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MODERATING EFFECT OF SIZE ON THE RELATIONSHIP BETWEEN FUNDING SOURCES AND PERFORMANCE OF COMMERCIAL BANKS IN KENYA

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Abstract

Firms not only compete for customers but also sources of funding, firms must come up with a better funding mix that can enable them to execute their operational agenda to ensure better performance. In the banking world deposit owed to banks, deposits owed to customers and equity capital are the major funding source. To secure and operationalize these sources several factors must be considered and the need to evaluate the short-term and long-term likely implications of incorporating them is paramount. For a better understanding of some of the implications and how these blend into the banking sector. An evaluation of how the size of various commercial banks operating in Kenya moderates a relationship between their performance and the three funding sources was actualized through this study. From the literature that was reviewed, the gaps were conceptualized, and the hypothesis frame. A descriptive research design was then employed, and secondary panel data was obtained from 35 banks between the periods 2011 to 2021, it was possible to come up with the various regression equations, which aided in explaining the nature of association among the three sources of funding, size, and performance of the selected commercial banks. Findings suggest that the bank's size moderates the direct relationship between funding sources and performance. In light of these developments, it is proposed that firms seeking to be financed from whatever sources have to devise some ways that make them look attractive at least at face value for instance, moreover, firm management should make an effort in paying keen attention to their firm size and should at all time work on areas that promote the growth of the firm, for instance, they have placed an attractive rate of return on funds obtained from shareholders, while others have diversified their businesses to make themselves more attractive to potential investors, management reorganization with a view of attaining optimum efficiency.

Key words: *Funding sources, size, equity capital, deposits, and performance.*

Introduction

For a business to take off or to continue being in operation it must have funds in the form of capital. Start-ups require funds for capitation while for firms already in existence, funding is needed to take care of their working capital needs. For those firms intending to grow their size, funds are required for the task. Firms worldwide, regardless of their size use funding in areas of production, research, and development, expansion among others. With all these special assignments, firm management is therefore tasked with the duty of selecting funding sources that can facilitate the goals of the firm to be achieved and better performance is at the center of it all (Gutterman, 2022).

Evaluation of the concept of sources of funding among firms entails a critical examination of issues related to the restrictions on where organizations obtain funds (Tarantin & Do Valle, 2015). Santoso (2019) broadens the definition of funding sources to include ways through which firm managers decide on the funding sources required for investment financing while Shollapur and Baligatti (2010) definition of commercial banks' funding sources incorporates three possible areas from where commercial banks obtain funds, 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.

In commercial bank circles, whenever a bank uses demandable debt as a funding source, it usually results in a maturity mismatch as the possibility of a depositor withdrawing more funds than anticipated can create a situation likely to overstretch the supply of funds and can momentarily trigger liquidation that if

not well-handled results in a total collapse of the bank. Banks managers are therefore expected to be careful in the manner in which they handle deposits, 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).

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 firm size as the boundaries which 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 global financial crisis (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 requires 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.

Performance is defined by Nyaoke (2016) as an act of value creation that results in a positive change in the bank's financial state, while Bikker (2010) defines broadly defines performance in the banking sector as the contribution made by a banking institution during the creation of wealth for both the business and the consumer. Suggestions in the literature depict performance as a multidisciplinary concept a phenomenon that makes a common definition almost impossible, these notwithstanding, two broad categories of performance can be identified; these are the operational and financial aspects of performance. The latter takes care of both the effectiveness and efficiency of the firm while the profitability, risk value, and the value of the firm in the market are aspects of the financial component of performance (Arodi et al., 2023). Taking into account the aforementioned definitions, performance, therefore, constitutes the ability of a firm to measure results emanating from its activities, policies, and operations in financial terms. In the banking sector, performance ensures that shareholders' profit and wealth are maximized, to attain this, firms must strive to utilize resources in a manner suggesting that firms' financial position, policy compliance, and success levels are optimized.

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 (Arodi et al., 2023;

Danisman, 2018). While to the consumers, it is the surety of them getting back their saved money whenever they require them, 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 especially those considered small (Apātāchioae, 2015).

Arodi et al. (2023) have noted both Tobin's Q and the CAMELS model as some of the most popular measures of performance due to their robustness as they incorporate several indicators which can easily be extracted from the firm's financial statements. Njuguna et al. (2022), Okiro (2014), and Dang et al. (2018) are some of the scholars who have adopted Tobin's Q as a performance measure while Arodi et al. (2023) and Abusharbeh (2020) have chosen CAMELS as their preferred measure. In this study, the CAMELS model was adopted since it tends to agree with the multidisciplinary nature of performance as it has six different dimensions of performance, moreover, regulators often use the measure in evaluating the soundness of various financial institutions thus making it an internal control tool and by extension making it wider as compared to the Tobin's Q (CBK, 2018).

