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ABSTRACT

The performance of the banks has been dwindling in Kenya. Kenya's commercial banks' ROA was 2.6 percent in 2017, 2.7 percent in 2018, 2.6 percent in 2018, 1.7 percent in 2019 and 3.3 percent in 2021 and indication of unstable profitability trend. In January, 2013, the CBK issued regulations referred to as prudential guidelines that outlines several aspects of risk management. However, it is not evidently clear through empirical studies how CBK prudential guidelines have impacted bank performance. The study general purpose investigated the extent central bank prudential guidelines has influenced bank performance. The specific objectives sought to establish the effect of capital adequacy on performance of commercial banks. Four theories guided the study; Institutional Theory, Public Interest Theory of Regulation, Stewardship Theory and firm growth theory. The explanatory research design was adopted involving 39 commercial banks in Kenya according to CBK 2022 comprising 9 tier I, 8 tier II and 22 tier III. A census of all the 39 commercial banks was undertaken. Descriptive and inferential tests were adopted in analyzing the data. The descriptive tests included means, minimums, maximums, standard deviation, Kurtosis and Skewness. The particular inferential tests were the unbalanced panel regression model. Prior determining the unbalanced panel regression model, diagnostic model assumption tests were tested. The diagnostic tests comprised the normality tests, serial correlation test, heteroscedasticity, and Multicollinearity and Hausman tests. Presentation of results were done through figures and tables. The findings from the study showed that capital adequacy positively influences the financial performance of commerce banks (β =0.0333113, p=0.027<0.05). It can be concluded that 67% of banks have attained required cash ratio of 0.5 to 1 but still 33% are still struggling with liquidity challenges. A recommendation is made that banks ought to strictly maintain requisite capital adequacy at all times. Tightening of liquidity measures especially taming illicit money is important in enhancing liquidity in the banks. The banks are supposed to revise existing regulations in order to mitigate the growing concern of non-performing loans. The study recommends more audit meetings annually to ensure that all systems and activities of the bank are undertaken as required. There is need for review credits systems so that lending procedures are tightened.

Key words; *Capital Adequacy, Central Bank Prudential Guidelines, Financial Performance*

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INTRODUCTION

The banking sector is an important financial player that plays a key role in preserving and mobilizing funds as well as providing credit funds for financing businesses and individuals. The banking industry continues to be vital to the economy. It greatly contributes to the socioeconomic development of a nation by supporting the financial system of the economy. The banking sector contribute around 20-25% of the global economy (Ross, 2021). According to IbisWorld (2022), the global market size for commercial banks is USD 3 trillion and industry employment of 7.7 million employees.

Due to their ability to offer financial support services to many economic sectors, commercial banks are an essential part of the financial system and have a significant positive impact on the Kenyan economy (Gitogo, 2019). The financial services industry continues to be the primary factor influencing and propelling Kenya's GDP development, according to the Kenya Bankers Association (2021). The banking industry boosted the economy by more than US$1.29 billion over the fiscal years 2016–17 and 2017–18. In addition, commercial banks are source of financial stability and financial intermediation (Mohsin, 2016).

Locally, the performance banking sector performance has been dwindling here in Kenya. In 2017, the Kenya's commercial banks' Return on assets (ROA) was 2.6 percent, 2.7 percent in 2018, 2.6 percent in 2018, 1.7 percent in 2019 and 3.3 percent in 2021 an indication of unstable profitability trend (CBK, 2020; Statista, 2022). Similarly, tier one commercial banks in 2018 recorded drastic decline its profits as indicated by 17.03 percent combined ROE. Inconsistent commercial banks' financial performance erodes investor confidence resulting to unplanned money withdrawals leaning the banks with inadequate customer deposits to operate (Kiemo et al., 2019).

The stability of the banking business is essential to the socio-economic growth of any society. The financial operators are key in the dispensation of credits to business, investments, savings and payment systems. Thus, commercial banks have to operate within regulatory framework to ensure sustainability in operations and performance. As indicated by the Kenya Bankers Association (2021), the financial services sector remains at the core center driving and shaping Kenya financial economy. In addition, commercial banks are source of financial stability and financial intermediation (Mohsin, 2016). Considering the significance of the commercial banks to socioeconomic growth of a country, commercial banks' performance is an issue of importance to practitioners, policymakers and researchers.

Prudential guidelines are guidelines, policies and regulations enacted by a federal banking authority to guide the operations of financial institutions. Prudential guidelines act as guiding regulations for commercial banks. These guidelines are deemed critical in minimizing or preventing fraud in the financial segment of the economy (Mbithi, 2018). It is argued that failure to observe prudential guidelines may result to gradual instability of a bank to operate efficiently and eminent collapse. The guidelines act as guiding mirror on the manner in which a commercial bank should operate and protect consumer deposit.

In Kenya, the CBK issues and enforces the prudential guidelines. The prudential guidelines target consumers and at the same time the financial operators. Prudential guidelines are geared at reducing the level of risks bank consumers are exposed to. The prudential guidelines targeting consumers state that bank consumers ought to be handled with fairness, honest and equitably at phases of the engagement with the financial service providers (CBK, 2013). Treating consumers fairly should be an integral part of the good governance and corporate culture of all institutions guided by fairness, reliability, transparency, equity and responsiveness.

