MODERATING EFFECT OF INTEREST RATE ON THE RELATIONSHIP BETWEEN CAMEL RATING MODEL AND FINANCIAL STABILITY OF COMMERCIAL BANKS IN KENYA

ABSTRACT

The study sought to assess the moderation effect of interest on the relationship CAMEL rating system and financial stability of commercial banks in Kenya. The paper originates from the Doctoral dissertation of the first author in which the co-authors served as supervisors. Causal research design was utilized and a census of forty-one commercial banks in Kenya was undertaken for the period 2013 to 2019. Information asymmetry theory and liquidity shiftability were utilized. Interest rate insignificant moderated the nexus between CAMEL rating variables and financial stability with the exception of asset quality. Interest rate only moderated asset quality and financial stability nexus significantly. It was recommended that the Central Bank of Kenya set interest rates in view of the prevailing economic situation. The study further puts forward the recommendation that commercial banks should strive towards reducing non-performing loans which can be through the setting up of effective credit risk management systems.

CAMEL Rating Model, Interest Rate, Financial Stability and Commercial Banks

1.1 Background of the Study

Global recognition of the banking industry is immense due to the contribution it has in the smooth running of resources from deficit spenders to surplus spenders' through their intermediation processes. Based on the reliance of other sectors on the banks for resource mobilization, the sector has become vulnerable to risk and other challenges that are contagious in nature (Ndolo, 2017). Emanating from this, the global financial crisis which engulfed the financial sector gave rise to problems associated with asset quality, efficiency management, capital adequacy, liquidity as well as profitability potential of the banks thus, cutting short the banks' ability to attain their target objectives (Paul, 2021). These problems have placed the banks on a verge of being sensitive to market risk that may trigger or lead to insolvency of the banks which could result to banks' inability to meet up with customers' needs in an ever-changing business environment (Waqas, Omran & Mohamed-Arshad, 2019). The sustaining evolution of

Comment [AG1]: Clarity and Structure: The abstract provides a clear overview of the study, outlining the objectives, methodology, findings, and recommendations. This clarity should be maintained throughout the paper, ensuring that the readers can follow the research methodology and findings easily.

Significance of the Study: The research attempts to address a crucial aspect of the banking sector by exploring the influence of CAMEL rating components on financial stability, with particular attention to the moderating role of interest rates. This has implications for policy formulation and bank management strategies.

Methodological Strengths: The use of a causal research design and the inclusion of a comprehensive census of forty-one commercial banks in Kenya over a substantial period (2013 to 2019) strengthens the study's empirical foundation. However, it might be beneficial to highlight the specific steps taken to ensure the accuracy and reliability of the data.

Theoretical Framework: The utilization of information asymmetry theory and liquidity shiftability adds depth to the study, demonstrating a strong theoretical underpinning. However, the paper could further elucidate how these theories were applied within the context of the research.

Findings: The identification of interest rates as a significant moderator in the relationship between asset quality and financial stability is a notable discovery. However, the insignificance of interest rates in moderating other aspects of the CAMEL rating and financial stability warrants discussion. It might be helpful to provide potential reasons or limitations that could explain these results.

Policy Implications: The recommendations for the Central Bank of Kenya to consider economic conditions when setting interest rates and for commercial banks to enhance credit risk management systems are practical and relevant. Exploring potential strategies or examples of effective credit risk management systems would enhance the applicability of these recommendations.

Future Research Directions: It could be beneficial to suggest potential areas for further exploration. For instance, expanding the study to other financial institutions or investigating additional variables that could influence the relationship between the CAMEL rating system and financial stability.

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these changes has warranted the banks to create business oriented environment that supports and propels them into meeting the needs of their customers.

