385	

Variable	Coefficient	Std. Error	t-Statistics	Prob.
DEPOSIT FROM CUSTOMERS	0.0000437	0.0000102	4.268878	0.0000
LOG TOTAL ASSETS	0.112857	0.044301	2.547507	0.0113
INTERACTION 2:				
CUSTOMERS DEPOSIT_LOGTOTAL ASSETS	-0.00000308	0.000000745	-4.137084	0.0000
C	1.607326	0.439277	3.659026	0.0003

R-squared	0.617538	MDV	3.277922
Adjusted R-squared	0.576757	S.D. dependant	0.613461
S.E. of Reg	0.399100	AIFCR	1.094275
RSS	55.27048	Schwarz criterion	1.484466
Log likelihood	-172.6480	HQC	1.249026
F-statistics	15.14269	Durbin-Watson stat	1.326829
Prob (F-statistics)	0.000000		

Source: Research Findings (2023)

5.4.3.3 Test for Moderation-Interaction 3

Results and interpretation of the test for the third linear regression model formulated for the third interaction are presented in Table 5.9. The results from the table were used to satisfy the model earlier stated in section 3.8.3.2 which was:

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}FS3 + \beta_{2a,in}BS + \beta_{3a,in}(FS3)(BS) + \varepsilon_{a,in}$$

The model assisted in establishing that bank size significantly influences the relationship between shareholders' equity and their performance. Regression results presented in Table 5.9 show that 56.9001% of the change in performance of commercial banks is attributed to both changes in shareholders' equity and the size of the bank if the interpretation is based on the adjusted R-squared value of 0.569001 and 61.0857% of the same if the interpretation is based on the R-squared value of 0.610857. The overall F-statistics probability of 0.000000 is an indication that the model as presented is statistically significant

Research findings further indicate a statistically non-significant negative association between the shareholders' equity and performance as depicted by a beta coefficient of -1.048079, t-statistics of -1.931148 and p-value of 0.0543. these notwithstanding results also indicate the presence of a statistically negative interaction between bank size and bank performance as depicted by a beta coefficient of -0.318253, a t-statistics of -2.030371 and a p-value of 0.0431. The -0.318253 beta coefficient implies that for every unit increase in the value of the log of total assets, the performance of the commercial bank decreases by 0.318253 in CAMELS' ranking.

The beta coefficient of 0.133496, t-statistics of 3.014042, and a p-value of 0.0028 for the interaction term between shareholders' equity and log of total assets suggest a statistically positive association, that is, bank performance increases by 0.133496 unit of CAMELS' ranking for every unit increase of the interaction term in the association. The overall conclusion is that bank size measured by the log of total assets moderates the relationship

between funding and the performance of commercial banks in Kenya if shareholders' equity is used as a source of funding.

Table 5. 9: Influence of Bank Size on the Relationship Between Shareholders' Equity and Commercial Banks' Performace

DV: CAMELS RANK			Method: L S	
Sample: From 2011 to 2021			Data for 11 years Time Period	
Number of Commercial Banks considered: 35			TP (Unbalanced) Obs: 385	
Variable	Coefficient	Std. Error	t-Statistics	Prob.
EQUITY	-1.048079	0.542723	-1.931148	0.0543
LOG TOTAL ASSETS	-0.318253	0.156746	-2.030371	0.0431
INTERACTION 3: EQUITY&LOGTOTAL ASSETS	0.133496	0.044291	3.014042	0.0028
C	5.110072	1.828110	2.795277	0.0055
R-squared	0.610857	MDV		3.268761
Adjusted R-squared	0.569001	S.D. dependant		0.606400
S.E. of Reg	0.398104	AIFCR		1.089969
RSS	54.51958	Schwarz criterion		1.482446
Log likelihood	-170.1841	HQC		1.245674
F-statistics	14.59443	Durbin-Watson stat		1.342583
Prob (F-statistics)	0.000000			

Source: Research Findings (2023)

5.5 Joint Effect of Funding Sources, Competitiveness and Bank Size on the Performance of Commercial Banks

The joint effect of funding sources, competitiveness and bank size on the performance of the commercial bank in Kenya was the fourth and final objective of the study. In seeking

answers to this objective the null hypothesis that funding sources, bank competitiveness, and bank size do not jointly have an effect on the performance of commercial banks in Kenya was formulated and tested using the regression equation shown in section 3.8.4 in chapter three, the results were presented in Table 5.10

$$P_{in} = \beta_{0,it} + \beta_{0a,in} + \beta_{1a,in}FS1 + \beta_{2a,in}FS2 + \beta_{3a,in}FS3 + \beta_{4a,in}MS + \beta_{5,in}BS + \varepsilon_{a,in}$$

Regression results presented in Table 5.10 below show that 55.9320% of the change in performance of commercial banks is attributed to changes in funding sources, competitiveness and size of the bank if the interpretation is based on the adjusted R-squared value of 0.559320 and 60.4429% of the same if the interpretation is based on the R-squared value of 0.604429. The overall F-statistics probability of 0.000000 is an indication that the model as presented is statistically significant and the hypothesis that funding sources, bank competitiveness, and bank size do not jointly have an effect on the performance of commercial banks in Kenya, is rejected.

Inspection of individual variables within the model further indicates a statistically non-significant association in three out of the five explanatory variables under consideration based on the fact that their respective p-values that were obtained were greater than 0.05. The remaining two explanatory variables which are shareholders' equity and log of total assets were however found to have a significant association since they have a lower than 0.05 p-value. Deposits due to other banks, deposits from customers, and market share index were found to have P 0.9423, 0.1087, and 0.5618 p-values respectively, the respective beta coefficient of these three variables with the insignificant association turns

out to be very low and their impact may not account into any meaningful conclusion, these values are 0.000000103, 0.000000994 and -0.022025 respectively.

Table 5. 10: Influence of Funding Sources, Competitiveness and Size on the Performance

DV: CAMELS RANK			Method: L S	
Data for 11 years Time Period		Number of Commercial Banks considered: 35		
Number of Commercial Banks considered: 35		TP (Unbalanced) Obs: 382		

Variable	Coefficient	Std. Error	t-Statistics	Prob.
DEPOSIT DUE TO OTHER BANKS	0.000000103	0.00000141	0.072493	0.9423
DEPOSIT FROM CUSTOMERS	0.000000994	0.000000585	1.608295	0.1087
EQUITY 1	0.445417	0.145045	3.070887	0.0023
MARKET SHARE INDEX	-0.022025	0.037930	-0.580680	0.5618
LOG TOTAL ASSETS	0.117167	0.047258	2.479295	0.0136
C	0.294357	0.545352	0.539757	0.5897
R-squared	0.604429	MDV		3.268761
Adjusted R-squared	0.559320	S.D. dependant		0.606400
S.E. of Reg	0.402551	AIFCR		1.116824
RSS	55.42014	Schwarz criterion		1.529957
Log likelihood	-173.3133	HQC		1.280723
F-statistics	13.39931	Durbin-Watson stat		1.295783
Prob (F-statistics)	0.000000			

Source: Research Findings (2023)

The two explanatory variables that were found to have a statistically significant association were both shareholders' equity and log total assets had a p-value of 0.0023 and 0.0136 respectively. The beta coefficient results of 0.445417 for shareholders' equity imply that for every unit increase in the value of shareholder's equity, the performance of the commercial bank will increase by 0.318253 in CAMELS' ranking. On the same note,

The beta coefficient results of 0.117167 for log total assets imply that for every unit increase in the value of log total assets, the performance of the commercial bank will increase by 0.117167 in CAMELS' ranking

5.6 Discussion of Hypotheses Test and Research Findings

Section 5.2 to 5.5 of this chapter has presented the results, the analysis, and the subsequent interpretation of the same. From these findings, the researcher was able to get answers to the four study objectives with the aid of testing and interpreting the test results of the four main hypotheses using several sub-hypotheses. In seeking answers to the first objective of the study which was to establish the effect of funding sources on the performance of commercial banks in Kenya. Findings in section 5.2 point to a confirmation that funding sources do have a positive effect on performance since the null hypothesis that "H_{01}: Funding sources do not influence the performance of the commercial banks in Kenya" was rejected based on the results which pointed to a significant positive association between the two. Section 5.3 presented findings that answered the second objective of the study, the results led to the conclusion that commercial banks' competitiveness does intervene in the relationship between funding sources and the performance of commercial banks in Kenya. The third objective of the study was to seek answers as to whether bank size moderates the relationship between funding sources and bank performance and this was confirmed as per the results in section 5.4. Finally, the overall joint effect of funding sources, competitiveness and bank size on the performance of commercial banks in Kenya was found to be significant as per the results presented in section 5.5.

5.6.1 Effect of Funding Sources on the Performance of Commercial Banks

The rejection of the null hypothesis that "funding sources do not influence the performance of the commercial banks in Kenya" was grounded on the non-significant p-value obtained in section 5.2 and this provided the answer to the first objective of this study. With the exception of deposits due from other banks as a source of funding, the study concluded that funding sources do have a positive effect on performance. Presented in this section are discussions on various studies that support the findings of this study as none of the studies reviewed had a contrary view.