The commercial banks operating in Kenya are put in three tiers; tier I banks, tier II banks and tier III banks (CBK,2013). The categorization criteria are by market share, revenue, total assets controlled and

number of customer deposits (CBK, 2013; Ayugi, 2020). The tier I banks comprise six banks that make up of 49.9 percent of the market share, tier II banks control 41.7 percent of the market share and comprise 15 and 23 tier III banks controlling only 8.4 percent of the market share (CBK, 2020). As indicated in the CBK report 2021, there are aggregate of 43 commercial banks operating in Kenya comprising 14 foreign owned banks and 29 locally owned banks (CBK, 2022).

The commercial banks are critical in creating intermediation between lenders and borrowers in Kenya. They also support the holding of funds for depositors creating a pool of savings for borrowers. The regulation of banks in Kenya is through the Companies Act, CBK Act and CBK Banking Act (CBK, 2013). There are also guiding policies outside the CBK realm hat banks abide to like the Kenya Bankers Associations operations framework. The CBK is mandated in the regulating the operations of commercial banks as per the laid guidelines. Some of the regulations include capital adequacy and liquidity levels required prior a bank starts operations. In 2018, the Kenya's banking liquidity level was 48.6 percent a slight increase from 43.7 percent in 2017. Further, the CBK guidelines stipulates that banks ought to hold 20 percent of their assets in liquid (CBK, 2020). Presence of liquidity assets enables commercial banks to smoothly continue their operations in the event of financial challenges as they are easily convertible to cash. A bank can plunge into insolvency problems if liquidity requirements of the banks are not appropriately checked.

Statement of the Problem

The banking sector performance in Kenya has been dwindling. The ROA for commercial banks in Kenya was 2.6 % in 2017, 2.7 % in 2018, 2.6 % in 2018, 1.7 percent in 2019 and 3.3 percent in 2021 an indication of unstable profitability trend (Statista, 2022) that has been linked to banks liquidity problems and rising credit risks. The years 2013, 2014 and 2015 recorded falling profitability among Kenya's commercial banks as indicated by ROE of 20.94 percent, 20.89 percent and 17.37 percent in that order (CBK, 2020). Similarly, tier one commercial banks in 2018 recorded drastic decline its profits as indicated by 17.03percent combined ROE. Inconsistent commercial banks' financial performance erodes investor confidence resulting to unplanned money withdrawals leaning the banks with inadequate customer deposits to operate (Kiemo et al., 2019). In addition, falling commercial banks financial status hinders the financial state of a country rendering the commercial banks unable to effectively extend financial support to businesses, individuals and government agencies.

The unstable financial health of Kenyan banks was linked to lack of commercial banks in abiding with the prudential guidelines' issues by central bank (Okeno, 2018; David et al., 2018). The CBK prudential guidelines are targeted to protect consumers from risks that may emanate due to the failure of commercial banks to adhere to stipulated rules and regulations while operating (CBK, 2013). These regulations comprise adherence and enforcement of the rules and policies sets and also compliance of the critical banks asset management policies, financial capacity of the banks and its managements (CBK, 2013). The collapse of numerous Kenya's commercial banks has been linked to disregard to prudential guidelines issued by CBK. The fall of Chase and Imperial banks has been linked to liquidity challenges that emanated because of mishandling customers' deposits (CBK report, 2018). The Dubai Bank, Imperial Bank Limited and Charter House Bank collapsed or are under receivership (CBK, 2018) the phenomena that was linked to capital adequacy problems, liquidity crunch and credit risks arising from huge nonperforming loans by Central Bank of Kenya supervisory committee.

Substantial studies have investigated the effect of prudential guidelines in the banking industry on commercial banks' financial performance (Wairimu, 2017; Okeno, 2018; David et al., 2018; Musabi & Mbithi; 2018). The studies undertaken did not

combine the conceptual variables as this study. A study by Wairimu, (2017) employed primary data in determining how prudential guidelines impact commercial performance of commercial banks, yet secondary information from financial records were available presenting methodological gap.

A study by Okeno (2018), identified risk management guideline, corporate governance guideline and loan loss prudential guideline as core prudential guideline that impact the commercial banks' financial performance. However, Okeno (2018) failed to include liquidity requirements which has been linked to the financial struggles of National Bank of Kenya and Dubai banks presenting conceptual gap. David et al. (2018) sieved liquidity management and capital adequacy as critical prudential guidelines that impact the performance of banks. However, David et al. (2018) did not include corporate management competency that has been linked to the fall of Kenya's some of commercial banks comprising Imperial Bank. The proposed study introduces corporate management competency as key item in the management of commercial banks.

Objective of the Study

To determine the effect of capital adequacy on financial performance of commercial banks in Kenya. The study tested the following hypotheses;

- H_{01}: Capital adequacy has no significant effect on financial performance of commercial banks.

LITERATURE REVIEW

Empirical Literature Review

Covered in this chapter is the literature review based on research topic under investigation. It presents their theoretical review, empirical review and research gap that exists.