Africa presents opportunity for the evolution of the banking sector serving as its conduit pipe for its economy's superstructure. With the introduction of the society for worldwide interbank financial telecommunication (SWIFT), the banking sector in Africa has grown tremendously in its customers and assets base. This digitization process has attracted more people to be included in the banking system thus giving rise to financial inclusion. Accordingly, Paul (2021) observed that digitization has birth the rise in customers trust, attraction of increasing number of people outside the shores of the continent, financial inclusion contribution and the offer of better access to financial services. Duly hit by the global financial crunch, innovation in the banking sector became more pronounced in the South, North and Eastern Africa as customers prefer to transact businesses at a low cost compared to the opportunity cost of their convenience. Funds were being withdrawn due to the crisis exceeding the available ones, reducing the interest rate on bonds which were particular to the commercial banks giving rise of serious liquidity (liability) issue. . The onset of the financial crisis increased the volatility of the stock markets leading to wealth losses on major stock markets in countries like Nigeria and Egypt recording a decline of 57% in the stock market indices between 2008 and 2009 March with Zambia, Mauritius and Bostwana having recorded losses in a significant manner (Ashamu & Abiola, 2012).

The banking sector in Kenya has remained a veritable tool for the development of the economy for the attainment of the Vision 2030. The country's financial sector is considered as one of the best in East Africa due to the sound regulatory framework that guides the operational standard of the commercial banks. However, the global financial crisis does no spare the stability of any banking sector globally with the Kenyan banks recording losses. According to Macharia (2013), Equity recorded a loss amounting to Ksh 1 billion while S & L recorded a loss of Ksh 1.4 billion on the securities market due to the crisis. The crisis did not only affected the financial institutions' profitability but also increased the rate of inflation thereby force the banks to divert their attention to the hedge market.

The lending cost of money by a borrower from individuals, public firms or financial institution, as well as any fees associated with assets borrowed, is known as the interest rate. Interest rate is

essential in the mobilization of financial resources which is often computed in percentage over a period that the resources or funds are being given out to the borrower (Motaze, 2022). An alteration in the rate of borrowed funds affects the demand and supply of financial funds within an economy. Essentially, interest rate is crucial to the determination of market operation. Interest rates have a bi-directional relationship with macroeconomic variables. In a nut shell, it is influenced by the way in which variables such as total output, income and employment levels interact and vice versa (Sankaran, Arjun, & Vadivel, 2021). Interest rate regulations imposed on banks worsen interest rates within an economy. The banking sector which is considered as the life wire of the economy that determines the amount of credit which is used by other sectors (Pointer & Khoi, 2019).

High interest rates will result in more interest income for commercial banks, but would result in less demand for loans, which would crowd out the increased interest income (Kithandi, 2022). Foreign and domestic investors would remain away whenever interest rates are unstable, and resources would be diverted to different areas. In actual sense, econometric facts has shown that investment behavior in conjunction to more traditional influences like real interest rates, prior economic growth, and private sector financing, instability and economic uncertainty have a large and detrimental impact on private investment (Mallick, Mahalik & Sahooc, 2018). Low (and occasionally negative) growth rates are only one component of macroeconomic instability that commercial banks may be subjected to, and this can have a significant impact on their profitability (Bhattarai, 2017).

The Central Bank of Kenya has the responsibility of determining commercial banks' lending rate to curb the ravaging effect of inflation in the economy. In a situation where the CBK rate is too high, it deters commercial banks from borrowing to lend to customers and other institutions which in turn lowers the capacity of producing goods and services leading to declining job opportunities (Kithandi, 2022). The central bank rate, which directly affects the cost of capital and the return on deposits, can be affected by inflation. The justification for regulating interest rates on loans and other financial instruments is from the need to prevent economic trends that have a significant negative impact on the overall economy (Mabati & Onserio, 2020). According to Howells (2008) cited in Mabati and Onserio (2020), rising interest rates reduce the allure of saving from current income, enhance the repayment of operating floating-rate debt, which

decreases disposable income and increases the probability of loan default, raise the cost of goods purchased with credit, lower the prices of financial assets, which affect projections of the private sector's wealth, and lower housing values. CBK lending rate will be adopted in the investigation.