The three funding sources that were considered in this study were deposits due to other banks, customers' deposits, and equity shareholders. Despite deposits due to other banks posing an insignificant association with performance as revealed by the significant p-value, both deposits from customers and equity shareholders were found to have a significant impact on performance. The findings of this study were consistent with the findings of Tuyishime et al. (2015) who not only found deposits to have a positive association with Rwandan Equity Commercial Bank's financial performance but management was aggressively involved in the campaign to see these deposits grow.

The findings of this study tend to agree with the findings of Jin et al. (2017) study as both studies agree on the use of customer deposits as one of the strategic funding sources available in the banking sector, the latter study however puts more emphasis on retail customers' deposits while the former emphasizes that shareholders' equity is most preferred based on the respective p-values results. Considering that Jin et al. (2017) study was in the US where saving culture is considered with the seriousness it deserves and the

information about them is also insensitive. Commercial banks operating in such an environment tend to find a way to easily mobilize idle resources in the form of customer savings at a relatively cheap cost and by extension end up with a better performance. The situation in the Kenyan Commercial banking space depicts a different scenario, from this research findings, shareholders' equity is found to be a dominant funding source and a possible explanation for this may be attributed to the effort put by the regulatory agency CBK in ensuring that banks strictly adhere to laid down rules in achieving a certain shareholding threshold before allowed to operate.

This study's findings further agree with Shollapur and Baligatti (2010) findings as both of them take cognisant of the important role customers' deposits play in deriving the profitability agenda in the banking business. Though profit is considered one of the components of CAMELS' model measured using the aggregate value of ROE and ROA, the role it plays in shaping the overall performance is significant enough to conclude that whatever affects earnings ability also affects the general performance. This study, however, disagrees with the views of Ilamoya and Omar (2018) who believed that an increase in the deposit component by commercial banks is an indicator that interest paid on them is favorable and this by extension has the possibility of eating on their profits. The study findings indicated that when high interest is paid on deposits, the banks' performance is likely to decline and vice versa. Moreover, the scholars further discovered that customers do tend not to give out their deposits to banks whenever they are offering low-interest rates and consequently unfavorably impact performance.

5.6.2 Intervening Effect of the Bank's Competitiveness on the Relationship between Funding Sources and the Performance of Commercial Banks

To interrogate in depth the relationship between dependent and independent variables, a third variable known as a mediator (intervener) was introduced in the model. The inclusion or omission of an intervener variable has an operational role of either speeding up or slowing down the nature of the association between the dependent and independent variables as it provides the platform that is capable of influencing the relationships between the two (independent and dependent), and in as much as the moderator variable establishes the time duration of when a certain effect holds, a mediator explains why and how they occur (Baron & Kenny, 1986).

Section 5.3 presented the findings and the interpretation that provide answers to the second objective of the study. From the section, the null hypothesis that "Bank's competitiveness does not intervene in the relationship between funding sources and the performance of the commercial banks in Kenya" was rejected and this led to the conclusion that commercial banks' competitiveness does act as a generating mechanism in the relationship between funding sources and the performance of commercial banks in Kenya. As a result, therefore, this section presents a discussion of various studies that either support or differ from the findings of this study.

In assessing the intervening effect of customers' deposits and loans on the relationship that exists between the bank's restructuring effort and its financial performance, Kithinji et al. (2017) study established two contrasting findings, that is that customers' deposits intervene in the relationship while loans from customers do not. They recommended to

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the bank management to put more focus on deposits concurring with the findings of this study since deposits from customers seem to be a major component in funding as suggested by research findings. Based on these two findings, it is prudent for bank managers to engage in actions that attract customers' deposits, as they are considered cheap and easy to maintain. The current business environment also complicates the frequent need for these deposits by customers, as most of them would prefer having their money in the banks as opposed to deploying them in the business environment considered uncertain.

In evaluating the effect of competition on performance in the banking sector Uddin and Suzuki (2014) study findings point to a direct association agreeing with the findings of this study. Though the two studies show similar findings, a critical look at both reveals that in Uddin and Suzuki (2014) study competition has been used as the independent variable while in this study it has been used as the intervening variable, this nonetheless does not change significantly change the idea that competitiveness indeed has a positive influence. The reality in the Kenyan banking sector marketplace depicts a practice where banks tend to focus on their special clientele, no wonder a bank considered small will still find herself in a sustainable business model regardless of the tight competition regime. During data collection, certain banks were found to be concentrated in a certain geographical region or were serving a special group of clients, a possible indicator that the banks have segmented themselves in the marketplace.

To answer the dilemma of what makes banks to be good monitors to their borrowers and eventually end up with better performance Hughes and Mester (2017) documented that

Banks tend to have an incentive advantage compared to other intermediaries as a result of using a liability that has a demandable debt feature. Considering that banks usually have a high debt level as one of the components of funding, this study fails to account for this claim. Despite, bank managers being naturally programmed to be diligent in coming up with a plan likely to increase the insolvency risk. The findings of this study also failed to ascertain this claim as observed in Hughes and Mester (2017) study. Moreover, safety concerns and performance pressure in banks are heightened by the fact that insurance cannot fully cover the risk associated with the demandable debt component in the funding, research findings did not have anything to back the claim. Lastly, an information advantage also arises from the fact that banks can lend their money to those sectors that are informally opaque to borrow in both the equity market and public debt, the role of performance information was never established. Since this study did not have a clear definition of the debt component in the funding structure a suggestion to have another study with this clearly defined is hereby made.

In Tuyishime et al. (2015) study, it was documented that marketing strategies help improve the level of deposit mobilization and by extension positively affect performance, this finding is in agreement with the findings of this study which contends the idea that practices that enhance competition do not only improve the funding capability of banks but also enhances performance.

5.6.3 Moderating Effect of the Bank's Size on the Relationship between Funding Sources and the Performance of Commercial Banks

Section 5.4 presented findings and the interpretation that provided answers to the third objective of the study. From the section, the null hypothesis that "the size of a bank does not moderate the relationship between funding sources and the performance of commercial banks in Kenya." was rejected and this led to the conclusion that the size of a commercial is a moderator in the relationship between funding sources and the performance of commercial banks in Kenya. As a result, therefore, this section presents a discussion of various studies that either support or differ from the findings of this study.

In an attempt to establish the moderation effect, a regression analysis on how bank size affects performance was carried out and the results were shown in Table 5.6. The outcome of the regression results agrees with the findings by Teimet et al. (2019) who also found that bank size had a statistically significant positive impact on commercial banks' performance. A contrasting view is presented in Alfadhli and Musaed (2021) study which found bank size to have a statistically insignificant inverse association with financial performance. The presentation of these mixed findings may be attributed to the different approaches scholars have adopted in measuring size and performance. For instance, in these three studies that have been highlighted, two have only considered financial performance as opposed to the general performance used in this study.

Findings from this study further present a mixed moderating effect outcome for each of the three funding sources' relationship with performance. The moderating effect of size on the relationship between deposits due to other banks and performance was found to be

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insignificant as shown by results in table 5.7 and positively significant between deposits from customers as shown by results in table 5.8. Whereas this study suggests a statistically significant negative association of the moderating effect of size on the relationship between shareholders' equity and performance as shown in Table 5.9, a study by Alfadhli and Musaed (2021) found shareholders' equity to have a direct significant association on the role of size on performance. Findings documented by Mutende et al. (2017) established a negative moderating effect on cash flow and performance relationships. In as much as the study did consider cash flow, a similarity can be deduced from the mere fact that cash flow is one of the silent features of performance, especially when the liquidity aspect in the CAMELS model is under consideration.

This study agrees with the views of Abraham (2018) study asserted that firms will prefer the use of internal capital before any other source is used, and size plays a positive role in moderating the relationship between capital structure and firm characteristics. Moreover, findings by Antoun et al. (2018) on the association between firm characteristics measured using size and performance using the CAMEL rating model showed a negative association, however, the direction of the relationship changes if economic growth and bank concentration are factored in as moderating variables. Similar sentiments are shared in this study the only difference is that this study did not incorporate both economic growth and bank concentration as moderating factors but instead used size.

5.6.4 Joint Effect of Funding Sources, Competitiveness and Bank Size on the Performance of Commercial Banks

In recent years, the banking industry has been facing increased scrutiny from both regulators and consumers. This scrutiny has been driven in part by the global financial crisis, which highlighted weaknesses in many banks' risk management and business models, as well as the lack of transparency of many banks (IMF, 2013). At the same time, the industry is rapidly changing in response to the changing needs and expectations of consumers, as well as increasing competition from non-traditional banking providers such as FinTech companies (Yahaya et al., 2015). In addition, many banks have been experiencing significant declines in revenue and profitability considered key performance indicators in recent years as interest rates have fallen and economic activity has slowed in many parts of the world (Ruslan et al., 2018), moreover, most banks in developing economies have systematically reduced their presence in terms of physical branches as most of them have been closing down branches considered non-strategic

In response to these challenges, many banks have adopted a strategy of undertaking significant restructuring efforts aimed at enhancing efficiency, reducing costs, and increasing overall performance. As part of this strategy, they have also begun to explore new sources of funding in a bid to reduce their reliance on traditional funding sources such as deposits. For example, some banks are expanding the number of distribution channels they use to sell their products to consumers in order to drive revenue and expand market share. Others are diversifying their product offerings in an effort to enhance their competitive position and attract new customers (Ruslan et al., 2018;

Yahaya et al., 2015). However, not all banks have undertaken such strategies with success as suggested by findings discussed in section 5.5. Indeed, some commercial banks have been forced to undertake several painful cost-cutting measures to offset declining revenues and profits. As a result, the long-term outlook for the banking industry remains uncertain, with many investors concerned about whether the banking sector will be able to bounce back once the global economy recovers.