Theoretical Review

The theories that guided this study included Institutional Theory, Public Interest Theory of Regulation, Stewardship Theory and firm growth theory. The anchoring theory to the study problem was the Public Interest Theory of Regulation and firm growth theory.

Public Interest Theory of Regulation

The Public Interest Theory of Regulation was advanced by Pigou (1932). It is an economic theory that attempts to explain why regulations occurs. The theory states that the provision of regulations is as a result of public demand for market practices that are ineffective or inequitable. The need for regulation in the public interest theory is linked to the wellbeing of the society.

Notable assumption of the theory is that markets are fragile and unable to regulate themselves. Further, the theory makes the assumption that the regulation is beneficial to the entire society and the regulating entity is deemed to advance the interests of the society (Hantke-Domas, 2003). The theory also assumes that the markets are delicate and incapable of regulating themselves. The theory attempts to mitigate or control the effects brought by market failures where some market participants try to manipulate the prices undermining the force of demand and supply. In such phenomenon, government intervention is important in bringing the order (Croley, 2009). Nonetheless, the theory however has had its criticism. Incumbent firms can capture regulation so as to protect the market from competitors' entry according to (Stigler, 1974). Moreover, the theory is featured with ambiguity, and fails to identify and resolve regulatory regime imperfections. Further, it provides no framework for assessing when and if the public interest has been served.

The theory is useful in underpinning the study. It advocates for the need of the government or regulatory authority in bringing order in the market. In the scenario of banking sector, the Central Bank under the authority of the government formulates plies and regulations to guide the operations of banks in the market places. The regulations are geared at protecting the consumers from exploitation and also in helping the individual banks operate within platforms that will guarantee them sustenance in the event of market shocks. The

Public Interest Theory of Regulation was employed by Ochieng (2014) and David, et al. (2018) while studying CBK prudential guidelines and their impact on bank performance.

Institutional Theory

Institutional Theory was fronted and interrogated by various researchers that include Rowan and Meyer (1977) and DiMaggio and Powell (1983). Institutional theory advocates that rules, structures, schemes, routines and norms overtime are established to guide social actions and behaviors of individuals and institutions (Meyer & Rowan, 1977; Deephouse & Suchman, 2008). Overtime, these rules, structures, schemes, routines and norms are developed, adopted, shared and overtime, they fall, or adjusted to suit the needs of that current situation (Deephouse & Suchman, 2008). DiMaggio and Powell (1991), argues that institutions are social establishments that have grown overtime. The key assumptions with the Institutional Theory are that institutions are regulatory frameworks, structures, rules, policies and norms that organization subscribes to for efficient operations (Scott, 2005).

The institutions operate at various levels right from global levels to local and individuals' levels (Dacin, 1997). Though institutions are stable overtime, they undergo changes to reflect dynamics in the society (Lammers et al., 2017). Suddaby (2010) indicate that, institutions tend to conform to certain laid rules, norms and guidelines to survive or remain competitive in the ever changing environment. DiMaggio and Powell (2004) identified imitation as key insight of the institutional theory: instead of just capitalizing on decisions, structures and practices, the institutions observe what is guiding the peers in the market and adjust accordingly.

Though institutional theory has made great advances in impacting firm operations, it has a several notable methodological and theoretical problems (Puffer & McCarthy, 2015). According to Peters (2000), the primary issue with institutional explanations is their tendency to remain stagnant. The challenge of assessing institutional characteristics in anything other than nominal, oversimplified categories is another persistent issue (Deephouse, 1996).

Institutional theory is relevant in understanding banking operators' actions. The creation of guidelines and regulations form part of institutions' rules and polices. The rules and polices guide the operations of banks in the market in ensuring that their actions are guided by acceptable norms, values and practices. Establishing proper schemas, rules, norms, and routines is essential to building an efficient and successful organizational management system. Major limitation of the Institutional Theory is that it puts more prominence on rules, policies and structures to guide the work behaviour of operators in an organization but do not define the structure on how to enforce them. The Institutional Theory was employed by Chepkutwo, Jagongo, and Okech (2019) while studying the CBK Prudential Guidelines effects on MFI performance in Kenya

Stewardship Theory

Stewardship Theory was proposed by Davis (1991). It states that, ownership doesn't really own a company; but it is just holding a trust. Stewardship theory renounces the agency theory assumptions and argues that stewards' actions are geared toward firm owners or managers' desires and management. The theory also makes the assumption the managers act on wishes of the firm management even if they are left own their own (Kumudini, 2010; Letting 2011). In the context of the theory, act on the firm interests by acting as good stewards (Davis & Donaldson, 1991).

Managers that are good stewards tend to priorities the organization's needs and those of the stakeholders. Thus, the theory advocates the alignment of managers' activities to that of the organization enhancing firm performance (Davis et al., 2018). Managers who pursue performance tend to satisfy the firm owners and stakeholders' desires (Davis, Donaldson & Schoorman, 1997). According to the theory, the stewards draw concern to their career progression and their own brand image and

thus want to act as per the desires of the firm owners (Davis & Donaldson, 1994). The theory also posits that inside board management properly understands the needs of the organization and thus deliver the best to the firm stakeholders.

