CAMEL RATING MODEL AND FINANCIAL STABILITY OF COMMERCIAL BANKS IN KENYA

ABSTRACT

The study sought to examine the effect of CAMEL rating model on financial stability of commercial banks in Kenya. This paper was extracted from the Doctoral dissertation of the first author where the co-authors served as supervisors. Buffer capital theory and efficiency structure theory were utilized. Causal research design was used and a census of forty-one commercial banks was undertaken focusing on the period 2013 to 2019. The panel regression analysis revealed that out of the CAMEL rating variables, only earnings ability had significant effect on financial stability of commercial banks in Kenya. It was recommended that the Central Bank of Kenya motivates earnings (profitability) targets to be in accordance with the size (category) of banks. This is as the earnings ability of commercial banks vary from bank to bank. This will in turn facilitate the improvements and sustenance of financial stability by commercial banks. The study recommends that bank managers when setting earnings target should consider their capabilities as a bank by ensuring realistic targets. Higher earnings translate to higher financial stability according to the study findings, hence apart from the traditional intermediation activities, other profitable business ventures can be explored by commercial banks

Keywords: Capital Adequacy, Asset Quality, Management Efficiency, Earnings Ability, Liquidity, Financial Stability and Commercial Banks

1.1 Introduction and Background

The banking sector's revolutionary role is not without measures that strengthens its efficient and effective functioning. However, due to the high risk of the banks in the financial market, regulations or standards have been suggested to curtail the loss of customers' funds in the event where the banks are faced with liquidity risks. As a result, the Basel I, II and III were initiated to suggest ways through which dangers can be identified within thirty days in the event where shareholders decides to withdraw their investments from the banks (Hartlage, 2012). This is to prevent panic that could affect the stability of the banks due to loss of confidence by the customers thus, strengthening of the liquidity regulations to reduce the level of systemic risk.

Capital regime has evolved overtime resulting in the promulgation of capital regulation thus, the emergence of Basel I. This was initiated to curb the complexities surrounding the banking

system. The initiative spread across four risk levels with loan been assigned the same risk weighted which can vary with credit quality. Calculated capital ratios are frequently uninformative and may give misleading information about a bank's capital adequacy in relation to its risks due to the minimal difference among degrees of risk (Basel Committee on Banking Supervision, 2004). This enables the banks to create incentives for banks through regulatory capital arbitrage thus avoiding exposure to risk. Capital arbitrage has reduced the significance of the larger banks' minimum regulatory capital ratios. Regulations and statutory requirements linked to those measures are less meaningful as a result, making it harder for creditors, counterparties, and investors to assess the capital status of specific banks based on the ratios as they are now calculated. In short, Basel I capital ratios for larger banks do not accurately reflect risk or evaluate bank strength.

Basel II was created in 2003 with the primary goal of intensifying the regulatory framework for larger banks' capital and active international banking firms via the capital minimum requirements that are more susceptible to the risk profile of an institution which reinforce effective risk management through incentives (Basel Committee on Banking Supervision, 2004). This was created in an ongoing effort to reflect modifications in the structure and practices of the banking and financial markets. The initiation is attributed to the various reward features tied to financial instruments and strategies assessment in an ever-growing environment, risk management and measure, capital to risk ratio, increase bank risk taking transparency and supervisor-bank dialogue (Anginer, Bertay, Cull, Demirgüç-Kunt, Mare & Mare, 2019). Due to this motivation, it was built on three pillars which include addressing minimum capital requirement, supervisory oversight and strong market discipline mandating banks to publicly reveal their information. This is to enhance the revelation of banks capital to investors and customers to improve the banks' capital base.