This study had the benefit of looking at the aspect of the management contribution in the context of the CAMELS model, the findings suggest that funding sources if well managed by the management have a high possibility of positively impacting performance. A study by Kamande et al. (2019) on the other hand posits that bank performance was positively influenced by Support from management and the financial resources it controls. The study, however, fails to state the joint effect of bank characteristics on the entire relationship of the variable. CBK as the regulator of banks has in the recent past been extra vigilant on the work done by various bank managers, the situation has been so serious to the extent that certain banks that were found to have unauthorized internal lending ended up losing their operation licenses a case in point is Chase bank which was put under receivership and eventually deregistered.

Much as this study did not look at the role played by a commercial bank in financing sectors of the economy, a critical look at the whole picture and using commercial banks as one of the key sectors in the economy, how they are funded can be compared with Alu et al. (2014) study findings study which assessed the ability of banks in finance sectors of the economy. In both studies, the role of funding originating from other banks otherwise

referred to as wholesale funding in Alu et al. (2014) work was investigated. In the other study, the finding suggests that the use of wholesale funding has gained preference compared to internally generated funds and customer deposits while in this study, it was established that all the explanatory variables play a role that cannot be ignored.

This study shares similar views with Uddin and Suzuki (2014) study which pointed to a negative association between competition and bank performance. Both studies are in agreement with the fact that negative social welfare is brought about by excessive competition on deposits by banks hence the need for government intervention in the sector by carefully monitoring the deposit market share as rogue banks may intentionally increase their deposit rate in a bid to attract more while at the same time increases its lending rate which results in degrowth in the economy. Moreover, other factors notwithstanding, a bank that successfully acquires funds used for loan advancement to different sectors of the economy is more likely to have an SCA over the others (Chen et al., 2019).

5.7 Summary of Chapter

The chapter contained a detailed discussion of the findings and interpretation of the four null hypotheses that were formulated to give answers to the dilemma presented by the four specific objectives highlighted in chapters two and one respectively. The chapter unpacked the dilemma of the research by addressing how funding sources, competitiveness, size, and performance of the commercial bank in Kenya. Acting as the IVs, the chapter highlighted how funding sources were measured using three indicators, which were, deposits due from other banks, customers' deposits and shareholders' equity.

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The chapter further indicated that the dependent variable, the performance of the commercial banks was measured using the CAMELS composite rank of the six indicators constituting it. The market share index and log of the total assets were used as measures for competitiveness and size respectively which represented intervening and moderating variables in that order.

The chapter presented the findings of the study which are summarized in Table 5.11. for the first objective, it has been revealed in the chapter there is a direct significant association between funding sources and performance while Bank competitiveness was found to be having an intervening effect on the relationship between funding sources and performance. Findings further suggest that bank size only moderates the relationship between funding and performance if customers' deposit is used as a funding source, usage of other funding sources was found to have a non-significant moderating association with performance. In establishing the joint effect, an inspection of individual variables within the model further indicates a statistically non-significant association in three out of the five explanatory variables under consideration that is, two explanatory variables that were found to have a statistically significant association were both shareholders' equity and log total assets. Based on these findings, the study recommends the need for bank managers to adopt techniques that enable them to source funds with relative ease and at a cheaper cost must be encouraged as this will enable them to maximize their profit in the long run.

Table 5. 11: Summary of Study Objectives, Hypothesis, Findings, and Implications

Research Objectives	Research Hypotheses	Research Findings	Interpretation and Implications
To establish the effect of funding sources on the financial performance of commercial banks in Kenya.	H_{01}: Funding sources do not influence the performance of commercial banks in Kenya.	The findings obtained revealed a direct significant association between funding sources and performance	The null hypothesis is rejected and the study, therefore, concludes that funding sources indeed do influence performance based on the model output.
To determine the intervening effect of the bank's competitiveness on the relationship between funding sources and the financial performance of commercial banks in Kenya	H_{02}: Bank's competitiveness does not intervene in the relationship between funding sources and the performance of the commercial banks in Kenya.	The findings obtained revealed that bank competitiveness mediates the association between funding and the performance of commercial banks in Kenya.	All sub-null hypotheses formulated in section 5.3 were rejected moreover, the evaluation of the direction of coefficients market share index in both table 5.4 and table 5.5 shows 0.105 and -0.020004 respectively. The latter is smaller compared to the former an indication that all the conditions as set out by Baron and Kenny (1986) were met
To determine the moderating effect of the bank's size on the relationship between funding sources and the financial	H_{03}: The size of a bank does not moderate the relationship between funding sources and the performance of	The overall conclusion is that bank size measured by the log of total assets perfectly moderates the relationship	The influence of the size of a bank measured using the log of total assets on the relationship between funding source measured using shareholders' equity and the performance of

performance of commercial banks in Kenya.	commercial banks in Kenya.	between funding and the performance of commercial banks in Kenya if shareholders' equity is used as a source of funding.	commercial banks in Kenya is not significant". was rejected
To determine whether the joint effect of funding sources, bank's competitiveness and bank size on the financial performance of commercial banks in Kenya	H_{04}: Funding sources, Bank competitiveness, and Bank size do not jointly influence the performance of commercial banks in Kenya	Equity and log of total assets were found to have a significant association. The remaining three explanatory variables were found to play no significant influence on performance	Based on the fact that their respective p-values that were obtained were greater than 0.05. The remaining two explanatory variables which are shareholders' equity and log of total assets were however found to have a significant association since they have a lower than 0.05 p-value.

Source: Author, (2023)

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter covers a summary of the research findings, conclusions made out of the research findings discussed in chapter four, and the contribution of the study to the body of knowledge. The chapter further contains a section for suggestions for future research, also addressed in a sequential approach are the areas of limitations that were encountered during the study followed by a section addressing possible policy recommendations and implications.

6.2 Summary of Findings

The general observation of the research was that funding sources, competitiveness and firm size significantly influence the performance of commercial banks in Kenya. In an attempt to establish how funding sources, competitiveness, and size of commercial banks relate to their performance, the study was guided by four main specific objectives based on the four research variables. The performance of commercial banks was measured using the composite rank of its six key indicators, while bank size was measured using the log of total assets, and competitiveness was measured using the CBK-provided market share index. The main dependent variable for funding sources was operationalized based on the deposits due to other banks, deposits due to customers, and total shareholders' equity. In carrying out data collection, the study adopted a positivist research philosophy and followed the guidelines provided in a descriptive correlation

panel longitudinal research design during data collection, this was informed by the fact

that the study period was from the year 2011 to 2021 resulting in panel data for 11 years.

To address the issues arising from the first objective of this research, the study seeks to

assess the interrelations that exist between funding sources and the performance of

registered commercial banks operating in Kenya. To operationalize these two key areas,

funding sources were contextualized and measured using three indicators, which are,

deposits that other banks have placed with the bank under consideration, deposits from

customers other than banking institutions and the bank's shareholder equity.

Performance, on the other hand, was measured using CAMELS rank which is a product

of the composite value obtained after collecting certain specific data which were used to

come up with CAMELS rank following pre-established parameters that had been set by

other prominent scholars. In seeking to answer the dilemma posed by the first objective

of the study, a null hypothesis for the study was framed to read, that funding sources do

not have an effect on the performance of the commercial banks in Kenya and was tested

using a fixed effect panel regression model which regressed CAMELS against the three

funding sources. The data was run through EVIEWS and STATA to generate the linear

regression output which led to the rejection of the null hypothesis and a conclusion that

funding sources indeed have a significant effect on performance was arrived at.

The second objective of this study was to answer the dilemma posed when a bank's

competitiveness is used as a mediator in the relationship between banks' funding sources

and their performance. A null hypothesis that the bank's competitiveness does not

intervene in the relationship between funding sources and the performance of the

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commercial banks in Kenya was formulated and tested. To contextualize the effect of a mediator in this study, commercial banks' competitiveness was introduced as the intervening variable and was measured using the market share index whose figures were computed and made available in the various CBK annual supervisory reports that were reviewed. A four-step regression procedure was performed in line with the recommendations that were put forward by Baron and Kenny (1986) guidelines on testing the mediation. The data was run to generate a fixed effect panel regression model which aided in the rejection of the null hypothesis and a conclusion, based on the regression results as obtained indicated that the three funding sources (the independent variables) that were under consideration and the mediator variable (market share index) introduced as an intervening variable had a statistically significant impact on the performance of commercial banks measured using the CAMELS.