The major weakness of the theory is that firm managers may not always be good stewards and may use their position to advance their interests that are not in line with firm owners and stakeholders (Menyah, 2013). Moreover, Stewardship theory is built on trust and assumes that agents may always act in the interests of the organization (Keay, 2017). As a result, contractual arrangements might be less clear or formal or in some cases non-existent.

The theory is applicable to this research. Stakeholders, partners and management are able to manage the banking wisely by ensuring that key characteristics vital to good corporate governance are upheld. The characteristics could be competence, integrity and auditing standards. The features aforementioned are necessary when handling organizational corporate affairs. The fall of certain banks in Kenya has been tied to disregard to regulations and rules set by the CBK resulting to failure to observe corporate governance practices like accountability, transparency and financial reporting. It is significant in understanding the effect of audit committee on the link between CBK prudential guidelines and financial performance of banks. Focusing at commercial banks in Kenya, Wairimu, (2017) and Musabi and Mbithi (2018) employed Stewardship Theory while studying the inflfunce of prudential regulations on their financial performance.

Firm Growth Theory

The growth of the firm theory was put forward by Penrose (1959). It argues that the firm growth is guided by the manner the firm utilizes its resources to generate income. It advocates for the proper management, deployment and allocation of firm resources. Kor et al. (2016) argued that strong nexus exists between firm resource capabilities and performance. The theory provides the interlinkage among firm resources, capabilities and firm growth. Penrose, and Penrose, (2009) further opines that firm value is derived due to proper, efficient and innovative use of firm resources and not only its possession. As per theory, possession of resources is not sufficient but the use that determines profits. The firm growth theory makes the assumtion that the purpose of the firm is to maximize shareholder´s wealth, and its consequences lead to a process of strategy improvement (Kraaijenbrink & Spender, 2011). The significant limitation of the growth of the firm theory is that it equates utility maximisation with profit maximisation, but in the real world it is much more complex and there are many things that determine a managers' utility.

The theory is relevant to this research. The banks utilize their resources to create firm value. The theory helps comprehend how banks effectively use the sources to generate income in form of return on assets parameter ratio. The growth of the firm theory supports the outcome variable which is financial performance of the Kenya's commercial banks. The growth of the firm theory has been employed by various authors including Muhindi and Ngaba (2018), and Mwihaki et al. (2022).

Empirical Review

Capital Adequacy and Financial Performance of Commercial Banks

Capital adequacy is the minimum capital held by a bank to ensure sustainability of operations and customer confidence (Pradhan, Shyam & Shrestha, 2017). Capital adequacy connotes firms' capability to adequately finance business activities (Isanzu, 2017). Capital adequacy has been linked to firm performance of financial institution Liquidity risk is less likely to affect businesses with strong capital ratios.

Using descriptive research design, David et al. (2018) determined how CBK prudential regulations impact ban performance in Nairobi City. A total of 43 banks operating in Nairobi participated in the study. Data collection was conducted by employing a questionnaire. It was indicated that capital

adequacy significantly and positively impacts bank financial performance. Nevertheless, the sample size is mall which may have limit the accuracy of the parameter estimate. The proposed study expanded the sample size through panel design from 2013-2021 an indication of methodological gap.

Adopting explanatory research design, Mulyungi and Musengimana (2016) determined how prudential regulations influence the performance of bans in Rwanda. The author noted that capital adequacy positively and significantly affects commercials banks' financial performance was established. Federal bank prudential guidelines differ from country and country hence contextual gap. The proposed study opines to establish the nature of effect capital regulations has on financial performance of Kenya's commercial banks.

The influence of capital adequacy on profitability of 42 commercial banks in Kenya was studied by Musyoka (2017). This was a descriptive survey design. Capital adequacy significantly and positively impact commercial banks' profitability. It was suggested commercial bank should hold sufficient capital adequacy. The study was done to close the gap that exist.

According to a study done by Ngui and Jagongo (2017), capital adequacy significantly and positively affects DT-SACCOs financial performance in Kenya. Census survey employing data from SASRA records was adapted. Target population was 175 fully licensed DT-SACCO's in Kenya as at 31st December 2016. It focused at DTSACCOS unlike this study that delimits to commercial banks. The operations of the two entities slightly differs presenting contextual gap.

In Kenya, Kimeu (2020) studied capital adequacy and profitability of commercial banks quoted at NSE. Published income statement and financial reports of banks listed the NSE from 2014 to 2018 were employed. The research indicated that core capital positively impacts financial performance while supplementary capital did not. It was recommended that banks are required to raise their core capital for them to remain profitable. To increase supplementary capital mergers and acquisitions should be considered.

In Nigeria, a study done by Ugwuka and Ajuzie (2019) on capital adequacy and performance of banks was undertaken. A significant positive effect of capital adequacy ratio on ROA was established. It was suggested that banks should regularly monitor capital adequacy to increase their performance. The study was done in Nigeria as compared to this study which was done in Kenya.

Focusing on banks in Nigeria, Ofeimun and Akpotor (2020) undertook a research on capital adequacy and profitability covering the period 2010 and 2019. The study established that capital adequacy had positive influence on bank performance. The research also showed that customer deposit negatively and significantly impacts bank profitability. This research was done in Kenya to help close the gap.