Basel III reinforces and simplifies capital ratio numerator and adds some components of macro-prudential to the regulatory framework, but it does not represent a significant alteration from the prior Capital Accord; rather, they work in tandem. Basel III's principal recommendations include the following: First, it significantly improves both the quality and amount of capital, with a stronger emphasis on common equity (Cardone-Riportella, Trujillo-Ponce & Briozzo, 2011). High-quality capital is required withstand losses better from potential shocks that could come

from anyplace; second, In addition, Basel III introduces a straightforward leverage ratio that support the measure for risk-based. This measure is essential to the foundation and serves as a straightforward, understandable sanity check of the outcomes generated by the risk-based structure. The application of capital buffers is Basel III's third component. While the countercyclical buffer should help shield banks from the risks of rapid credit growth, the conservation buffer offers institutions a significant incentive to increase capital during good times (Basel Committee on Banking Supervision, 2010). Finally, strong liquidity risk management guidelines and international liquidity standards will make sure that banks can manage this risk more successfully and keep enough liquidity reserves.

The financial stability of the banks is guaranteed where the existence of regulatory laws are effectively implemented. These regulations' effectiveness improves the banks' operational capabilities and maintains the soundness and stability of the banking sector's stability (Kweyu, 2022). The absence of effective and sound regulatory guidelines place the bank on a susceptible risk position which could affect the stability of the banking sector hence, making it unstable and possibly causing a chain reaction that could bring down the entire banking industry. However, the central bank regulations and policies reduces systemic risk, maintain banking confidentiality, lower the amount of exposed risk associated with creditors and protect commercial banks from illegal activities like money laundering and financing terrorist organizations, among others (Ndolo, 2017).

1.2 Statement of the Problem

Commercial banks in Kenya serves as the engine room upon which other sectors of the economy's finances flow from deficit areas to surplus areas. They enhance the mobilization of resources through an intermediation channel at a charge that serves as earning to the banks. This critical role performed by commercial banks has undoubtedly remained the stimulant to the growth and development of the economy (Akims, 2022). Owing to this vital role of the commercial in the developmental process, the stability of the banks have continued in a fluctuating trend, drawing the attention of the various stakeholders in the industry due to the crisis as well as risk which the commercial banks are exposed to thus, resulting into low returns on assets and equity in Kenya.

Financial instability in commercial banks has contagious effect on the whole economy's growth survival. Instability of the commercial banks exposes the banks to shocks that could result from internal and external factors of the business environment thus leading to the issue of insolvency and liquidation (Ahmed, Majeed, Thalassinos & Thalassinos, 2021). Instability of commercial banks is detrimental to liquidity and capital levels thereby making them vulnerable to any fluctuating movement of the business competitive environment that could wane the interest of the banks customers (Adusei, 2015). Kenyan commercial banks have witnessed marginal declined in the return on equity (ROE) overtime. According to Central Bank Kenya (2017), between 2010 and 2017, ROE general score stood at 25.98% in 2010 falling to 23% in 2011. 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). Notably, the financial stability over a period of time has not been stable thus, affecting the soundness of the Kenyan banking sector.

CAMEL rating model overtime has been evaluated to determine its effect on the banks' stability. With this, Donald, Wamalwa, Mungai and Makori (2020) found using generalized method of moment that operational efficiency, capital adequacy, liquidity, profitability, asset quality all had an effect that is significant on commercial banks financial stability in Kenya with liquidity having insignificant effect alone, however, the this study will employ the use of panel regression model to investigate how CAMEL rating model affect financial stability of commercial banks in Kenya. Using pooled OLS regression, Maude, Tijjani, Ringim, Muazu and Dogarawa (2020) established that asset quality, capital adequacy, liquidity, market risk sensitivity and management efficiency possess an effect that is significant on Nigeria's SIBs profitability; nonetheless, the research was conducted in Nigeria which has different economic peculiarities that are unique to it alone.

Waqas, Omran and Mohamed-Arshad (2019) used panel regression to arrive at the findings that bank-based risk factors which includes credit, operational and liquidity risk significantly and negatively affect stability measures in Pakistan; Nevertheless, the research was verified using Pakistani's commercial banks which possess different continental features. Paul (2021) used

Rwanda to institute CAMEL rating model effect on the commercial banks' financial performance noting that capital adequacy and asset quality had positive financial performance effect while liquidity, earnings and efficiency management had an inverse effect with only efficiency having the relevant financial performance effect on Rwanda commercial banks. The outcome of these studies has been indicated by different contextual grounds.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of the study was to establish the effect of CAMEL rating model on Kenyan financial stability of commercial banks.