The third objective of this research was to establish the effect of the bank's size on the relationship between funding sources and the performance of commercial banks in Kenya. In seeking answers to this objective a three-step regression procedure was performed in line with Baron and Kenny (1986) guidelines on testing the moderation, moreover, the effect of the interaction variable in each of the three funding sources and its effects on the performance of these commercial banks was also tested. In testing the first interaction, the test concluded that the influence of the size of a bank measured using the log of total assets on the relationship between funding source measured using deposit due to other banks and the performance of commercial banks in Kenya was not significant. The second interaction effect was tested and results pointed out the fact that the influence of the size of a bank measured using the log of total assets on the

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relationship between funding source measured using deposits due from customers and the performance of commercial banks in Kenya was significant. The third interaction which seeks to establish the influence of the size of a bank measured using the log of total assets on the relationship between funding source measured using shareholders' equity and the performance of commercial banks in Kenya was found not to be significant. Based on these aforementioned discoveries, the study concluded that size only moderates the relationship if deposit due from customers is adopted as the key funding source by commercial banks.

The fourth objective of the study was to determine the combined effect of funding sources, competitiveness and bank size on the performance of commercial banks in Kenya. In seeking answers to the objective a null hypothesis that funding sources, bank competitiveness, and Bank size do not jointly influence the performance of commercial banks in Kenya, was formulated and results were rejected upon testing.

To streamline performance, businesses have to rank the available funding sources to enable them to gain a competitive advantage in the market space and settle on a source(s) whose values are consistent with the organization's funding philosophy (Davydov, 2014). Myers and Majluf's (1984) pecking order theory being the anchoring theory suggests a hierarchical order of funding sources, with internal funding being the most preferred followed by debt, equity is only used when it is insensible to increase the debt level (Frank & Goyal, 2003). This study's findings also confirm the same position as shareholders' equity which is considered an internal source of funding was found to play a major role in funding as it affects key performance areas within the bank.

6.3 Conclusions of the Study

Based on the research findings about the first objective and the corresponding null hypothesis that was formulated, deposits due to customers' and shareholders' equity were found to have a significant effect on performance. This can be attributed to the strict regulatory approach adopted by the CBK on monitoring customers' deposits and ensuring that banks adhere to core capital requirements which must be maintained at a certain level at all times. Findings further suggest that banks hardly engage in borrowing among themselves as the figures on the same were way low compared to other funding sources. This may be attributed to the harsh borrowing terms that have always been in the market space, moreover, those bank considered liquid enough to borrow to others (more so those listed at NSE) tends to find it unfashionable to aid a competitor through borrowing. Bank competitiveness was found to intervene in the relationship between funding and performance with the exception of deposits due from other banks as a funding source which was sound to have an insignificant impact on performance based on the higher p-value obtained. Study findings further suggest that size only moderates the relationship between funding and performance if deposit due from customers is adopted as the key funding source by commercial banks, while at the same time, all the explanatory variables with the exception of deposit due to other bank and customers were found to jointly affect performance despite the overall non-significant F-probability statistic obtained in section 5.5.

6.4 Contributions of the Study

From this study's findings, funding source and their availability play a significant role in shaping the performance of banks. The findings of this study particularly contribute to the knowledge of funding sources, competitiveness, and the size of commercial banks on the general performance as discussed in section 6.4.1 and further provide insight to both bank managers and policy formulators on how to improve the banking sector as a whole as discussed in section 6.4.2 and 6.4.3

6.4.1 Contribution to Theory and Knowledge

The relevance of how funding sources, bank competitiveness, and size affect bank performance has been a longstanding debate in the banking literature. However, little research has systematically investigated this aspect of the relationship between funding sources, competitiveness, size, and bank performance. The results of this study add to this grey area and further enrich the field in the sense that from the findings, it is observed that funding sources, competitiveness and firm size generally influence the performance of commercial banks in Kenya.

Using the premises of the pecking order theory together with the findings of this study, a notable contribution to the anchoring theory is from the fact that, the nature of the funding source a commercial bank decides to adopt is a key performance determinant. To ensure the performance remains optimal, commercial banks have been found to make use of either shareholders' equity, or customers' deposits to finance their operations, furthermore, the liberalization in the sector has made it possible for both small and big banks to coexist side by side since each player has to come up with a unique competitive

approach that allows them to attract and retain the best funding sources capable of yielding positive performance.

A significant association has been established between the bank's funding sources and performance and in particular, this study contributes to the body of knowledge by affirming that shareholders' equity plays a significant role while in the mix as one of the funding sources as depicted in regression results shown in Table 5.1. It has therefore become apparent that how banks source their funding needs is important since their overall performance is directly proportional to the effort and importance they give to this front.

The body of knowledge is further enriched by the findings of this study which has revealed that bank competitiveness mediates the relationship between funding and the performance of commercial banks in Kenya. Further, a new frontier of knowledge is added on the mediating role of bank size on the relationship between funding sources and performance. The study's overall conclusion on the matter suggested that bank size measured by the log of total assets moderates the relationship between funding and the performance of commercial banks in Kenya if shareholders' equity is used as a source of funding, underpins the important role played by shareholders equity as a funding source. Finally, regarding the joint effect of all the five explanatory variables, as earlier explained, the study findings suggested that Equity and log of total assets depict a significant association with performance. The remaining three explanatory variables were found to play no significant influence on performance. The resultant conceptual model which summarizes all four key findings is shown in Figure 6.1

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The fact that shareholders' equity and customers' deposits emerge as the most preferred funding sources when performance is to be positively enhanced, this finding confirms the pecking order theory premises which advocate for ranking of sources of funding based on the comparative advantage an organization stands to gain in ranking their funding sources in a preferred manner (Tahir et al., 2016). That is, this study has demonstrated that a competitive advantage can be achieved with available funding sources and has linked it with the pecking order theory by assessing how the various funding sources are combined based on certain preferences.
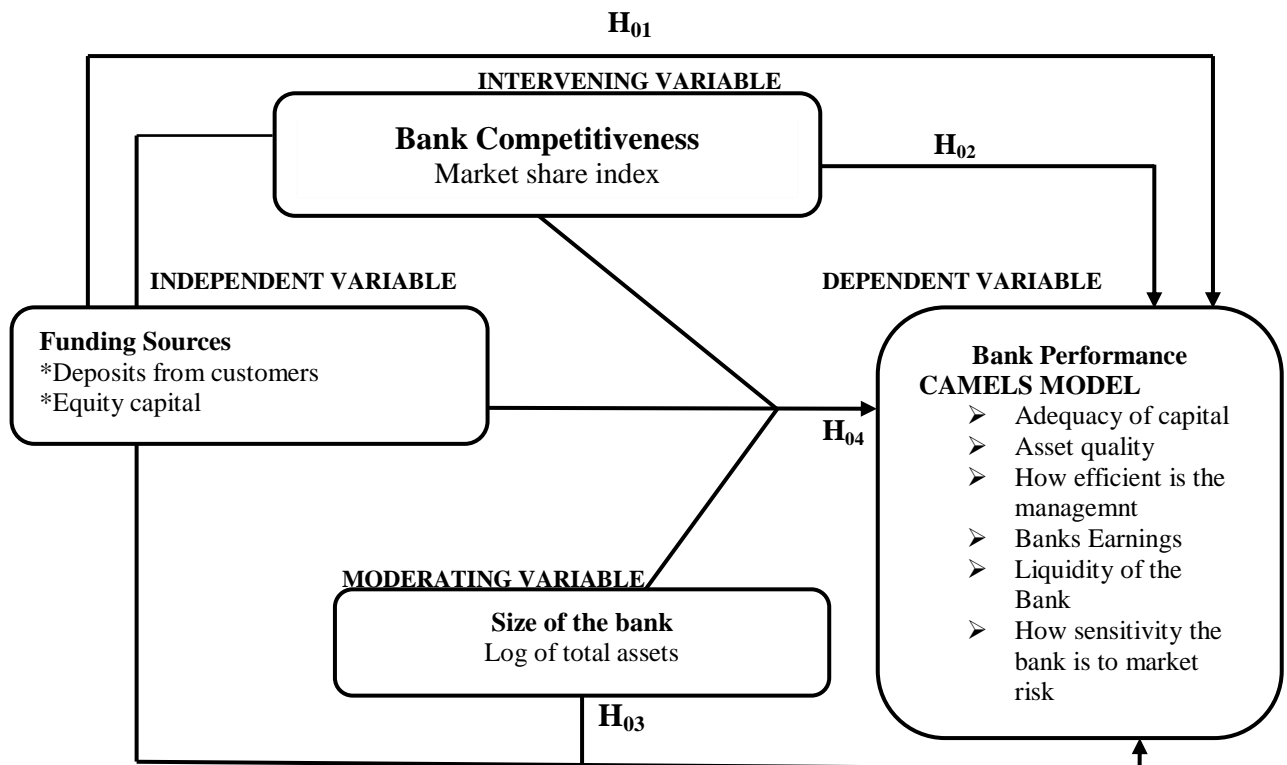
Figure 6. 1: Final Conceptual Model

Source: Author (2023)

The study further reaffirms the tenets of the pecking order theory by having shareholders' equity and customers' deposit as the most preferred funding options as far as the data used for analysis is concerned. A possible explanation for this is the mere fact that it is less costly to use equity share capital as a funding source compared to customers' deposits and deposits due to other banks. This ranking approach is supported by the pecking order theory.