Kilugala (2017) investigated capital adequacy and NPLs of banks in Tanzania. The study looked at industrial ratio such as; Capital Adequacy Ratio, ROA, and non-performing loans among banks in Tanzanian from 2005 to 2014 was extracted to establish how capital adequacy affect NPLs. It was indicated that banks in Tanzania have a strong capital adequacy ratio higher than the 10% that the stipulated by the Central Bank of Tanzania. However, banks have failed to meet the 5% threshold of non-performing loans. It was noted that capital adequacy and profitability have insignificantly affects non-performing loan. The study was done in Tanzania and it only looked at non-performing loan.

Binh and Kieu (2020) investigated how capital adequacy influence bank performance in Vietnam targeting 16 commercial banks from Vietnamese during the period from 2010 to 2017. Capital adequacy significantly affects bank performance. It was done in Vietnam but the current study focuses at commercial banks in Kenya. Regulations and guidelines may differ in the two countries.

METHODOLOGY

This survey utilized explanatory research design. The design is suitable in determining the link between study variables (Blatter & Haverland, 2012). Thus, the design was useful in determining the extent prudential guidelines affected bank performance in Kenya. Explanatory research design is suitable in determining the relationship between two or more variables in a study and help answer the where, how, why and what questions in a study population (Rahi, 2017). With explanatory research design, the study was able explain the causes and consequences of a CBK prudential guidelines on bank performance. The explanatory research design was employed by Mulyungi and Musengimana (2016) to determine how prudential regulations influence the financial performance Rwandese commercial banks. Similarly, in Kenya, Wairimu (2017) adapted explanatory research design to determine how CBK prudential guidelines have influenced bank financial performance.

Target population involves an observation of interest within a whole set like groups or proceedings as illustrated by (Zhao, et al. 2013). As for CBK (2021), there were 39 commercial banks in Kenya comprising 9 large peer group (Tier I), 8 medium peer group (Tier II) and 22 small peer group (Tier III). Commercial banks forms unit of analyses while the unit of observation were the commercial banks financial records. Thus, the 39 commercial banks were the target population, covering the period 2013-2021. This period has been selected because it was in 2013 that CBK prudential guidelines were adopted. The entire 39 commercial banks participated in the study.

This research relied largely on secondary information. A data collection tool was prepared as guided by study objectives. In data collection tool, the values for capital adequacy measured banks capital to risk weighted assets, liquidity using cash ratio, credit risk as measured as NPL to total loans, audit committee based on number of annual audits and bank financial performance using return on assets. The collection of data focused on the period 2013 to 2021 resulting to panel data

Data analysis involved descriptive and inferential tests. The descriptive included means, standard deviation, skewness, Kurtosis, minimums and maximums. Descriptive statistics are used to generally employed to give a description of the study population without making any inference. In addition, inferential statistics were utilized to make inference of the study population using unbalanced panel regression model. The unbalanced panel regression model was appropriate because some banks had missing data because they had undergone merge and acquisition, under receivership or even quitted the market.

The unbalanced panel regression model was adopted to establish the effects of CBK prudential guidelines on performance of commercial banks of Kenya. The unbalanced panel regression model was facilitated the determination of link between variables in a population considering time factor (Hsiao, 2007). Tables as well as figures was used in the presentation of results. The research was utilized STATA software version 16 in analyzing the panel data.

RESULTS AND DISCUSSIONS

Descriptive Findings analysis

Descriptive statistics was conducted since they are essential in summarizing how the variables are related in the study. The condensation of data into simpler form by descriptive statistic is key in assessing how population data was managed before undertaking inferential statistics. Since descriptive statistics condense data into a simpler summary form, they enable researcher to assess specific features in population that informed how data is distributed and behaved. This study employed various parameters of descriptive tests that comprised the means, standard deviation, and minimum and maximum to ascertain the how these variables are distributed and the finding is shown in Table 1.

Table 1: Descriptive Results

Variable	Observations	Mean	Std. Dev.	Min	Max
ROA	334	0.029088	0.036364	-0.08847	0.357927
Capital adequacy ratio	334	0.220178	0.12924	-0.1303	0.849
Cash ratio	335	0.58889	0.095716	0.426	0.756
NPL ratio	334	0.175607	0.157288	0.019245	0.852724
Number of audit annually	341	3.170088	1.493254	1.000	7.000

Based on the finding in Table 1, banks utilized 0.029088 of their assets to generate revenue. This imply that asset efficiency in generating profits among banks stood at 2.9088% on average. However, some banks recorded inefficiency in generating profits for instance lowest ranked bank recorded inefficiency of -0.08847 as indicated by minimum statistics. This showed that this bank generated a loss of 8.847% in every value of asset utilized in production. In addition, some banks generated more profit using their assets for instance the most efficient bank used 35.7927% of their assets to generate profit as depicted by maximum statistics. Banks usage of assets in making profits recorded minimal disparities as shown by deviation from the mean of 0.036364. It is evident that many banks were making profits or equally utilizing assets to generate profits in almost equal ratio. This is clear from top tier banks which made profit in the similar period neutralizing some few banks that recorded losses during the investigation period. Efficiency of most banks in using assets to generate profits was evident as many banks made profits during the investigation thus financial performance of many financial institutions were positive.