1.3.2 Specific Objectives

The specific objectives of the study were:

i. To examine the effect of capital adequacy on the financial stability of commercial banks in Kenya.
ii. To determine the effect of asset quality on the financial stability of commercial banks in Kenya.
iii. To analyze the effect of management efficiency on the financial stability of commercial banks in Kenya.
iv. To evaluate the effect of earning ability on the financial stability of commercial banks in Kenya.
v. To assess the effect of liquidity on the financial stability of commercial banks in Kenya.

The null hypotheses were formulated in view of the specific objectives

2.1 Literature Review

2.2 Theoretical Literature Review

Buffer Capital Theory was propounded by Calem and Rob (1996). In the maintenance of the banks healthy state, capital plays a crucial role. This is appealing to the safety nets of the depositors funds thus, preventing any harm that could result to unexpected circumstances. A bank may maintain a lesser amount of capital than is socially ideal, raising concerns about its risk as adverse externalities ensuing from bank non-payment are not represented in market

capital requirements (Schliephake, 2016). This issue is the main driver for capital recommendations. Banks are expected to hold certain levels of capital to prevent them from being vulnerable to shock that could emanates from the business environment. The minimum requirements for the capitalization of commercial banks is imperative to achieving soundness in the banking industry.

Efficiency Structure Theory was put forward by Demsetz (1973). The core tenets of this theory hold that market structure and efficiency are interconnected. The fact is that businesses with effective administration are more commonly associated with lower expenses and higher benefits. More lucrative, better capitalized and shock-resistant banks are also predicted to be those that are more efficient (Huljak, Martin & Moccero, 2019). The structure of the hypothesis is classified as the X and scale efficiency. Accordingly, X efficiency hypothesis, increasingly efficient organizations have lower costs, greater benefits, and larger share prices. González, Razia, Búa and Sestayo (2019) explain that a bank that operates more efficiently than its rivals achieves higher benefits due to lower operating costs. According to the X efficiency premise, managing finances more effectively can reduce costs and move a bank closer to the cost curve associated with standard practices and the lower bound. On the other hand, the scale efficiency hypothesis describes a situation where commercial banks unit cost of producing more service falls as a result of economies of scale. This implies that banks witness decreasing cost of production due to expansion in the size of production.

2.3 Empirical Literature Review

Moudud-Ul-Huq (2017) measured the Bangladesh's financial performance of the banking sector for the years 2013–2014 using composite CAMEL rating system. Ten private commercial banks (PCBs) were chosen from a total of 38 PCBs. Results showed that the majority of banks receive a composite rating of 2.14, with only Eastern Bank Ltd. receiving a "Strong" rating, seven private commercial banks receiving a "Satisfactory" rating, and AB Bank Ltd. and City Bank Ltd having a mid range score. With regard to the study, the rating approach of the CAMEL model was implemented which provided a methodology framework.

The performance of Nigerian banks was accessed by Iheanyi and Sotonye (2017) using the CAMEL rating. The results of a 19-year data collection and analysis using ordinary least square

methods indicate that capital sufficiency, liquidity, management effectiveness and earnings have little to no bearing on banks' profitability. The bank's profit is adversely determined by the quality of its assets. Under the context of the study, Nigeria was used where the OLS procedures were used to arrive at the outcomes of the investigation. Resting on the ores of the existing empirical works from Nigeria, this inquiry was conducted in Kenya with particular reference to commercial banks' stability.

The assessment and comparison made by Rahman and Islam (2018) on the banking industry's performance in Bangladesh adopts the CAMELS rating system based on the quantitative technique. Conventionally, the 17 private commercial banks were chosen. Observational data from the reports of the banks was assessed for a period of 2010-2016. As pointed out by the findings of the research, Eastern bank was placed first among all the banks as regards the chosen CAMEL rating system. Although, the banks' evaluation was in Bangladesh, it only considered performance of the banks while stability of the banks was considered in this study.