1.2 Statement of the Problem

The stability of the banking industry in Kenya over time has been fluctuating hence exposing the banks to risk associated with their operations. According to Central Bank Kenya (2017), between 2010 and 2017, ROE general score stood at 25.98% in 2010 falling to 23% in 2011. Falling trend in the ROE was noted in 2012 standing at 21.99%, 20.94% in 20132 with 2013 having recorded 20.94%. ROE of the banks stood at 20.88% in 2014 with further decline to 17.39% in 2017 (Statista, 2023). In addition to this trend, ROE was recorded to be 21.8% in 2019, 13.9% in 2020 and 22% in 2021 respectively (Statista, 2023). On the other hand, ROA of the banks had 4.4% in the year 2010, 4.7% and 3.3% for 2013 and 2016 with the ROA having 1.7% and 3.3% in 2020 and 2021 respectively (Central Bank of Kenya, 2017; Statista, 2023). Both ROE and ROA of the banks witnessed a drastic fall due to covid-19 pandemic which ravaged all sectors of the world economies.

The stability of Kenyan commercial banks has been threatened over the years due to the high risk encountered from credit issuance, exposing the liquidity of the banks to even greater risk. Consequently, these risks has affected the stability of Imperial and Dubai Banks resulting into the placement of the banks under statutory management since 2015 with Chase Bank also placed under receivership in 2016 leading to the merger of four banks in 2016 compared to three (Central Bank of Kenya, 2017). The financial associated risk of the banks presents unworthy situation of the banks' balance sheets by raising their risk thereby threading the earning ability of the banks in Kenya (Kenya Financial Stability Report, 2017).

The regulations of the CBK detailed the regulatory framework of the CAMEL which allows for effective supervision of the commercial banks in Kenya. It helps the banks to attain certain levels of stability to gain the confidence of the customers thus broadening the asset base of the banks. The reviewed regulations of the CBK also captured the uniqueness of the banks' operations in Kenya. This is to ensure that the banks' CAMEL model standard is upheld and in the operational standard of the banks to avoid receivership or total collapse of the banks. Efficient and stable

banks have an advantage over their competitors as a result of increased access to funding, improved performance, lower-cost capital, and better stakeholder management (Phan, Anwar, Alexander & Phan, 2019). Over the previous ten years, there have been a number of financial and regulatory improvements in the Kenyan banking sector (Ndolo, 2017). The study sought to establish the moderating effect of interest rate on the relationship between CAMEL rating model and financial stability of commercial banks in Kenya.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of the study was to establish the moderating effect of interest rate on the relationship between CAMEL rating model and financial stability of commercial banks in Kenya.

1.3.2 Specific Objectives

The specific objectives of the study were:

i. To examine the moderating effect of interest rate on the relationship between capital adequacy and financial stability of commercial banks in Kenya.
ii. To determine the moderating effect of interest rate on the relationship between asset quality and financial stability of commercial banks in Kenya.
iii. To evaluate the moderating effect of interest rate on the relationship between management efficiency and financial stability of commercial banks in Kenya.
iv. To analyze the moderating effect of interest rate on the relationship between earnings ability and financial stability of commercial banks in Kenya.
v. To assess the moderating effect of interest rate on the relationship between liquidity and financial stability of commercial banks in Kenya.

1.4 Research Hypotheses

The following null hypotheses were tested:

H_{01}: Interest rate has no significant moderating effect on the relationship between capital adequacy and financial stability of commercial banks in Kenya.

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H_{02}: Interest rate has no significant moderating effect on the relationship between asset quality and financial stability of commercial banks in Kenya.

H_{03}: Interest rate has no significant moderating effect on the relationship between management efficiency and financial stability of commercial banks in Kenya.

H_{04}: Interest rate has no significant moderating effect on the relationship between earnings ability and financial stability of commercial banks in Kenya.

H_{05}: Interest rate has no significant moderating effect on the relationship between liquidity and financial stability of commercial banks in Kenya.