6.4.2 Contribution to Managerial Policy and Practice

The study has provided insight to both aspiring scholars and bank managers with knowledge of the various funding sources in the market and provided a hint that shareholders' funding and customers' deposits when used as funding sources, the banks' performance is more likely to be at a better position as opposed to relying on other banks deposits which are usually offered at a higher cost. Based on this the would-be bank managers will be able to understand the lenders' terms and conditions and how such terms may impact their performance and thus be in a position to set and map out a realistic lender pool that can assist them in their overall objective. The study further affirms to management that internal funding options, especially shareholder equity, remain the best funding options and a bank that can rely on it for funding is likely to gain better performance and even become more competitive.

The banks' management is further advised to find a way through which they can link theoretical views presented in this study with the practical aspect as the variables of the study suggest. The study has amplified the management's role in the utilization of limited financial resources to obtain a favorable performance. And to the bank customers,

knowledge of a well-performing bank will give savers of the money comfort of knowing that their money is safe and secure.

6.4.3 Contribution to Policymakers

To policymakers, this study serves as the foundation stone for future design and amendments to laws and policies governing funding, competitiveness and determination of the size of banks. The study affirms the reason why there is a current push to raise the core deposit requirement for commercial banks operating in Kenya to a minimum of Ksh. 5 billion (CBK, 2018). To cushion both the bank and its customers, a bank is expected to have solid capital that can enable them to solely rely on internally generated funds for funding needs. Policymakers can use this study to support their agenda of coming up with a realistic capital requirements policy that can guide future capital requirements for all bank carders within the country.

6.5 Limitations of the Study

Much as some challenges were encountered during the period of study, efforts were made to ensure that such challenges presented a minimum impact on the study so that findings could be relied on. Some of these challenges are nonetheless highlighted as follows. Despite the regulatory requirement on disclosure of banks' financial reports for both detailed and bridged versions, some banks had not fully adhered to the requirement but instead had only a few years of the same information on both their website and head offices. At some point, the researcher had to get a written intervention from CBK to the various banks to make them comply (appendix vii). As a result of this limitation, the effort to get data related to deposits due to other banks became a daunting task and

consequently led to the use of unbalanced panel data and also ended up using data for only 35 banks from the initial 42 proposed.

When data was being collected, data relating to net operating income for the majority of banks considered small were unavailable; this made it hard to use HHI in computing the market share index as earlier envisaged in the proposal stage. To minimize the risk associated with using a different approach in measuring an individual bank's market share, the study adopted the CBK way which is a result of the market share based on the weighted composite index computed from various individual indices of the market share based on the number of loan accounts a bank has, their total assets, the overall number of deposit accounts, customers deposit, reserves and capital. Data that aided this computation were easily available in all the annual bank supervisory reports that were reviewed in this study. Moreover, a similar approach to measuring market size has been adopted in all three jurisdictions of the East African states and this points to its consistency and robustness and suitability of use.

In the process of reviewing the literature and collecting data, the researcher discovered a non-uniform way of coming up with the CAMELS rank. From all the annual supervisory reports that were used in gathering the secondary data, CBK acknowledged the existence of CAMELS rating for banks, however, the content was neither made publicly available nor the criteria used in compiling them, thus denying the researcher the opportunity to compare CAMELS ranking as per CBK database and the researchers computed CAMELS rank.

6.6 Recommendations and Policy Implications

In the quest to answer the objectives of the study, findings confirm that funding sources play a significant role in determining the performance of commercial banks in Kenya. Hence, the need for bank managers to adopt techniques that enable them to source funds with relative ease and a cheaper cost must be encouraged as this will enable them to maximize their profit in the long run. Managers must therefore come up with a financial policy that guides them in choosing a particular funding source while taking into consideration the fluctuation of business volume, the character of the firm's asset, the level of competition, firm size, and expected stability of profit among others. In addition, banks' management must be cognizant of the fact that relying on customers' deposits for long-term funding may prove to be catastrophic if there is an avalanche of requests for withdrawal of such within a short period as this has in the past destabilizing some banks in the Kenyan banking space, with a case in hand being the now closed chase bank of Kenya.

With shareholders' equity funding found to be a strong determinant of performance, a recommendation is made to both management and policymakers to come up with ways that promote more equity than any other funding source and the current move to have the minimum core capital to a higher figure could not have come at a better time than now. Policymakers and regulators are encouraged to come up with a clear implementation procedure and timeline to actualize this dream.

6.7 Suggestions for Future Research

The fact that banks that were considered small continued to exist in the tight competition regime for a long time is a dilemma that needs to have an empirical answer, a suggestion for a study taking into account the clients, region and nature of the banks on performance is highly recommended.

Based on the fact that bank competitiveness was introduced as the intervening variable the result pointed to a statistically significant effect on the relationship between funding sources and the bank's performance. On the other hand, when bank size was introduced as a moderator, the results also pointed to a statistically significant effect between the study's independent variable and dependent variable. These two scenarios provide an avenue to find out how the results of another related study may look like when these two variables are interchanged, that is the intervener becomes the moderator and vice versa. The researcher further suggests a similar study but with the inclusion of other competitiveness measures not used in this study

The presumption of a linear relationship which informed the various regressions outputs that were performed on the dataset needs to be further interrogated using other relationships such as curvilinear approaches for analysis purposes. The researcher, therefore, recommends other similar studies that can explore this gap and possibly suggest which among the available relationships is more appropriate.

In a bid to address some of the limitations experienced during the study where different scholars had different matrices for computing the CAMELS rank, and with limited

literature supporting which matrix is the most preferred, the researcher proposes further

research, especially among firms operating in developing economies like Kenya on the

best matrix to be adopted by both scholars and industry players

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Appendix I: Secondary Data Collection-Funding Sources

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Balances due to the Central Bank of Kenya											
Deposits from local banking institutions											
Deposit and balances due to banking institutions abroad											
Balances due to banking institutions in the group											
Deposits due from other banks											
Deposits from customers											
Equity capital											

SOURCE: AUTHOR (2023)

Appendix II: Secondary Data Collection Form-CAMELS Rankings Model, Competitiveness and Bank Size

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bank Capital											
Risk-Weighted Assets											
Gross non-performing loans											
Gross loans and advances											
Operating expenses											
Operating income											
ROA											
ROE											
Cash on hand											
Cash in other banks to total assets											
Total securities											
Market share index,											
Total asset:											

SOURCE: AUTHOR (2023)

Appendix III: Letter of Introduction 1

UNIVERSITY OF NAIROBI
FACULTY OF BUSINESS AND MANAGEMENT SCIENCES
OFFICE OF THE DEAN

Telegrams: "Varsity",	P.O. Box 30197-00100, G.P.O.
Telephone: 020 491 0000	Nairobi, Kenya
VOIP: 9007/9008	Email: fob-graduatestudents@uonbi.ac.ke
Mobile: 254-724-200311	Website: business.uonbi.ac.ke

Our Ref: **D80/97109/2015**   May 18, 2022

TO WHOM IT MAY CONCERN

RE: JEFF ARODI ODHIAMBO: D80/97109/2015

The above named is a registered PhD candidate at the University of Nairobi, Faculty of Business and Management Sciences. He is conducting research on "*Funding Sources, Competitiveness, Firm Size and Performance of Commercial Banks in Kenya*".

The purpose of this letter is to kindly request you to assist and facilitate the student with necessary data which forms an integral part of the thesis.

The information and data required is needed for academic purposes only and will be treated in **Strict-Confidence**.

Your co-operation will be highly appreciated.

PHILIP MUKOLA (MR.)
FOR: ASSOCIATE DEAN,
FACULTY OF BUSINESS AND MANAGEMENT SCIENCES

PM/mi

Appendix IV: Letter of Introduction to NACOSTI

UNIVERSITY OF NAIROBI
FACULTY OF BUSINESS AND MANAGEMENT SCIENCES
OFFICE OF THE DEAN

Telegrams: "Varsity",	P.O. Box 30197-00100, G.P.O.
Telephone: 020 491 0000	Nairobi, Kenya
VOIP: 9007/9008	Email: *fob-graduatestudents@uonbi.ac.ke*
Mobile: 254-724-200311	Website: *business.uonbi.ac.ke*

Our Ref: **D80/97109/2015**   May 17, 2022

National Commission for Science, Technology and Innovation
NACOSTI Headquarters
Upper Kabete, Off Waiyaki Way
P. O. Box 30623- 00100
NAIROBI

RE: JEFF ARODI ODHIAMBO: D80/97109/2015

The above named is a registered PhD candidate at the University of Nairobi, Faculty of Business and Management Sciences. He is conducting research on "*Funding Sources, Competitiveness, Firm Size and Performance of Commercial Banks in Kenya*".

The purpose of this letter is to kindly request you to assist and facilitate the student with necessary data which forms an integral part of the thesis.

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Your co-operation will be highly appreciated.

PHILIP MUKOLA (MR.)
FOR: ASSOCIATE DEAN,
FACULTY OF BUSINESS AND MANAGEMENT SCIENCES

PM/fini

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Appendix V: NACCOSTI Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 977389

Date of Issue: 22/June/2022

RESEARCH LICENSE

This is to Certify that Mr.. Jeff Odhiambo Aroli of University of Nairobi, has been licensed to conduct research in Nairobi on the topic: FUNDING SOURCES, COMPETITIVENESS, FIRM SIZE AND PERFORMANCE OF COMMERCIAL BANKS IN KENYA for the period ending : 22/June/2023.