Wamalwa *et al* (2020) studied the effect of CAMEL variables on financial stability of commercial banks in Kenya. Based on fragility index only 17 banks were considered and dta analysis was based on Generalized Method of Moments (GMM) model. The stability of finances as noted significant effected by operational efficiency in a manner that is positive. The adequacy of capital was inversely effectual on financial stability exposing its significant strength. Insignificance of liquidity was realized by the outcomes on financial stability. Inversely significant on financial stability was the demonstration of profitability. Result was that financial stability was positively affected by asset quality, which was significant.

Conducted within the confines of 17 weak commercial banks in Kenya, Wafula (2020) effectively examined how capital adequacy, operational efficiency, profitability, liquidity and asset quality affect financial stability. The design of causality was carried out as research design for 2011 to 2018. Operating efficiency significantly in a positive manner determines financial stability as indicated by the Generalized Method of Moments (GMM). The financial stability was adversely affected by capital adequacy in a significant way. Additionally, liquidity insignificantly determines financial stability. Profitability inversely and significantly acted on financial stability while positively affected by asset quality significantly.

Using the CAMEL assessment technique, Abusharbeh (2020) assessed the financial stability of listed Palestine Exchange commercial banks. Six local banks that operated in Palestine from 2007 to 2017 were used as a sample for a one sample t-test, composite rating and content analysis. The test demonstrated that banks exhibit stability of liquidity and profitability as well as adherence to the Basel Committee norms for capital adequacy. The banks that are being reviewed have "reasonably managed" operational efficiency. Finally, the results show that there are notable variations in the performance of Palestinian banks as determined by the CAMEL grading methodology. Having investigated the study in Palestine, the research adopted t-test approach whereas panel regression techniques were evaluated under the CAMEL rating model on commercial banks in Kenya.

Using Rwanda as case, Paul (2021) adopted the CAMEL rating approach to establish commercial banks' financial stability over a time frame of 2014 and 2018. Eleven banks existence in the market of Rwanda was cross examined. The adoption of panel regression was evident. The inquiry illustrated that asset quality and capital adequacy positively influence the value of financial performance. A negative link exists between managing liquidity, management efficiency and earnings management. Only management efficiency, though, is statistically significant for ROA prediction. The study used ROA to evaluate performance of the banks whereas financial stability was adopted in the current study.

Rasli, Hassan, Hajali, Kamis, and Samad (2020) under the aegis of the correlation, fixed effect model and generalized method of moment investigated the nexus of CAMEL, financial performance and stability in conventional Islamic subsidiaries banks between 2010 and 2017. The CAMEL of Islamic banks significantly supported the return in accordance with the factors that determine profitability. The financial stability metrics, including instability, were found to be crucially essential for management efficiency, asset quality and liquidity. The current investigation isolated the concept of performance while stability was used in consonance with the CAMEL rating model effect in Kenya under the framework of panel regression technique.

Denje and Olando (2021) examined the nexus of CAMEL rating system with Kenya's financial performance of Islamic banks. Three banks were used with the application of correlational design for a period of 2012 and 2020. The quantitative approach to the investigation comprised of inferential and descriptive techniques. The inquiry found that, when it comes to the financial

performance of Islamic banks, capital adequacy has a significant positive effect, assets quality has significant inverse effect, management efficiency affected positively in a significant manner, earnings ability determined positively and significantly, and liquidity possesses an inverse significant effect. Only three Islamic banks were employed in the investigation with no consideration giving to a section of the banks in Kenya resulting in a different contextual frame.

Using commercial banks traded at Dar es Salaam Stock of exchange (DSE), Magoma, Mbwambo, Sallwa and Mwasha (2022) concentrated on financial performance analysis for 2016 and 2020 using the CAMEL model. Explanatory research design was splitted into the technique of correlation and linear regression was applied in the inquiry. Revelation showed that management efficiency and capital adequacy had the most substantial effect on listed DSE commercial banks in Tanzania. Explicitly, the remaining factors of the CAMEL rating had insignificant performance effect on the traded bank in Tanzania. Although the investigation was conducted in East Africa, all countries possess unique features different from each other. Thus, only listed banks were considered whereas the all commercial banks in Kenya were evaluated in this study.