The capital adequacy of banks averaged at 0.220178. This imply that 22.178% of banks' capital on average was used to sustain business operation in a specific period of time. However, some banks relied on borrowed capital to sustain their operations as indicated by minimum statistics of -0.1303. This imply that some banks needed 13% of borrowed capital at minimum to sustain their frequent operations. In addition, some banks had more capital to sustain their operation with the surplus estimating to be having capital adequacy of 0.849. This imply that 84.9% of banks' capital was available to sustain their routine operations. Moreover, capital adequacy recorded a minimal disparity among many of the banks as indicated by deviation from the mean of 0.12924. This imply that many banks had adequate minimum capital to run their routine operations and sustain them for as long as their time in business.

In regards to cash ratio, it was evident that many banks recorded cash ratio of 0.58889 on average. This imply that over 58.889 percent of liquid assets in the bank are inform of cash assets from the organization and the remaining are non-cash assets. Moreover, some banks recorded highest cash ratio of 0.756 as depicted by maximum statistics. It implied that 75.6% of liquid assets in these banks were inform of cash assets. On the other some banks recorded a lower cash ratio of 0.426 as shown by minimum statistics. It was evident that evident that there was a minimal disparity of cash ratio across banks as deduced by standard deviation of 0.095716. Liquidity requirement is essential for banks since their daily operations are highly liquid.

The ratio of NPLs of banks averaged at 17.5607 percent in respect to total loans. Some banks reported high number of NPLs with the highest as far as 85.2724 percent in respect to their total loans. This imply that less than 15% of the loans were paid within the agreed period while the rest experienced delays, rescheduled and some even defaulted. On the other hand, some banks recorded a low case of non-performing loans which was 1.9245 percent of the total loans. Thus many of their loans were paid as stipulated and cases of loan default was minimal. The disparities of non-

performing loans were minimal as depicted by deviation from the mean of 0.157288. This imply that many banks recorded almost similar cases of NPLs that is weighted around the mean. High number of non-performing loans have adverse effect on profitability because many of the banks rely on loans to generate profits.

Banks holds an average of 3.17 audit meetings annually. This imply that banks undertook audit of their systems and operations thrice every year. Although some banks undertook audit periodically in a calendar year other did it once in a year while some undertook it 7 times in a year. There was disparity in audit carried by banks annually as depicted by deviation from the mean of 1.493254. This is because audit of banks depends on internal structures of the banks and there is no defined number of audits as long as annual audit is conducted. The institutions normally use them as means internal controls that are critical in identifying any possible gap that may exist and requires management attention.

Correlation Analysis

Correlation analysis using Pearson was undertaken to determine if there exist a corrrelation among the variables under investigation and any possible lack of relationship between variables invalidated investigation of the nature of that variable. The study correlated the independent variables against dependent variable and also correlated independent variables amongst themselves. The essence of correlating independent variables against dependent variable was to establish if there exist a relationship which determined if the next phase of analysis would be conducted. The role of correlating independent variables was to test if there is presence of multicollinearity if the correlation coefficient was above 0.7. This was also based on the relationship that was predicted by empirical investigation that turned out to be mixed and inconclusive. The study adopted Pearson correlation to investigate the nature and strength of correlation of variables in the study. Correlation test was undertaken to establish how variables in the investigation were associated with each other and the finding is presented in 2.

Table 2: Correlation Analysis Finding

Variables	ROA	Capital adequacy ratio	Cash ratio	NPL ratio	Number of audit annually
Financial Performance	1				
Capital adequacy ratio	0.1379 0.0116	1			
Cash ratio	0.0899 0.010	0.0622 0.2568	1		
NPL ratio	-0.2445 0.000	-0.0672 0.2204	-0.0407 0.4579	1	
Number of audit annually	0.1411 0.0048	0.0642 0.2419	0.0817 0.1355	-0.196 0.0003	1

As per output above, capital adequacy exhibited a positive and significant correlation with bank performance (p=0.1379, 0.0116< 0.05). This imply that capital adequacy and financial performance move in the same direction although their strength is weak as denoted by correlation coefficient less than 0.3.

Diagnostic Test

Diagnostic tests are undertaken to establish the effectiveness of regression model and test its

fitness. The study undertook these diagnostic tests to make sure that data is fit include and appropriate model us used; stationarity, multicollinearity test, Heteroscedasticity, normality test and autocorrelation.

Normality Test

The normality test is undertaken to check whether data gathered followed normal distribution. This is critical in ensuring that data is non-skew and have kurtosis of 3. The distribution of error term is constant and sum of its averages is zero thus the normality test assumption in OLS is not violated and the coefficient of variables are unbiased. Bera and Jarque (1981) was employed in checking normality of the data. The state null hypothesis was tested based on the principle that if the calculated p values are >0.05 are considered normally distributed and the null hypothesis was not rejected and if the p values <0.05 then null hypothesis was rejected and the finding is shown below.