License No: NACOSTI/P/22/18482

977389

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY &
INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document.
Scan the QR Code using QR scanner application.

Appendix VI: Letter of registration as a PH. D Candidate

UNIVERSITY OF NAIROBI

ACADEMIC DIVISION

Telephone: 020 491 0000
Email: pg@uonbi.ac.ke
Our Ref: D80/97109/2015

P. O. Box 30197, 00100
NAIROBI, KENYA
May 17, 2022

Odhiambo Jeff Arodi
C/o Dean,
Faculty of Business and Management Sciences

Dear Jeff,

FULL PhD. REGISTRATION TO POSTGRADUATE STUDIES (DOCTORATE)

Following your application for a higher degree at this University, I am pleased to inform you that the Deputy Vice-Chancellor Academic Affairs has approved your application for full registration for the degree of Doctor of Philosophy in **Business Administration** at the Faculty of Business and Management Sciences. He has also approved **Dr. Winnie Iminza Nyamute, Dr. Kennedy O. Okiro** and **Dr. Caren M. B. Angima** as the supervisors of your thesis entitled; **"Funding Sources, Competitiveness, Firm Size and Performance of Commercial Banks in Kenya"**. The Guidelines on Postgraduate Supervision can be accessed on our website (http://academics.uonbi.ac.ke) while the Research Notebook is available at the University Bookstore. The degree for which you are registered will be offered by taught courses, research and thesis.

Your registration is governed by the common regulations for Doctorate degrees in all Faculties and the Faculty of Business and Management Sciences. **You will be expected to carry out supervised thesis research in your chosen area of study for a minimum period of four (4) semesters, with effect from the date of this letter, culminating in a doctoral thesis. You shall be required to file quarterly progress reports to the Faculty to confirm the progress in your research work.**

Please note that all fees and other charges due shall be paid by **Direct Cash Deposits, EFT (Swift Code is "BARCKENX) or RTGS transfer to UON CESSP Collection Account No. 2032771362 at Barclays Bank, Barclays Plaza Nairobi, Kenya or at any Barclays Bank Branch countrywide using the Reference Number quoted above.** Personal Cheques, Bankers Cheques or Institutional Cheques are NOT acceptable.

You will also be required to provide evidence of 2 publications or 2 letters of acceptance from peer reviewed journals from your PhD work before the oral defence. The publication should be co-authored with the supervisors.

Details regarding payment of fees and other charges remain as outlined in the attached fees structure.

Yours sincerely,

CATHERINE NJUE (MS.)
FOR: ACADEMIC REGISTRAR

c.c.   Dean, Faculty of Business and Management Sciences
        Associate Dean, Faculty of Business and Management Sciences
        Chairman, Department of Finance & Accounting
        Dr. Winnie Iminza Nyamute (Supervisor)
        Dr. Kennedy O. Okiro (Supervisor)
        Dr. Caren M. B. Angima (Supervisor)

        Encl.   Fees structure
CN/gwg

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Appendix VII: Correspondence from CBK

BANKI KUU YA KENYA   **CENTRAL BANK OF KENYA**

BSD/GEN/42

Haile Selassie Avenue
P.O. Box 60000 - 00200 Nairobi, Kenya
Telephone: 2860000, Fax: 3340192

July 7, 2022

Mr. Jeff Arodi
Tutorial Fellow
Department of Accounting and Finance
The Technical University of Kenya
P.O. Box 52428 - 00200
NAIROBI.

Dear Sir,

REQUEST FOR SELECTED DATA ON FINANCIAL POSITION AND PERFORMANCE OF COMMERCIAL BANKS

We acknowledge receipt of your email of June 22, 2022, requesting the Central Bank of Kenya (CBK) for selected data on financial position and performance of commercial banks for years 2010 to 2021.

We write to advice that under the CBK Prudential Guideline on Publication of Financial Statements and other disclosures (CBK/PG/10), banks are required to avail their financial statements and other disclosures on their websites as well as at their head offices. In this regard, you may obtain the selected data on the banks' financial position and performance from their websites or their head offices.

Yours faithfully,

MATU MUGO
DEPUTY DIRECTOR, BANK SUPERVISION

Appendix VIX: Pannel Regression Output of Direct relationship-EVIEWS

Dependent Variable: CAMELS_RANK
Method: Panel Least Squares
Date: 09/21/22   Time: 05:51
Sample: 2011 2021
Periods included: 11
Cross-sections included: 35
Total panel (unbalanced) observations: 382

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEPOSIT_DUE_TO_OTHER_BANKS	3.07E-07	1.42E-06	0.216609	0.8286
DEPOSIT_FROM_CUSTOMERS	9.78E-07	4.91E-07	1.990443	0.0473
EQUITY1	0.593884	0.131113	4.529540	0.0000
C	0.910188	0.483193	1.883694	0.0604

Effects Specification				

Cross-section fixed (dummy variables)

R-squared	0.596996	Mean dependent var	3.268761
Adjusted R-squared	0.553650	S.D. dependent var	0.606400
S.E. of regression	0.405132	Akaike info criterion	1.124968
Sum squared resid	56.46148	Schwarz criterion	1.517444
Log likelihood	-176.8689	Hannan-Quinn criter.	1.280673
F-statistic	13.77271	Durbin-Watson stat	1.265712
Prob(F-statistic)	0.000000		

Source: EVIEWS output

Appendix X: Pannel Regression Output of Direct relationship-STATA

```
. xtreg CAMELSRANK DEPOSITDUETOOTHERBANKS DEPOSITFROMCUSTOMERS EQUITY1, fe

Fixed-effects (within) regression              Number of obs      =        382
Group variable: B_id                           Number of groups   =         35

R-sq:                                          Obs per group:
    within  = 0.1375                                        min =          8
    between = 0.2666                                        avg =       10.9
    overall = 0.0702                                        max =         11

                                               F(3,344)           =      18.29
corr(u_i, Xb)  = -0.8147                        Prob > F           =     0.0000
```

CAMELSRANK	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
DEPOSITDUETOOTHERBANKS	3.07e-07	1.42e-06	0.22	0.829	-2.48e-06	3.09e-06
DEPOSITFROMCUSTOMERS	9.78e-07	4.91e-07	1.99	0.047	1.16e-08	1.94e-06
EQUITY1	.5938837	.1311135	4.53	0.000	.3359987	.8517688
_cons	.9101876	.4831929	1.88	0.060	-.0401967	1.860572

sigma_u	.7740773	
sigma_e	.40513234	
rho	.7849781	(fraction of variance due to u_i)

```
F test that all u_i=0: F(34, 344) = 11.22                    Prob > F = 0.0000
```

Source: STATA output

Appendix XI: STEP 2-Pannel Regression Output of Intervening Relationship

Dependent Variable: MARKET_SHARE_INDEX
Method: Panel Least Squares
Date: 09/22/22   Time: 06:28
Sample: 2011 2021
Periods included: 11
Cross-sections included: 35
Total panel (unbalanced) observations: 382

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEPOSIT_DUE_TO_OTHER_BANKS	-3.90E-06	2.00E-06	-1.950590	0.0519
DEPOSIT_FROM_CUSTOMERS	8.23E-06	6.94E-07	11.85836	0.0000
EQUITY1	0.328255	0.185226	1.772181	0.0772
C	0.954464	0.682616	1.398245	0.1629

Effects Specification				

Cross-section fixed (dummy variables)

R-squared	0.975645	Mean dependent var	2.821649
Adjusted R-squared	0.973025	S.D. dependent var	3.484773
S.E. of regression	0.572338	Akaike info criterion	1.816000
Sum squared resid	112.6844	Schwarz criterion	2.208476
Log likelihood	-308.8560	Hannan-Quinn criter.	1.971705
F-statistic	372.4421	Durbin-Watson stat	0.622082
Prob(F-statistic)	0.000000		

SOURCE: EVIEWS OUTPUT

```
. xtreg MARKETSHAREINDEX DEPOSITDUETOOTHERBANKS DEPOSITFROMCUSTOMERS EQUITY1, fe

Fixed-effects (within) regression              Number of obs     =        382
Group variable: B_id                           Number of groups  =         35

R-sq:                                          Obs per group:
     within  = 0.4320                                        min =          8
     between = 0.9874                                        avg =       10.9
     overall = 0.8576                                        max =         11

                                               F(3,344)          =      87.21
corr(u_i, Xb)  = 0.8779                         Prob > F          =     0.0000
```

MARKETSHAREINDEX	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
DEPOSITDUETOOTHERBANKS	-3.90e-06	2.00e-06	-1.95	0.052	-7.83e-06	3.26e-08
DEPOSITFROMCUSTOMERS	8.23e-06	6.94e-07	11.86	0.000	6.86e-06	9.59e-06
EQUITY1	.3282547	.1852265	1.77	0.077	-.0360642	.6925737
_cons	.9544639	.6826156	1.40	0.163	-.3881618	2.29709
sigma_u	2.5275127					
sigma_e	.57233805					
rho	.95122452	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(34, 344) = 43.58              Prob > F = 0.0000
```

SOURCE: STATA

Appendix XII: STEP 3-Pannel Regression Output of Intervening Relationship