From a common viewpoint, commercial banks are considered deposit takers and loan providers, this, in essence, highlights the key economic value of these institutions in the entire economic system. Banks, therefore, are the providers of funds needed for both primary and secondary sectors of the economy. The question of how they are funded is key in ensuring that both sectors of the economy remain running. In East sub-Saharan Africa, the Kenyan banking sector is leading both in technological advancement and physical growth, currently; there are a total of 38 banks with registration as

commercial banks in Kenya. In broader categorization, the regulator has classified them into three tiers and a majority of tier 1 banks in Kenya have a regional presence (CBK, 2022). In classifying the banks, the CBK has used size and ownership structure, tier one, tier two, and tier 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) *Problem of Research*

The ever-changing dynamic in the business world where all firms strive to grow while at the same time, the majority of the fund providers are also cautious as most of them may not be freely willing to put their money in firms considered risky. Moreover, those firms seeking to be financed from whatever sources have devised some ways that make them look attractive at least at face value for instance, they have placed an attractive rate of return on funds obtained from shareholders, while others have diversified their businesses to make themselves more attractive to potential investors, management reorganization with a view of attaining optimum efficiency. The agency's pressure on firm managers to deliver what the shareholders consider excellent performance and continuously ensures that the firm's size keeps on growing despite the constraints posed by the business environment is an area that cannot be overlooked. In a few instances, shareholders have punished those managers perceived to be lazy by approving a hostile takeover, a practice that has made some firm managers end up being jobless. In light of these developments, the need for scholars to have special consideration in investigating the emerging dilemma as to whether the size

of a bank has a role to play in moderating the relationship between the available sources of funding and performance is therefore justified.

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 lending and saving culture prompting the regulator to go back to the drawing board where a curative policy direction was given to eliminate the inconsistency created by the law. In the regulator's wisdom, the law was repealed. During the period when the law was operational, small banks faced difficulties in attracting deposits, and their business model was deeply disrupted to the point where most of them started having a conversation about mergers and acquisitions. Apart from a few mergers and acquisitions, some banks were also put under statutory management (CBK, 2018).

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 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.

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. A review of the literature on this situation reveals interesting findings, which present opportunities for further research, 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 whether firm size has a role to play in the entire relationship. Emanating from the highlighted gaps, a critical evaluation with the view of answering whether the bank size moderates the relationship between Kenya's commercial bank's funding sources and their performance is the subject matter of this study.

Literature Review and Research Focus

Financial intermediation theory and resource-based theory have been used to anchor the study. 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.

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 done, 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 consequence 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

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 as explained by their size 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 optimum performance. 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.

Some of the current studies which have attempted to cover the area which exclusively deals with how funding sources are associated with bank performance show mixed findings. Shollapur and Baligatti (2010) Ilamoya and Omar (2018), and

Demirgüç-Kunt and Huizinga (2010) observed a direct positive association. However, Jin et al. (2017) observation point to an inverse association.

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) findings answer how the cost of obtaining funds and 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. This study's weakness 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).

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 Kenyan banks were collected between 2009 to 2020. 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. Other than failing in pointing out the moderating role of size on the relationship, the 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, reward on investment, earnings on each share capital, and return on asset, 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 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 asset 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)

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.

From the gaps highlighted in the literature, and the need to find answers as to whether the bank size moderates the relationship between Kenya's commercial bank's funding sources and their performance, the conceptual framework in Figure 1 aided in addressing this objective by testing the hypothesis shown by H_{01} , that is, the size of a bank does not moderate the relationship between funding sources and the commercial bank's performance.