In Kenyan microfinance banks, Kweyu (2022) evaluated the extent by which capital adequacy, bank size, managerial efficiency and earning ability affect stability. An explanatory design was used in the study. Thirteen licensed microfinance banks in Kenya made up the target population, thus a census was conducted. Utilizing descriptive, correlation and panel regression examination, data was analyzed. Financial stability of Kenya's microfinance banks was not impacted significantly by size of the bank, but rather by factors such as management efficiency, capital adequacy and earnings ability. The conduct of the study was based on the premise of microfinance banks while commercial banks was explored based on the CAMEL the rating system in this study.

3.1 Methodology

The study adopted causal research design. Based on a census approach, the study focused on forty-one (41) commercial banks in Kenya. Panel data was utilized and consequently, the study applied panel regression model.

$$FS = \beta_0 + \beta_1 CA + \beta_2 AS + \beta_3 ME + \beta_4 EA + \beta_5 LI + \varepsilon$$

Where:

FS = Financial Stability

CA = Capital Adequacy

AS = Asset Quality

ME = Management Efficiency

EA = Earning Ability

LI = Liquidity

β_1 - β_5 = Coefficients

ε = Stochastic term

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

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.

4.3 Panel Regression Analysis

The direct effect analysis was applied testing the first five null hypotheses in view of the first five specific objectives. The results from the direct effect analysis are documented Table 2.

Table 2: Panel Regression Results

Financial Stability	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Capital Adequacy	8.808416	7.198474	1.22	0.221	-5.300333	22.91716
Asset Quality	12.51853	11.27419	1.11	0.267	-9.578476	34.61553
Management Efficiency	.04924	.0397026	1.24	0.215	-.0285756	.1270556
Earnings Ability	11.34535	3.748055	3.03	0.002	3.9993	18.69141
Liquidity	1.131403	2.370176	0.48	0.633	-3.514057	5.776864
_cons	-.9336497	1.45451	-0.64	0.521	-3.784437	1.917137
R^2 =0.3247						
Wald chi2 (6) =24.76						
Prob> chi2 =0.0002						

Source: Study Data (2023)

The panel regression analysis based on the direct effect model contains R square value of 0.3247, F statistics of 24.76 and p-value of 0.0002. This implies that 32.47 variation recorded in financial stability of commercial banks in Kenya is attributed to the CAMEL rating model as captured by capital adequacy, asset quality, management efficiency, earnings ability and liquidity. Importantly, the model was significant as indicated by a p-value of 0.0002.

Notably, all the CAMEL variables had positive effect on financial stability of commercial banks in Kenya. Capital adequacy had a coefficient of 8.808, asset quality had a coefficient of 12.519, management efficiency had a coefficient value of 0.049, a coefficient of 11.345 is attributed to earnings ability and liquidity had the value of 1.131 as the coefficient.

4.3.1 Capital Adequacy and Financial Stability

With regards to the first specific objective which was to establish the effect of capital adequacy on financial stability of commercial banks in Kenya, a corresponding null hypothesis was tested. The null hypothesis stated that:

H_{01}: Capital adequacy has no significant effect on the financial stability of commercial banks in Kenya.

Based on the results from the panel regression analysis as contained in Table 2, a p-value of 0.221 and coefficient of 8.808 were found with respect to the relationship between capital adequacy and financial stability of commercial banks in Kenya. This indicates that capital adequacy exerted an insignificant effect on financial stability. At 0.05 significance level, the study consequently failed to reject the null hypothesis stating that capital adequacy has significant effect on financial stability of commercial banks in Kenya. The positive effect reflects the importance of capital adequacy improving financial stability despite its statistical insignificance. An improvement in financial stability of commercial banks in Kenya by 8.808 is registered as a result of a unit increase in capital adequacy. Banks holding high capital level tend to have more access to sources of financing at lower risk and cost, as well as more accessibility to higher quality assets markets in comparison with banks which have low level of capital.

Capital adequacy of commercial banks serves as buffer towards cushioning of adverse conditions in the financial system which is supported by the proposition of capital buffer theory. Nguyen (2021) indicated that the meeting of the required capital adequacy level by banks provides them with the ability of creating buffer and protecting against financial shocks and in turn ensuring financial stability, hence the positive relationship. The study findings collaborate with those of Iheanyi and Sotonye (2017) who reported that capital level had insignificant effect on profitability of banks. Paul (2021) similarly documented that capital adequacy positively influence the value of financial performance of banks in Rwanda. Yusgiantoro, Wirdiyanti and Malinda (2019) additionally established that regulatory capital has an insignificant impact on financial stability across 84 countries based on a sample of 558 commercial banks.