2.1 Literature Review

2.2 Theoretical Literature Review

Information Asymmetry Theory was put forward by Akerlof (1970). The focal point of the idea emanates from that fact that variation/unbalancing tier in information cause stir in the market environment thus bring about inefficiency. Lack of the needed information in the market space allows for rouse and disjointed segmentation which places certain groups of customers or clients on an advantage position. However, the development of the commercial banks rest of equality of market information upon which limitation to it deters informed decision making (Prodanov, Yaprakov & Zarkova 2022). In this case, majority of the banks customers possesses information that the banks do not have about them, especially in the area of loans. As a result, an exchange of such information may led to concealment of intentions thus making it difficult to arrive at the best possible outcome from contractual obligation. Borrowers in most cases have more information about their credit worthiness compared to banks. This makes it difficult for the banks to know the actual intent of the borrowers regarding the acquisition of banks assets in the form of borrowing.

Liquidity Shiftability Theory was developed by Moulton (1915). The premise of the theory suggests that bank resources holdings can be sold for cash profitably in order to avoid a lack of liquidity. Banks can manage potential plans to meet liquidity needs of the customers. Rotate around this notion may aid in overhauling the liquidity capability of money-related supervisors when they manage the arrangements and levels of keeping assets. Commercial banks can control convertible assets early to avoid problems caused by emergency scenarios rather than relying on the Central Bank's assistance when dealing with unanticipated conditions (Wambari & Mwangi,

2017). According to the hypothesis, there is no strong motivation to depend on maturities if commercial banks uphold a sizeable assets amount that may be transferred to alternative banks for trade without suffering considerable loss in an emergency (Blatter & Fuster, 2022). An asset must therefore be swiftly convertible without loss in capital when the need for liquidity arises in order to be perfectly shiftable (Wambari & Mwangi, 2017). These assets are significant resources to the banks which are mostly found in the money markets due to their degree of convertibility. Such assets include treasury bill and bill of exchange. At this point, these resources can easily be changed from any form based on the demand for liquid cash or assets.

2.3 Empirical Literature Review

Githinji (2016) investigated the factors influencing the financial stability of Kenyan commercial banks. Through a census approach, 43 commercial banks in Kenya were arrived at. Based on questionnaires that were given to the top two bank managers of each company, primary data sources were employed. 82 people were included in the sample size. Multiple regression, descriptive, and correlation analyses were utilized in the study. Interest rate was shown to have an inverse and insignificant effect on financial stability as indicated by NPL.

Using Kenyan commercial banks, Wambari and Mwangi (2017) considered how interest rates act on financial performance. 43 commercial banks were explanatorily examined using census design. Findings from the multiple linear regression model affirmed that lending rate ratio has an optimistic financial performance effect. Deposit interest ratio has an inverse effect on banks performance. Accordingly a strong nexus of financial performance with lending rate ratio was observed. Deposit interest ratio adversely affected bank performance. Asset quality and liquidity management had contradictory effects on performance. Exposition of the gap lies in the moderator which interest rate was used in this study.

Ahmed, Rehan, Chhapra, and Supro (2018) use 20 banks in Pakistan to assess how rate of interest changes affect banks' profitability from 2007 to 2014. Both correlation and regression methods were considered. The outcome demonstrates that while interest rates and deposits with other banks possessed negative impact on a bank's profitability, advances, loans, and investments had positive impact. The evaluation of the study was in Pakistan using only 20 banks while 41 banks were explored under the existing investigation.

Ngaira and Miroga (2018) evaluated the factors affecting the commercial banks listed in Kenya in terms of their financial stability. Descriptive design was used in the study. 11 commercial banks that are listed on the NSE, made up the research population with the data sourced from primary sources. Multiple regression, descriptive, and correlation analyses were utilized. The results of the regression noted that the effect of interest rates on the financial stability was significantly positive.