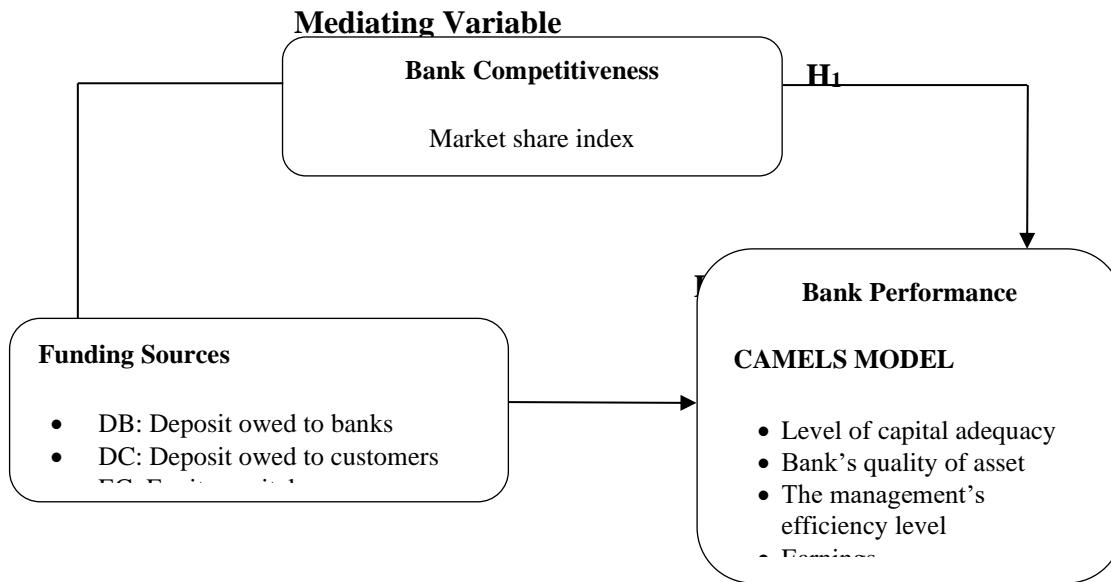


Fig. 1. Conceptual Framework

Methodology of Research

General Background of Research Methodology

A positivist research philosophy was adopted and the descriptive research design complemented the philosophy, it was therefore possible to come up with the various regression equations. 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.

Sample of Research

Records available with the CBK show that there are 38 registered commercial banks, these banks have the authorization to operate in the banking business. In a bid to have complete data for the study, a consideration to include secondary data from banks that have been in constant operation from 2011 to date, 35 commercial banks met the requirements representing 92% of the total population.

Instrument and Procedures

A uniform data collection form containing 11 years period (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

Data Analysis

The moderating effect of the size of the bank on the relationship between deposits owed to banks, deposits owed to customers, and equity capitals which are considered as the indicators for funding sources, and the CAMELS rank acting as a performance measure of these banks was the main objective. In seeking answers to this objective a null hypothesis as shown in the conceptual framework 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 these banks. A fixed regression model was used where Performance was measured using CAMELS while sources of funding were taken to be either deposits owed to banks or deposits owed to customers or equity from shareholders as depicted by Equation 1.

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}DB + \beta_{2a,in}DC + \beta_{3a,in}EC + \varepsilon_{a,in} \quad (1)$$

Where: DB: Deposit owed to banks, DC: Deposit owed to customers, EC: Equity capital, P_{in} =the commercial's bank performance, $\beta_{0a,in}$ Intercept, $\beta_{3a,in}, \beta_{2a,in}, \beta_{1a,in}$ =coefficients, ε_{ain} = error term, in =From i^{th} year to n^{th} year

The 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. The linear regression output for the following equation:

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

Where:BS: Bank size

Statistically significant results from both procedures one and two lead to the final procedures as prescribed in the guidelines for moderation testing. In this study, the procedure was actualized by an investigation on whether bank size playing the role of a moderator does have a significant influence on the effect of sources commercial banks use for funding on their performance. Considering that funding sources were found to have a significant influence on commercial bank performance, 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. 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 (which was measured using the log of total assets) acting as a moderator had any significant influence on the effect of deposits owed to 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 had a significant influence on the effect of deposits owed to customers on the performance of commercial banks. The last linear regression equation was to help decide whether Bank size acting as a moderator had a significant influence on the effect of equity shareholding on the performance of commercial banks. These three linear regression equations were:

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

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}DC + \beta_{2a,in}BS + \beta_{3a,in}(DC)(BS) + \varepsilon_{a,in} \quad (4)$$

$$P_{in} = \beta_{0a,in} + \beta_{1a,in}ES + \beta_{2a,in}BS + \beta_{3a,in}(EC)(BS) + \varepsilon_{a,in} \quad (5)$$

Results of Research

The general visualization of the collected data was made possible by the calculations and presentation of the means of deposits owed to banks, deposits owed to customers,

equity capital, log of total assets, and the CAMELS rank. Similarly, the standard deviations of these variables were also computed and presented. Moreover, values for maximum and minimum for all the indicators were identified from the panel data which had 385 data points. This information is presented in Table 1