```
Dependent Variable: CAMELS_RANK
Method: Panel Least Squares
Date: 09/22/22   Time: 06:54
Sample: 2011 2021
Periods included: 11
Cross-sections included: 35
Total panel (balanced) observations: 385
```

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MARKET_SHARE_INDEX	0.105273	0.030398	3.463162	0.0006
C	2.983153	0.087872	33.94903	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.556750	Mean dependent var	3.277922
Adjusted R-squared	0.512298	S.D. dependent var	0.613461
S.E. of regression	0.428414	Akaike info criterion	1.231389
Sum squared resid	64.05504	Schwarz criterion	1.601043
Log likelihood	-201.0425	Hannan-Quinn criter.	1.377996
F-statistic	12.52476	Durbin-Watson stat	1.150107
Prob(F-statistic)	0.000000		

SOURCE: EVIEWS OUTPUT

```
. xtreg CAMELSRANK MARKETSHAREINDEX, fe

Fixed-effects (within) regression          Number of obs      =        385
Group variable: B_id                       Number of groups   =         35

R-sq:                                      Obs per group:
     within  = 0.0332                                   min =         11
     between = 0.1306                                   avg =       11.0
     overall = 0.0551                                   max =         11

                                           F(1,349)           =      11.99
corr(u_i, Xb)   = -0.7614                  Prob > F           =     0.0006
```

CAMELSRANK	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
MARKETSHAREINDEX	.1052728	.0303979	3.46	0.001	.0454867	.1650589
_cons	2.983153	.0878715	33.95	0.000	2.810328	3.155977
sigma_u	.67910608					
sigma_e	.42841429					
rho	.71532184	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(34, 349) = 11.62              Prob > F = 0.0000
```

SOURCE: STATA OUTPUT

Appendix XIII: STEP 4-Pannel Regression Output of Intervening Relationship-1

Dependent Variable: CAMELS_RANK
Method: Panel Least Squares
Date: 09/22/22   Time: 07:10
Sample: 2011 2021
Periods included: 11
Cross-sections included: 35
Total panel (unbalanced) observations: 382

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEPOSIT_DUE_TO_OTHER_BANKS	2.28E-07	1.42E-06	0.160332	0.8727
DEPOSIT_FROM_CUSTOMERS	1.14E-06	5.84E-07	1.957763	0.0511
EQUITY1	0.600462	0.131850	4.554142	0.0000
MARKET_SHARE_INDEX	-0.020040	0.038205	-0.524532	0.6002
C	0.929315	0.485075	1.915816	0.0562

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.597319	Mean dependent var	3.268761
Adjusted R-squared	0.552707	S.D. dependent var	0.606400
S.E. of regression	0.405560	Akaike info criterion	1.129402
Sum squared resid	56.41623	Schwarz criterion	1.532207
Log likelihood	-176.7157	Hannan-Quinn criter.	1.289204
F-statistic	13.38925	Durbin-Watson stat	1.261908
Prob(F-statistic)	0.000000		

SOURCE: EVIEWS OUTPUT

Appendix XIV: STEP 4-Pannel Regression Output of Intervening Relationship-2

```
. xtreg CAMELSRANK DEPOSITDUETOOTHERBANKS DEPOSITFROMCUSTOMERS EQUITY1 MARKETSHAREINDEX, fe

Fixed-effects (within) regression              Number of obs     =         382
Group variable: B_id                           Number of groups  =          35

R-sq:                                          Obs per group:
     within  = 0.1382                                        min =           8
     between = 0.2837                                        avg =        10.9
     overall = 0.0684                                        max =          11

                                               F(4,343)          =       13.76
corr(u_i, Xb)  = -0.7927                        Prob > F          =      0.0000
```

CAMELSRANK	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
DEPOSITDUETOOTHERBANKS	2.28e-07	1.42e-06	0.16	0.873	-2.57e-06	3.03e-06
DEPOSITFROMCUSTOMERS	1.14e-06	5.84e-07	1.96	0.051	-5.33e-09	2.29e-06
EQUITY1	.6004619	.1318496	4.55	0.000	.3411264	.8597975
MARKETSHAREINDEX	-.0200399	.0382053	-0.52	0.600	-.095186	.0551062
_cons	.929315	.4850753	1.92	0.056	-.0247818	1.883412
sigma_u	.7380948					
sigma_e	.40555986					
rho	.76809891	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(34, 343) = 10.64                  Prob > F = 0.0000
```

Appendix XV: Pannel Regression Output of Moderation Relationship-STEP 1

Dependent Variable: CAMELS_RANK
Method: Panel Least Squares
Date: 09/24/22   Time: 07:58
Sample: 2011 2021
Periods included: 11
Cross-sections included: 35
Total panel (balanced) observations: 385

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG_TOTAL_ASSET	0.236773	0.038542	6.143198	0.0000
C	0.749978	0.412043	1.820142	0.0696

Effects Specification				

Cross-section fixed (dummy variables)

R-squared	0.586258	Mean dependent var	3.277922
Adjusted R-squared	0.544765	S.D. dependent var	0.613461
S.E. of regression	0.413909	Akaike info criterion	1.162500
Sum squared resid	59.79087	Schwarz criterion	1.532154
Log likelihood	-187.7812	Hannan-Quinn criter.	1.309106
F-statistic	14.12915	Durbin-Watson stat	1.291210
Prob(F-statistic)	0.000000		

Source: eviews

. xtreg CAMELSRANK LOGTOTALASSET, fe

```
Fixed-effects (within) regression          Number of obs     =        385
Group variable: B_id                       Number of groups  =         35

R-sq:                                      Obs per group:
     within  = 0.0976                                    min =         11
     between = 0.2577                                    avg =       11.0
     overall = 0.0711                                    max =         11

                                           F(1,349)          =      37.74
corr(u_i, Xb)  = -0.7563                    Prob > F          =     0.0000
```

CAMELSRANK	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
LOGTOTALASSET	.2367727	.0385423	6.14	0.000	.1609684	.312577
_cons	.7499775	.4120434	1.82	0.070	-.060423	1.560378
sigma_u	.68189615					
sigma_e	.41390885					
rho	.73075631	(fraction of variance due to u_i)				

F test that all u_i=0: F(34, 349) = 12.78   Prob > F = 0.0000

SOURCE: STATA OUTPUT

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Appendix XVI: Pannel Regression Output of Moderation Relationship STEP 3

Dependent Variable: CAMELS_RANK
Method: Panel Least Squares
Date: 09/24/22   Time: 08:32
Sample: 2011 2021
Periods included: 11
Cross-sections included: 35
Total panel (unbalanced) observations: 382

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEPOSIT_DUE_TO_OTHER_BANKS	1.89E-07	1.41E-06	0.134491	0.8931
DEPOSIT_FROM_CUSTOMERS	7.61E-07	4.95E-07	1.535306	0.1256
EQUITY1	0.438957	0.144478	3.038227	0.0026
LOG_TOTAL_ASSET	0.116588	0.047202	2.469973	0.0140
C	0.276484	0.543956	0.508284	0.6116

Effects Specification				

Cross-section fixed (dummy variables)

R-squared	0.604039	Mean dependent var	3.268761
Adjusted R-squared	0.560172	S.D. dependent var	0.606400
S.E. of regression	0.402162	Akaike info criterion	1.112573
Sum squared resid	55.47478	Schwarz criterion	1.515378
Log likelihood	-173.5015	Hannan-Quinn criter.	1.272376
F-statistic	13.76966	Durbin-Watson stat	1.299872
Prob(F-statistic)	0.000000		

SOURCE: STATA OUTPUT

. xtreg CAMELSRANK DEPOSITDUETOOTHERBANKS DEPOSITFROMCUSTOMERS EQUITY1 LOGTOTALASSET, fe

Fixed-effects (within) regression   Number of obs   =   382
Group variable: B_id   Number of groups   =   35

R-sq: Obs per group:
    within = 0.1526   min =   8
    between = 0.2631   avg =   10.9
    overall = 0.0697   max =   11

                                            F(4,343)   =   15.44
corr(u_i, Xb) = -0.8316   Prob > F   =   0.0000

CAMELSRANK	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
DEPOSITDUETOOTHERBANKS	1.89e-07	1.41e-06	0.13	0.893	-2.58e-06	2.95e-06
DEPOSITFROMCUSTOMERS	7.61e-07	4.95e-07	1.54	0.126	-2.14e-07	1.74e-06
EQUITY1	.4389568	.144478	3.04	0.003	.1547825	.7231312
LOGTOTALASSET	.1165879	.0472021	2.47	0.014	.0237459	.2094299
_cons	.2764841	.5439564	0.51	0.612	-.793426	1.346394
sigma_u	.81329808					
sigma_e	.40216172					
rho	.80352715	(fraction of variance due to u_i)				

F test that all u_i=0: F(34, 343) = 11.51   Prob > F = 0.0000

SOURCE: STATA OUTPUT

Appendix XVII: Pannel Regression Output of Moderation Relationship STEP 3

Dependent Variable: CAMELSRANK
Method: Panel Least Squares
Date: 09/26/22   Time: 04:11
Sample: 2011 2021
Periods included: 11
Cross-sections included: 35
Total panel (unbalanced) observations: 382

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEPOSITDUETOOTHERBANKS	4.82E-06	2.33E-06	2.064983	0.0397
DEPOSITFROMCUSTOMERS	2.24E-06	7.75E-07	2.894506	0.0040
EQUITY1	0.373283	0.145844	2.559479	0.0109
LOGTOTALASSET	0.101837	0.047231	2.156154	0.0318
INTERACTION2	-3.18E-13	1.28E-13	-2.475357	0.0138
C	0.558581	0.551831	1.012232	0.3121

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.611008	Mean dependent var	3.268761
Adjusted R-squared	0.566650	S.D. dependent var	0.606400
S.E. of regression	0.399189	Akaike info criterion	1.100051
Sum squared resid	54.49837	Schwarz criterion	1.513184
Log likelihood	-170.1098	Hannan-Quinn criter.	1.263951
F-statistic	13.77427	Durbin-Watson stat	1.284664
Prob(F-statistic)	0.000000		

SOURCE: EVIEWS OUTPUT

. xtreg CAMELSRANK DEPOSITDUETOOTHERBANKS DEPOSITFROMCUSTOMERS EQUITY1 LOGTOTALASSET INTERACTION2, fe