Baba and Ashogbon (2019) looked into the impact that interest rates have on the financial health of Nigerian commercial banks. Regression technique of a panel nature employing 23 banks from 2006 to 2015 was employed. The results showed that real interest rates are considerably and negatively correlated with Nigerian commercial banks' performance. Nigeria and Kenya have different banking systems with unique features, thus the outcome in one country cannot be applicable to another country. Therefore, a larger bank number was considered using the context of Kenya while only 23 banks were employed to arrive at the outcome realized by the previous study.

Mousavi, Bastanifar and Amiri (2021) analyzed interest rate protection effect on the overall financial stability of the banking system, including both public and private banks. Internal and external bank variables make up the two sets of factors impacting financial stability. Using data from 2001 to 2019, the model is estimated using the three-stage least squares method. The study's findings demonstrate that while the rise in bank rates in response to currency shocks has positively affected all banks' financial stability as well as that of private banks, it had no impact on state-owned banks. Iran was the focus whereas Kenya was covered in the current study.

3.1 Research Methodology

Causal research design was applied and the study focused on forty-one (41) commercial banks in Kenya for the period 2013 to 2019. Panel data was utilized and consequently, the study applied panel regression model. Whisman and McClelland (2005) indicated that when the moderator is modeled as an explanatory variable in the first step, it should exert an insignificant effect and when interacted with the independent variable(s) in the second step, the joint effect should be significant for it to have a significant moderation effect.

$$FS = \beta_0 + \beta_1 CA + \beta_2 AQ + \beta_3 ME + \beta_4 EA + \beta_5 LI + \beta_6 IR + \varepsilon \quad \text{.......................................} 1$$

Where;

CA = Capital Adequacy

AS = Asset Quality

ME =Management Efficiency

EA = Earning Ability

LI =Liquidity

IR = Interest Rate

The second step in the estimation of the moderation effect is stated as in equation 3.7.

$FS = \beta_0 + \beta_1 CA + \beta_2 AQ + \beta_3 ME + \beta_4 EA + \beta_5 LI + \beta_6 IR + \beta_7 IR*CA + \beta_8 IR*AQ + \beta_9 IR*ME + \beta_{10} IR*EA + \beta_{11} IR*LI + \varepsilon$ 2

Where;

IR*CA = Interaction of interest Rate and Capital Adequacy

IR*AQ = Interaction of interest Rate and Asset Quality

IR*ME = Interaction of interest Rate and Management Efficiency

IR*EA = Interaction of interest Rate and Earnings Ability

IR*LI = Interaction of interest Rate and Liquidity

4.1 Data Analysis and Discussions

4.2 Descriptive Analysis

In order to document the basic features of the research data, the descriptive analysis was conducted which produced statistics which include standard deviation, mean, maximum and minimum values. The statistics from the descriptive analysis are documented in Table 1.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev	Min.	Max.
Financial Stability	270	0.5973	7.3612	-16.3583	108.3808
Capital Adequacy	273	0.1390	0.0670	-0.2058	0.4854
Asset Quality	274	0.1286	0.1175	0.0000	0.6962
Management Efficiency	270	1.9343	5.5531	0.0000	65.6154

Earnings Ability	287	-0.1535	0.1511	-0.4302	0.6200
Liquidity	273	0.1936	0.1360	0.0044	1.0000
Interest Rate	287	9.4286	1.0516	8.5000	11.5000

Source: Study Data (2023)

Table 1 contains the statistics as obtained from the descriptive analysis of the study. In view of the varying number of observations across the research variables which ranged from 270 to 287, the data used was an unbalanced panel data. Financial stability had mean of 0.597 and standard deviation of 7.361 which indicates high volatility of over the study period. This further provides evidence of the research problem that is, financial instability of commercial banks in Kenya.

Capital adequacy had mean of 0.139 and a corresponding standard deviation of 0.0670. This implies that over the study period capital adequacy remained relatively stable. Minimum and maximum values of -0.2058 and 0.4854 are attributed to capital adequacy, hence further evidencing the existence of minimal fluctuations over the period of the study.