4.3.2 Asset Quality and Financial Stability

The second specific objective was to evaluate the effect of asset quality on financial stability of commercial banks in Kenya. In line with this objective, a corresponding null hypothesis was tested which stated that:

H_{02}: Asset quality has no significant effect on the financial stability of commercial banks in Kenya.

The results from the panel regression analysis in Table 2 indicate a p-value of 0.267 and coefficient of 12.519 based on the effect of asset quality on financial stability of commercial banks in Kenya. This indicates that asset quality insignificantly affected on financial stability.

With the threshold of 0.05 significance level, the null hypothesis stating that asset quality has significant effect on financial stability of commercial banks in Kenya was consequently not rejected. The positive effect implies that despite the growing non performing loans to total loans ratio, improvement is registered in the financial stability of commercial banks in Kenya though in an insignificant manner.

Financial stability of commercial banks in Kenya not being negatively impacted by asset quality implies that apart from the financial intermediation role of lending, these banks are also engaged in other profitable activities which in turn augment the potential adverse effect of bad debts. The outcome of the study on the effect of asset quality on financial stability is supported by literature. Paul (2021) similarly reported that asset quality and capital adequacy positively influence the value of financial stability of commercial banks in Rwanda. Similarly, Wamalwa *et al*. (2020) on found that financial stability of commercial banks in Kenya was positively affected by asset quality however in a significant manner which in turn vary from the findings of this study.

4.3.3 Management Efficiency and Financial Stability

With respect to the third specific objective which was to examine the effect of management efficiency on financial stability of commercial banks in Kenya, the study tested the corresponding null hypothesis which stated that:

H_{03}: Management efficiency has no significant effect on the financial stability of commercial banks in Kenya.

In accordance with the results obtained from the panel regression analysis as contained in Table 2, a p-value of 0.215 was found for the relationship between management efficiency and financial stability of commercial banks in Kenya. As such, management efficiency had insignificant effect on financial stability of commercial banks in Kenya. Consequently, the study failed to reject the null hypothesis which states that management efficiency has significant effect on financial stability of commercial banks in Kenya. The coefficient 0.049 was obtained for management efficiency and financial stability relationship. The positive effect can be deduced from the notion that the more efficient bank managers are in the conduct of banking activities in view of the position at the helm of affairs, the better the financial stability of commercial banks in Kenya. Despite the statistical insignificance, improvements in management efficiency results in a corresponding increase in bank stability.

The study findings are further supported by empirical literature. Iheanyi and Sotonye (2017) while using the CAMEL rating to assess bank performance for Nigeria found that management efficiency and performance had insignificant relationship. Similarly, Rahman, Chowdhury and Tania (2021) reported that higher cost efficiency leads to higher stability of banks.

4.3.4 Earnings Ability and Financial Stability

The fourth specific objective was to assess the effect of earnings ability on financial stability of commercial banks in Kenya. In view of this objective, a corresponding null hypothesis was tested which stated that:

H_{04}: Earning ability has no significant effect on financial stability of commercial banks in Kenya.

Based on the results from the panel regression analysis as contained in Table 2, a p-value of 0.002 was established regarding the relationship between earnings ability and financial stability of commercial banks in Kenya. A coefficient of 11.345 was established for the effect of earnings ability on financial stability. Earnings ability as measured by return on assets indicates the effectiveness of banks managers in handling assets towards profit generation in view of both conventional and non-conventional financial activities. As such, higher earnings by commercial banks entails improved financial stability as further supported by the positive coefficient statistics.