Table 3: Normality Finding

Variable	Obs	Skewness	Kurtosis	adj chi2(2)	Sig.
ROA	334	0.724	0.334	8.12	0.0515
Capital adequacy ratio	334	0.591	0.421	9.21	0.0526
Cash ratio	335	0.0318	0.321	7.99	0.0691
NPL ratio	334	0.0421	0.246	6.81	0.0521
Number of audits annually	341	0.0318	0.2217	5.77	0.065

Table 3 shows normality test for data for the 39 commercial banks for the period 2016 to 2021. For financial performance; the p value =0.0515>0.05, capital adequacy ratio; p value=0.0526>0.05, cash ratio; p value =0.0691, NPL ratio; p value = 0.0521>0.05, and number of audits annually; p value = 0.065>0.05. Thus, all the data is normally distributed.

Multicollinearity test

The test is conducted to check the nature and strength of correlation among variables. If the independent variables are highly correlated the data suffered from multicollinearity. Data that suffers from severe multicollinearity are characterized by magnified standard errors occasioned by incorrect model. Belsley et al. (1980) test was employed to detect multicollinearity that uses variance inflation factors in checking degree of multicollinearity presence in data set. In order to assess the multicollinearity of this research, VIF was utilized. Multicollinearity is present when the value is more than 5 (Field, 2009). The study's multicollinearity findings are shown in Table 4.

Table 4: Multicollinearity Test Findings

Variable	VIF	1/VIF
Capital adequacy ratio	1.05	0.956272
Cash ratio	1.04	0.966013
NPL ratio	1.02	0.983467
Number of audits annually	1.01	0.990842
Mean VIF	1.03	

VIF output displayed above demonstrates that the data do not exhibit multicollinearity. The values of the VIFs (1.05 < 5, 1.04 < 5 1.02 < 5, 1.01 < 5 and 1.03 < 5) are less than 5. Thus, the data did not violate the collinearity test.

Heteroscedasticity

The examination was conducted to test if the variance of an error term was constant, non-constancy in variance of an error term leads to large variance which always results to wrong estimation. To test this anomaly, the study employed Breusch-

Pagan test which uses Chi square values to detect Heteroscedasticity. Large Chi square values exhibits presence of Heteroscedasticity in the data and is shown in Table 5.

Table 5: Heteroscedasticity

Heteroscedasticity Output
chi2(1) = 0.24
Prob > chi2 = 0.6257

Heteroscedasticity is not evident, according to the data shown above, which have a Chi square of 0.24. The null hypothesis of constant variance is not successfully rejected. It was decided to adopt the null hypothesis, which supported Poi and Wiggins' (2001) finding that there was no heteroscedasticity in the data.

Unit Root

Fisher test was employed to check stationarity of the data in this investigation. A combination of cross section and time series data amount to panel investigation thus it is necessary to test stationarity of the data. The investigation operated on the assumption that all data are stationary since time factor is largely involved a need of stationarity is important. The failure to check for stationarity result to incorrect model coefficients (Gujarati, 2009). The null hypothesis indicated that panel data has no unit root and results are shown in table 6.

Table 6: Stationarity Results

Variable		Inverse chi-squared (70) P	Inverse normal Z	Inverse logit t (179) L*	Modified inv. chi-squared Pm
ROA	test statistic	296.269	-8.0413	-11.767	17.8662
	p-value	0.000	0.000	0.000	0.000
Capital Adequacy ratio	test statistic	166.419	-3.8859	-5.1965	7.3339
	p-value	0.000	0.0001	0.000	0.000
Cash Ratio	test statistic	331.119	-11.457	-14.482	20.2658
	p-value	0.000	0.000	0.000	0.000
NPL Ratio	test statistic	136.61	-3.6137	-6.3631	4.9161
	p-value	0.000	0.006	0.001	0.000
Number of Audit Meetings	test statistic	312.725	-10.863	-13.348	18.7931
	p-value	0.000	0.000	0.000	0.000

The stationarity output at level for financial performance, capital adequacy ratio, cash ratio, NPL ratio and number of audits done annually were stationary since p-value<0.05 at P, Z, L* and Pm.

Autocorrelation

In estimating an appropriate model, it is normally assumed that values of error term from one period to another are not supposed to be correlated. Violation of this assumption exhibit a statistical

limitation known has autocorrelation or serial correlation which adversely affect accuracy of estimating variables relationship using a regression model. To check presence of this drawback in data a serial correlation test was undertaken in data across. The Wooldridge test was employed. When dealing with panel data, serial autocorrelation often is a problem. To test autocorrelation, the hypothesis tests below were done. It was hypothesized there is no serial correlation.

Table 7: Autocorrelation findings

Autocorrelation findings
H_0: no first-order autocorrelation
F (1, 12) = 1.830
P-value; F = 0.1801

The null hypothesis is that the panel model has no serial correlation. The Serial Correlation output showed an F-test of 1.830 and a p= 0.1801>0.05. Thus, serial correlation is absent in the dataset.