Asset quality had mean and standard deviation of 0.1286 and 0.1175 respectively. The mean and standard deviation values indicate that there were minimal fluctuations in the asset quality of commercial banks in Kenya within the time scope of the study. Minimum and maximum values of 0.0000 and 0.6962 were further attributed to asset quality of commercial banks.

Management efficiency had values of 1.9343 and 5.5531 for mean and standard deviation respectively. The values 0.0000 and 65.6154 were the minimum and maximum values respectively for management efficiency which in turn imply that it highly fluctuated over the period of the study

Mean value of -0.1535 and standard deviation of 0.1511 were recorded for the earnings ability of commercial banks in Kenya. The study established minimum value of -0.4302 and maximum value of 0.6200 for earnings ability. The descriptive statistics for earnings ability indicate that the non-interest expense to net interest income ratio of commercial banks had relative movements within the time scope of the study.

Liquidity recorded mean of 0.1936, standard deviation of 0.1360, minimum value of 0.0044 and maximum value of 1.0000. The descriptive statistics on liquidity indicate that over the study

period, the liquid assets to total assets ratio of commercial banks in Kenya had minimal fluctuations. The statistics further indicate that the liquidity level of commercial banks in Kenya was low as reflected by a mean of 0.1936.

Interest rate recorded mean of 9.4286 and standard deviation of 1.0516. In view of these statistics, interest rate as measured by the rate set by the Central Bank of Kenya had minimal fluctuation which is further supported by minimum value of 8.5000 and maximum value of 11.5000.

4.5.3 Panel Regression Analysis

The moderating effect test was guided by the Whisman and McClelland (2005) approach which is informed by a two-step procedure comprising of two regression models.

4.5.3.1 Moderation Analysis, Step One

The first step presents the CAMEL rating variables together with interest rates (moderator) as an explanatory variable. Table 2 contains the outcome of the regression analysis.

Table 2: Moderation Test Results, Step One

Financial Stability	Coef.	Std. Err.	Z	P>|z|	[95% Conf.	Interval]
Capital Adequacy	8.309261	7.777155	1.07	0.285	-6.933683	23.5522
Asset Quality	12.3666	4.41874	2.80	0.005	3.706028	21.02717
Management Efficiency	.04698	.0848179	0.55	0.580	-.1192601	.2132201
Earnings Ability	11.24892	3.212263	3.50	0.000	4.953001	17.54484
Liquidity	1.182281	3.679636	0.32	0.748	-6.029672	8.394235
Interest Rate	.3261859	.4147659	0.79	0.432	-.4867402	1.139112
_cons	-3.944529	4.116365	-0.96	0.338	-12.01246	4.123399

R^2 =0.3213

Wald chi2 (6) =19.98

Prob> chi2 =0.0028

Source: Study Data (2023)

Table 2 documents the results of the panel regression analysis based on the first step of the moderation effect model contains F statistics of 19.76 and p-value of 0.0028. The regression model was significant as indicated by a p-value of 0.0002. In line with the criteria by Whisman and McClelland (2005), step one of the moderation test requires the moderator (interest rates) to have an insignificant effect on financial stability when captured as an explanatory variable. Notably, this is the case in the step one of the moderation effect analysis. Hence, the clearance to proceed to step two of the moderation effect analysis.

4.5.3.2 Moderation Analysis, Step Two

Upon satisfying the requirements for the first step of moderation test, the step was conducted which model financial stability as a function of CAMEL rating variables, interest rates and the interaction of interest rates with each of the CAMEL rating variables as contained in Table 3.