Table 1: Descriptive Statistics Summary

	DB	DC	EC	Bank size	C. Rank
Mean	14729.1282	80551.53	16524.12	10.6767	3.2779
Standard Deviation	26969.0988	112767.33	22631.41	1.4585	0.6135
Minimum (millions)	20	393	-1820	2.5561	1.8333
Maximum (millions)	241421.579	652204	123823	13.6847	4.6667
Data points	385	385	385	385	385

From the table, it is observed that deposits owed to banks, deposits owed to customers and equity capital were the independent variable measures in the study. Their respective raw figures were collected from the audited annual financial statement in their raw form; the means were computed as 14729.13 for deposits owed to banks while 80551.53 for deposits owed to customers, and 16524.12 for equity capital. Their respective minimum values in millions of shillings were 20, 393, and -1820 while the maximum values were 241422, 652204, and 123823. The standard deviation of 26969.0988, 112767.33, and 22631.41 for deposits owed to banks, deposits owed to customers, and equity capital respectively in an indication of the wide spread of the collected data around the mean a possible indication of the impact of size on the various banks. The moderating variable which was representing bank size in this research was measured using the logarithmic value of total

assets figures and had a mean of 10.6767 and with 2.5561 being the minimum and 13.6847 as the maximum. The standard deviation of 1.458 is an indication of low variability in the data set. CAMELS rank indicator which was a measure for the dependent variable had a mean of 3.278, suggesting fair performance among the commercial banks (Masood et al., 2016). 1.8333 minimum rank is an indicator of a strong performance while the 4.6667 maximum figure in the ranking column shows that performance is unsatisfactory (Abusharbeh, 2020). The variability of the data set was relatively low as depicted by a standard deviation of 0.6135.

In seeking answers to the stud's objective, a null hypothesis that the size of a bank (measured using the logarithmic value of total asset figures) does not moderate the relationship among the three funding sources (that is, deposits owed to banks, deposits owed to customers and the equity capital) and

the performance of commercial banks in Kenya was formulated and tested. Baron and Kenny (1986) three-step procedure involving coming up with various regressions and evaluating the outputs was performed, results

of the first procedure are presented in Table 2 followed by a brief interpretation.

TABLE 2: Procedure 1: Effect of Funding Sources on the Performance of Commercial Banks

DV: C. RANK (CAMELS)				
Variable	Coefficient	Std. Error	t-Statistics	Prob.
DB	0.000000307	0.00000142	0.216609	0.8286
DC	0.000000978	0.000000491	1.990443	0.0473
EC	0.593884	0.131113	4.529540	0.0000
C	0.910188	0.483193	1.883694	0.0604
R - squared	0.596996	F-statistics	13.77271	
Adjusted R-squared	0.553650	Prob (F-statistics)	0.000000	

From the table, the presence of a significant association is depicted by the overall significance of the model as indicated by the Prob (F-statistics) of 0.000000 which is smaller than the standard alpha of 0.05 used for decision-making other parameters like the coefficient, the standard error, t-statistics, and respective probabilities were immaterial at this stage as their interpretation was not required.

After obtaining a significant association in procedure 1, the second step was undertaken as prescribed in Baron and Kenny (1986) work. The procedure involved evaluating whether commercial banks' performance was influenced by their size. To aid in establishing the needs of this procedure, the output of the linear regression equation 2 was obtained as displayed by the results in Table 3. 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 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 that bank size influences 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. 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 playing the role of a moderator does have a significant influence on the effect of funding sources on the performance of commercial banks.

TABLE 3: Procedure 2: Moderation Effect- Effect of Bank Size on the Performance of Commercial Banks

DV C. RANK (CAMELS)				
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	F-statistics		14.12915
Adjusted R-squared	0.544765	Prob (F-statistics)		0.000000

Considering that funding sources were found to have a significant influence on commercial bank performance, 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 generated and three sets of fixed regression outputs were generated to fit equations 3,4 and 5 as presented in Tables 4, 5, and 6.

The results from Table 4 were used to satisfy the model earlier stated in Equation 3. The model assisted in establishing that bank size

significantly influences the relationship between deposits due to banks and their performance. The results further show that 54.5135% of the change in performance of commercial banks is attributed to both changes in deposits due to 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. On the flip side, findings on how deposits due banks affect performance show a statistically negative non-significant association as depicted by a coefficient value of -0.000013, t-statistics of -0.634438, and p-value of 0.5262.