Commercial banks' earnings as reflected by net income to total assets ratio (ROA) shows the ability of bank managers in prudently utilizing the resources at their disposal. Hence, higher earnings imply more resources for commercial banks to utilize and ensure financial stability. The study findings are further supported by empirical literature. Ali and Puah (2019) reported that stability is significantly impacted by profitability in Pakistan banking sector. Additionally, Sang and Anh (2022) documented that bank profitability impacts on financial stability of Vietnamese commercial banks. Zeqiraj, Mrasori, Iskenderoglu and Sohag (2021) established that return on assets has a significant positive long-run relationship with financial stability of banks in Southeastern European countries.

4.3.5 Liquidity and Financial Stability

The effect of liquidity on financial stability of commercial banks in Kenya was sought. In response to this objective, a corresponding null hypothesis was tested which stated that:

H_{05}: Liquidity has no significant effect on financial stability of commercial banks in Kenya.

Table 2 contains a p-value of 0.633 for the effect of liquidity on financial stability of commercial banks in Kenya. The null hypothesis stating that liquidity has no significant effect on financial stability of commercial banks in Kenya was therefore not rejected as informed by the threshold 0.05 significance level. A corresponding coefficient of 1.131 was obtained which indicates positive relationship between liquidity and financial stability. The positive effect can be based on the notion that liquidity provides banks with the capacity to fulfill short term obligations as they mature hence allowing a smooth intermediation role, hence improving the financial stability of commercial banks. Adequate liquidity level prevents banking institutions from experiencing panic runs.

The study findings are further supported by empirical literature. Iheanyi and Sotonye (2017) using the CAMEL rating reported that liquidity insignificantly affects profitability. Yusgiantoro, Wirdiyanti and Malinda (2019) reported that liquidity is not significant in predicting financial stability for the market-based system for 84 countries based on a sample of 558 commercial banks.

5.1 Conclusion and Recommendations

5.2 Conclusion

The study concluded that capital adequacy is not a significant predictor of financial stability of commercial banks in Kenya. With capital buffer, commercial banks have sufficient capital for business growth while also having the needed financial capacity of absorbing shocks while maintaining financial stability. Additionally, the adequate capital serves as an indication of banking institutions being fully to address potential risks, hence ensuring financial stability. Increase in the capital adequacy leads to increase in financial stability of commercial banks. However, excessive levels lead to inefficiency in utilization of capital resources and ultimately causing financial instability.

The study concluded that asset quality is not important in predicting the financial stability of commercial banks in Kenya. Loans form the largest component of assets of commercial banks and notably possess biggest risk. Diversification of earnings and proper credit risk management can cushion against the potential adverse effect of higher ratio of asset quality. As such, the insignificant effect of asset quality on financial stability of commercial banks in Kenya.

It was concluded that management efficiency is not significant in predicting the financial stability of commercial banks in Kenya, however a positive relationship exists. The non interest expense to net interest income ratio which was applied in assessing management efficiency is not a key determinant of financial stability of commercial banks in Kenya. Notably, the ability of obtaining maximum profits depends assets feasibility, unit costs of providing each product and ultimately by proper utilization of these assets.

The study concluded that earnings (return on assets) is a significant determinant of financial stability of commercial banks in Kenya. Just like every other business, commercial banking operations are profit driven. The financial intermediation role of connecting depositors and borrowers together is motivated and facilitated by profitability. Hence, higher earnings translate to higher intermediation activities and subsequently higher financial stability of commercial banks.

It was concluded that liquidity is not an important predictor of the financial stability of commercial banks in Kenya. Despite this, there is however existence of inverse relationship between liquidity and financial stability. From this negative relationship, it can therefore be concluded that over the study period, commercial banks in Kenya held excessive levels of liquidity to the extent of missing out on other profitable venture.

5.3 Policy Recommendations

The study established that earnings ability is an important predictor of financial stability of commercial banks in Kenya. The study presents the policy recommendation that the Central Bank of Kenya sets earnings (profitability) targets in accordance with the size (category) of banks. This is as the earnings ability of commercial banks vary from bank to bank. This will in turn facilitate the improvements and sustenance of financial stability by commercial banks.

The study recommends that bank managers when setting earnings target should consider their capabilities as a bank by ensuring realistic targets. Higher earnings translate to higher financial stability according to the study findings, hence apart from the traditional intermediation activities, other profitable business ventures can be explored by commercial banks.

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