Table 3: Moderation Test Results, Step Two

Financial Stability	Coef.	Std. Err.	Z	P>|z|	[95% Conf.	Interval]
Capital Adequacy	24.43351	90.34874	0.27	0.787	-152.6468	201.5138
Asset Quality	-120.4236	47.27987	-2.55	0.011	-213.0904	-27.75671
Management Efficiency	1.017513	2.975535	0.34	0.732	-4.814428	6.849455
Earnings Ability	-8.258281	29.46572	-0.28	0.779	-66.01003	49.49347
Liquidity	3.010637	32.74702	0.09	0.927	-61.17235	67.19362
Interest Rate	-.5089305	1.750944	-0.29	0.771	-3.940718	2.922857
Interest Rate*Capital Adequacy	-1.651527	9.487001	-0.17	0.862	-20.24571	16.94265
Interest Rate*Asset Quality	14.15305	5.01034	2.82	0.005	4.332964	23.97313
Interest Rate*Management Efficiency	-.0952457	.2988338	-0.32	0.750	-.6809491	.4904577
Interest Rate*Earnings Ability	2.068566	3.111325	0.66	0.506	-4.02952	8.166652
Interest Rate*Liquidity	-.2328772	3.481164	-0.07	0.947	-7.055834	6.59008

_cons	3.720647	16.57382	0.22	0.822	-28.76344	36.20474
F Statistics	29.80					
Prob>F	0.0017					
R-Sq	0.3489					

Source: Study Data (2023)

The criteria for the second step of the moderation test as informed by Whisman and McClelland (2005) approach entails the interaction between interest rate and the various CAMEL rating variables being significant. Notably, the interaction between interest rate and the various CAMEL rating variables are insignificant with the exception of interest rate*asset quality. Hence, out of the various CAMEL rating variables, there exists only a moderation effect of interest rate on the relationship between asset quality and financial stability of commercial banks in Kenya.

4.6 Hypotheses Testing

The hypotheses were formulated and subsequently tested as guided by the specific objectives of the study. A threshold of 0.05 was used for the test of hypotheses.

H_{01}: Interest rate has no significant moderating effect on the relationship between capital adequacy and financial stability of commercial banks in Kenya.

The study sought to examine the moderation effect of interest rate on the relationship between capital adequacy and financial stability of commercial banks in Kenya in line with the underlying hypothesis. The outcome established in Table 3 indicates p-value of 0.862, hence evidencing non importance of interest rate moderating capital adequacy and financial stability relationship. In response to this, the null hypothesis stating that interest rate has no significant moderating effect on the relationship between capital adequacy and financial stability of commercial banks in Kenya was upheld. With respect to this relationship, a coefficient of -1.652 was obtained. The negative coefficient based on the inferential statistics implies that the joint increase in interest rate and capital adequacy depletes financial stability of commercial banks. This is as higher interest rate may reduce the number of loan uptake thereby reducing the potential income of banks from their major activity of financial intermediation. Despite higher capital level being associated with higher capacity to absorb shocks, it limits the amount of funds available for

banking activities, hence the negative effect.

H_{02}: Interest rate has no significant moderating effect on the relationship between asset quality and financial stability of commercial banks in Kenya.

The study sought to evaluate the moderation effect of interest rate on the relationship between asset quality and financial stability of commercial banks in Kenya which was guided by the underlying hypothesis. The outcome established in Table 3 indicates p-value of 0.005 which signifies the high importance of interest rate in moderating asset quality and financial stability nexus. In response to this, the study rejected the null hypothesis stating that interest rate has no significant moderating effect on the relationship between asset quality and financial stability of commercial banks in Kenya. A coefficient of 14.153 was further obtained with respect to this relationship. This further evidences the importance of interest rate in strengthening asset quality and financial stability nexus. The financial intermediation role of banking institutions is largely hinged on interest rate. Banking institutions may have informational advantage in monitoring borrowers while also having the incentive to raising deposits rates for purposes of achieving higher share of loan income at depositors' expenses.

H_{03}: Interest rate has no significant moderating effect on the relationship between management efficiency and financial stability of commercial banks in Kenya.