```
Fixed-effects (within) regression          Number of obs     =        382
Group variable: B_id                       Number of groups  =         35

R-sq:                                      Obs per group:
     within  = 0.1675                                  min =          8
     between = 0.2406                                  avg =       10.9
     overall = 0.0641                                  max =         11

                                           F(5,342)          =      13.77
corr(u_i, Xb)   = -0.8487                  Prob > F          =     0.0000
```

CAMELSRANK	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
DEPOSITDUETOOTHERBANKS	4.82e-06	2.33e-06	2.06	0.040	2.29e-07	9.41e-06
DEPOSITFROMCUSTOMERS	2.24e-06	7.75e-07	2.89	0.004	7.19e-07	3.77e-06
EQUITY1	.3732834	.1458435	2.56	0.011	.0864202	.6601466
LOGTOTALASSET	.1018366	.0472306	2.16	0.032	.0089374	.1947357
INTERACTION2	-3.18e-13	1.28e-13	-2.48	0.014	-5.70e-13	-6.53e-14
_cons	.5585812	.5518314	1.01	0.312	-.5268297	1.643992

sigma_u	.86336372	
sigma_e	.39918912	
rho	.82387162	(fraction of variance due to u_i)

F test that all u_i=0: F(34, 342) = 11.82   Prob > F = 0.0000

SOURCE: STATA OUTPUT

Appendix XVIII: Pannel Regression Output of Interaction 1 of STEP 3

Dependent Variable: CAMELSRANK
Method: Panel Least Squares
Date: 09/27/22   Time: 04:42
Sample: 2011 2021
Periods included: 11
Cross-sections included: 35
Total panel (balanced) observations: 385

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEPOSITDUETOOTHERBANKS	-1.30E-05	2.04E-05	-0.634438	0.5262
LOGTOTALASSET	0.218279	0.040654	5.369152	0.0000
INT1BANKDEP_LOGASSETS	1.14E-06	1.58E-06	0.721656	0.4710
C	0.933452	0.435042	2.145659	0.0326

Effects Specification				

Cross-section fixed (dummy variables)

R-squared	0.588963	Mean dependent var	3.277922
Adjusted R-squared	0.545135	S.D. dependent var	0.613461
S.E. of regression	0.413741	Akaike info criterion	1.166329
Sum squared resid	59.39993	Schwarz criterion	1.556520
Log likelihood	-186.5184	Hannan-Quinn criter.	1.321080
F-statistic	13.43800	Durbin-Watson stat	1.308346
Prob(F-statistic)	0.000000		

. xtreg CAMELSRANK DEPOSITDUETOOTHERBANKS LOGTOTALASSET int1bankdep_logassets, fe

Fixed-effects (within) regression   Number of obs   =   385
Group variable: B_id   Number of groups =   35

R-sq: Obs per group:
    within = 0.1035   min =   11
    between = 0.2423   avg =   11.0
    overall = 0.0628   max =   11

                                              F(3,347)   =   13.35
corr(u_i, Xb)   = -0.7476   Prob > F   =   0.0000

CAMELSRANK	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
DEPOSITDUETOOTHERBANKS	-.000013	.0000204	-0.63	0.526	-.0000532	.0000272
LOGTOTALASSET	.2182786	.0406542	5.37	0.000	.138319	.2982383
int1bankdep_logassets	1.14e-06	1.58e-06	0.72	0.471	-1.96e-06	4.24e-06
_cons	.9334521	.4350422	2.15	0.033	.0778006	1.789104

sigma_u	.67892469		
sigma_e	.41374068		
rho	.72919488	(fraction of variance due to u_i)	

F test that all u_i=0: F(34, 347) = 12.16   Prob > F = 0.0000

Appendix XVIX: Pannel Regression Output of Interaction 2 of STEP 3

Dependent Variable: CAMELSRANK
Method: Panel Least Squares
Date: 09/27/22   Time: 05:17
Sample: 2011 2021
Periods included: 11
Cross-sections included: 35
Total panel (balanced) observations: 385

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEPOSITFROMCUSTOMERS	4.37E-05	1.02E-05	4.268878	0.0000
LOGTOTALASSET	0.112857	0.044301	2.547507	0.0113
INT2CUSTDEPOSI_LOGASSETS	-3.08E-06	7.45E-07	-4.137084	0.0000
C	1.607326	0.439277	3.659026	0.0003

Effects Specification				

Cross-section fixed (dummy variables)

R-squared	0.617538	Mean dependent var	3.277922
Adjusted R-squared	0.576757	S.D. dependent var	0.613461
S.E. of regression	0.399100	Akaike info criterion	1.094275
Sum squared resid	55.27048	Schwarz criterion	1.484466
Log likelihood	-172.6480	Hannan-Quinn criter.	1.249026
F-statistic	15.14269	Durbin-Watson stat	1.326829
Prob(F-statistic)	0.000000		

```
. xtreg CAMELSRANK DEPOSITFROMCUSTOMERS LOGTOTALASSET int2custdeposi_logassets, fe

Fixed-effects (within) regression              Number of obs     =        385
Group variable: B_id                           Number of groups  =         35

R-sq:                                          Obs per group:
     within  = 0.1658                                        min =         11
     between = 0.1979                                        avg =       11.0
     overall = 0.0500                                        max =         11

                                               F(3,347)          =      22.99
corr(u_i, Xb)  = -0.8245                        Prob > F          =     0.0000
```

CAMELSRANK	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
DEPOSITFROMCUSTOMERS	.0000437	.0000102	4.27	0.000	.0000236	.0000639
LOGTOTALASSET	.1128571	.044301	2.55	0.011	.0257248	.1999893
int2custdeposi_logassets	-3.08e-06	7.45e-07	-4.14	0.000	-4.55e-06	-1.62e-06
_cons	1.607326	.439277	3.66	0.000	.7433456	2.471307
sigma_u	.82754655					
sigma_e	.39910015					
rho	.81130406	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(34, 347) = 13.92                 Prob > F = 0.0000
```

Appendix XX: Pannel Regression Output of Interaction 3 of STEP 3

Dependent Variable: CAMELSRANK
Method: Panel Least Squares
Date: 09/27/22   Time: 05:20
Sample: 2011 2021
Periods included: 11
Cross-sections included: 35
Total panel (unbalanced) observations: 382

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EQUITY1	-1.048079	0.542723	-1.931148	0.0543
LOGTOTALASSET	-0.318253	0.156746	-2.030371	0.0431
INT3EQUITY_LOGASSETS	0.133496	0.044291	3.014042	0.0028
C	5.110072	1.828110	2.795277	0.0055

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.610857	Mean dependent var	3.268761
Adjusted R-squared	0.569001	S.D. dependent var	0.606400
S.E. of regression	0.398104	Akaike info criterion	1.089969
Sum squared resid	54.51958	Schwarz criterion	1.482446
Log likelihood	-170.1841	Hannan-Quinn criter.	1.245674
F-statistic	14.59443	Durbin-Watson stat	1.342583
Prob(F-statistic)	0.000000		

. xtreg CAMELSRANK EQUITY1 LOGTOTALASSET int3equity_logassets, fe

Fixed-effects (within) regression   Number of obs   =   382
Group variable: B_1d   Number of groups   =   35

R-sq: Obs per group:
    within = 0.1672   min =   8
    between = 0.2379   avg =   10.9
    overall = 0.0603   max =   11

                                           F(3,344)   =   23.02
corr(u_i, Xb) = -0.8360   Prob > F   =   0.0000

CAMELSRANK	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
EQUITY1	-1.04808	.5427234	-1.93	0.054	-2.115554	.019394
LOGTOTALASSET	-.3182533	.1567463	-2.03	0.043	-.6265551	-.0099516
int3equity_logassets	.1334957	.0442912	3.01	0.003	.04638	.2206114
_cons	5.110076	1.82811	2.80	0.005	1.514395	8.705756

sigma_u	.83466184	
sigma_e	.39810444	
rho	.8146669	(fraction of variance due to u_i)

F test that all u_i=0: F(34, 344) = 12.07   Prob > F = 0.0000