Table 4: Interaction 1 Bank Size Deposits Due to Other Banks and Banks' Performance

DV: C. RANK (CAMELS)				
Variable	Coefficient	Std. Error	t-Statistics	Prob.
DB	-0.000013	0.0000204	-0.634438	0.5262
LOG TOTAL ASSETS	0.218279	0.040654	5.369152	0.0000
INTERACTION 1: DB_LOG TOTAL ASSET	0.00000114	0.00000158	0.721656	0.4710
C	0.933452	0.435042	2.145659	0.0326
R-squared	0.588963	F-statistics		13.43800
Adjusted R-squared	0.545135	Prob (F-statistics)		0.000000

Moreover, results further indicate the presence of a statistically positive interaction between bank size and bank performance as depicted by a 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 the coefficient value of 0.0000114, t-statistics of 0.721656, and p-value of 0.0000 for the interaction term between deposits due to other from other banks and log of total assets 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.

Results and interpretation of the test for equation 4 formulated for the second interaction are presented in Table 5. The model assisted in establishing that bank size significantly influences the relationship between deposits owed to customers and their performance. Regression results presented in the table show that 57.6757% of the change in performance of commercial banks is attributed to both changes in deposits owed to customers 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 deposits owed to customers affect performance show a statistically positive significant association as depicted by a coefficient 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 further indicate the presence of a statistically positive interaction between bank size and bank performance as depicted by a coefficient of 0.112857 t-statistics of 2.547507, and a 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 deposits owed to customers and log of total assets 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 deposits owed to customers are used as a source of funding.

Table 5: Interaction 2: Bank Size Deposits from Customers and Bank's Performance

DV: C. RANK (CAMELS)				
Variable	Coefficient	Std. Error	t-Statistics	Prob.
DC	0.0000437	0.0000102	4.268878	0.0000
LOG TOTAL ASSETS	0.112857	0.044301	2.547507	0.0113
INTERACTION 2: DC_LOG TOTAL ASSETS	-0.00000308	0.000000745	-4.137084	0.0000
C	1.607326	0.439277	3.659026	0.0003
R-squared	0.617538	F-statistics		15.14269
Adjusted R-squared	0.576757	Prob (F-statistics)		0.000000

Results and interpretation of the test for equation 5 for the third interaction are presented in Table 6. The model assisted in establishing that bank size significantly influences the relationship between equity capital and performance. Regression results presented show that 56.9001% of the change in performance of commercial banks is attributed to both changes in equity capital 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 equity capital 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 equity capital 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 6: Interaction 3: Bank Size Shareholders' Equity and Banks' Performance

DV: C. RANK (CAMELS)				
Variable	Coefficient	Std. Error	t-Statistics	Prob.
EC	-1.048079	0.542723	-1.931148	0.0543
LOG TOTAL ASSETS	-0.318253	0.156746	-2.030371	0.0431
INTERACTION 3: EC_LOG TOTAL ASSETS	0.133496	0.044291	3.014042	0.0028
C	5.110072	1.828110	2.795277	0.0055
R-squared	0.610857	F-statistics		14.59443
Adjusted R-squared	0.569001	Prob (F-statistics)		0.000000

Discussion

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 studies that have been highlighted, they 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 owed to banks and performance was found to be insignificant and positively significant between deposits owed to customers. Whereas this study suggests a statistically significant negative association of the moderating effect of size on the relationship between equity capital and performance, a

study by Alfadhli and Musaed (2021) found shareholders' equity to have a direct significant association with 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

The probable reason why larger banks tend to have better funding options which positively influences their performance is attributed to the greater access to diverse funding options and the economies of scale gained from obtaining funds in a larger capacity, they can negotiate better funding terms compared to the smaller banks. Moreover, the investors who are willing and able to provide funding needs for larger banks do have the ability to put in place measures that can caution their investment, some of the checks they put in place are capable of ensuring that the operations of the institutions they have funded remain sound for as long as their funds remain in them. Considering the perpetual nature of the funding needs of a commercial bank, the safeguard measures put in place by fund providers will also exist as long as these banks remain operational. Other than the contribution to the existing body of knowledge in the banking sector, the study can also inform policy, and assist management and investors in making informed decisions. To policymakers, the study sheds light on the need to come up with a favorable policy that ensures that fund providers are protected and policies made as far as they are concerned are those capable of creating a balance between their needs and the needs of the banks. From the study, it is evident that smaller banks are struggling to find sustainable and dependable funding partners, the need for managers in those kinds of banks to upgrade their operations and make the banks stand out is not only likely to improve their attractiveness but can also improve their overall performance as they stand to benefit from the perks that come with having a certain type of fund providers.

Conclusions and Recommendations

With equity capital 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 by the Kenyan authority 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.

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