The moderating effect of interest rate on the relationship between management efficiency and financial stability of commercial banks in Kenya was analyzed in line with the underlying hypothesis. The outcome established in Table 3 indicates p-value of 0.750, hence implying that management efficiency and financial stability nexus is not significantly moderated by interest rate. In response to this, the hypothesis stating that interest rate has no significant moderating effect on the relationship between management efficiency and financial stability of commercial banks in Kenya was upheld. With respect to this relationship, a coefficient of -.095 was obtained, hence implying that joint increase in interest rate and management efficiency result in decreasing levels of financial stability in the case of commercial banks in Kenya.

H_{04}: Interest rate has no significant moderating effect on the relationship between earnings ability and financial stability of commercial banks in Kenya.

The study sought to determine the moderation effect of interest rate on the relationship between earnings ability and financial stability of commercial banks in Kenya based on the underlying null hypothesis. The results in Table 3 encompass a p-value of 0.506 which means that interest rate was not significant in moderating earnings ability and financial stability relationship. Consequently, the null hypothesis stating that interest rate has no significant moderating effect on the relationship between earnings ability and financial stability of commercial banks in Kenya was not rejected. With respect to this relationship, a coefficient of 2.069 was obtained hence, denoting positive relationship. Despite the weak moderation effect of interest rate, the joint increase in interest rate and earnings ability therefore lead to improvements in the financial stability of commercial banks. Increase level of profitability translates to higher level of financial stability of banks.

H_{05}: Interest rate has no significant moderating effect on the relationship between liquidity and financial stability of commercial banks in Kenya.

The moderating effect of interest rate on the relationship between liquidity and financial stability of commercial banks in Kenya was examined. In sequence to this specific objective, a null hypothesis stating that interest rate has no significant moderating effect on the relationship between liquidity and financial stability of commercial banks in Kenya was tested. The outcome established in Table 3 was a p-value of 0.947, hence indicating non significance of interest rate in moderating liquidity and financial stability nexus. In response to this, the study upheld the null hypothesis stating that interest rate has no significant moderating effect on the relationship between liquidity and financial stability of commercial banks in Kenya. A coefficient of -0.233 was further obtained which provides evidence of a negative relationship between joint increase in interest rate and liquidity with financial stability. In view of this outcome, increase in interest rate alongside liquidity leads to depletion of financial stability of commercial banks. Holding of excessive levels of liquidity limits the intermediation role of commercial banks and subsequently decreasing financial stability

5.1 Conclusion and Recommendations

Comment [AG5]: Further study, implications.

5.2 Conclusion

The study concluded that out of the CAMEL rating variables namely: capital adequacy, asset quality, management efficiency, earnings ability and liquidity, interest rate only moderated the relationship between asset quality and financial stability for commercial banks in Kenya. The study further concluded that interest rate is not important in affecting the strength of the relationship between capital adequacy, management efficiency, earnings ability, liquidity and financial stability.

5.3 Policy Recommendations

It was established that interest rate significantly moderating asset quality and financial stability nexus. Interest rate as captured by the Central Bank Rate is key factor in the financial intermediation activities of commercial banks. Notably, the Central Bank Rate determines the individual interest rates charged by banks. As such, it is recommended that the Central Bank of Kenya set interest rates in view of the prevailing economic situation. The prevailing interest rate can further be set and periodically reviewed by the apex bank in line with the nature of banking activities at a given time period. The Central Bank of Kenya should ensure proper and high asset quality so as ensure that commercial banks achieve financial stability which in turn translate to stability of the banking sector.

The study further recommends that commercial banks should strive towards reducing non-performing loans which can be through the setting up of effective credit risk management systems. Excessive levels of non-performing loans subsequently result in high levels of bad debts which are then written off against profits hence decreasing the financial stability of commercial banks. Through appropriate measures, asset quality through non performing loans can be improved by carrying out proper credit evaluation to ascertain the credit worthiness of firms and individuals before granting of loans while also putting in place effective credit collection mechanism. Through this, purpose of borrowing can be evaluated as well as an appraisal of prospective business venture requiring financing or loan can be done.

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