Specification of the Model

Selection of the model in panel data especially if it is random or fixed effect model depend on how data set finding outcome is denoted by Hausman test (Baltagi, 2005). It is executed by estimating coefficient of both models in order to establish whether they are random or fixed model that is appropriate to estimate relationship of variables using Hausman test of specifying model and its finding is displayed in Table 8.

Table 8: Hausman Test Findings

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)	2.72
Prob>chi2 =	0.6062

The computed p-value of the model is 0.6062, according to the results shown in Table 8. Given that 0.6062 is more than 0.05, the findings suggest that the random effect model is suitable for this specific investigation. The alternative hypothesis (see research) that fixed effect is inappropriate for the study is rejected, confirming that random effect is acceptable. To check whether pooled OLS or random effect model was suitable for the estimation of the study variables Breusch and Pagan LM test was undertaken. This test hypothesis by assuming that the estimated model is pooled OLS if the probability chi square >0.05 and the finding is presented in Table 9.

Table 9: Breusch and Pagan Lagrangian multiplier test

Breusch and Pagan Lagrangian multiplier test	
Test:	Var(u) = 0
chibar2(01) =	8.92
Prob > chibar2 =	0.0014

The p calculated is 0.0014. Since 0.0014<0.05 thus null hypothesis is rejected. Thus, random effect model is the most suitable model in the study.

Regression of the CBK Prudential Guidelines and Financial performance commercial banks

To check the nature of relationship and strength of study variables the study employed regression model. Based on the diagnostic test undertaken,

appropriate model was selected depending on the behavior and structure of data collected. Before regression is employed to determine the relationship of variables under investigation, various assumptions are checked and these include; normality, multicollinearity, heteroscedasticity, unit root, autocorrelation and specification of the model which were all satisfied thus allowed the use of the appropriate regression model to establish the effect of regulator prudential guidelines that include cash ratio, capital adequacy ratio, NPL ratio and number of audit undertaken annually on financial performance using random effect model as demonstrated in Table 10.

Table 10: Estimated Model Results

Financial performance	Coefficient	Std. Err.	z	P>z	[95% Conf.	Interval]
Capital adequacy ratio	0.0333113	0.0149937	2.22	0.027	0.003813	0.0628096
Cash ratio	0.040723	0.0203016	2.01	0.046	0.08066441	0.000782
NPL ratio	-0.046265	0.0128361	-3.60	0.00	-0.0715185	-0.0210114
Number of audits annually	0.0029913	0.0013242	2.26	0.025	0.0003861	0.0055946
_cons	0.0443123	0.0131262	3.38	0.001	0.018488	0.701367
R-sq:	within = 0.0885 between = 0.5353 overall = 0.0991					
Wald chi2(6) = 7.79						
Prob > chi2 = 0.0000						

Financial Performance=0.0443123+0.0333113capital adequacy ratio+0.040723cash ratio-0.046265NPL ratio+0.0029913Number of audit annually

The R-square helped illustrate how the model is fitted. It was revealed that revealed that the R-square finding was 0.0991. This implies that capital adequacy ratio, cash ratio, NPL ratio and number of audit annually conducted by the banks explain 9.91% of variations in financial performance of the commercial banks. The findings further imply that capital adequacy ratio, cash ratio, NPL ratio and number of audit annually are predictors of financial performance. Commercial banks have to operate within regulatory framework to ensure sustainability in operations and performance. As indicated by the Kenya Bankers Association (2021), the financial services sector remains at the core center driving and shaping Kenya financial economy.

Coefficient result indicates that capital adequacy positively influences financial performance of commercial banks (β =0.0333113, p=0.027<0.05). The finding was reinforced by z-statistic of 2.22 which is greater than critical z-statistics of 1.96. This implied that increased capital adequacy enhances bank performance. Adequate capital is important among banks in meeting their financial obligations.

Finding of the study deduced that cash ratio and financial performance of commercial banks are positively and significantly related (β =0.040723, p=0.046<0.05). It was backed by a computed z-statistic of 2.01 that is greater than the critical z-statistic of 1.96. It implied that higher cash ratio improved financial performance. Most of the activities undertaken by financial institutions require enhanced liquidity that is guarantee it by adequate cash ratio.

According to the findings of the regression model, NPLs influenced financial performance of

commercial banks adversely and significantly (β =-0.046265, p=0.00>0.05). It was backed by computed z-statistic of 3.60 that is greater than the critical z-statistic of 1.96. This implied that non-performing loans negated profitability within commercial banks. Banks generate significant profits as result of interest rates accrued from their matured loans or interest paid timely. Delays in payment of loans affect their income negatively thus increased cases of non-performing loans affect their financial adversely.

Coefficient finding of regression results showed that number of meetings of auditing systems and activities held annually moderated the relationship of prudential guidelines set by CBK and bank performance (β =0.0029913, p=0.025<0.05). This was backed by an estimated z-statistic of 2.26 which was greater than the value read from the table of z-statistic which was 1.96. Audit of activities and systems regularly enhances conformity of various standards that are important in ensuring that financial performance of banks are strictly adhered to.

Discussion

Capital adequacy is essential for banks when they need to run their daily activities effectively and efficiently. Adequate capital creates a buffer zone that protect banks from any financial shock in case they are facing liquidity challenges. The minimum capital adequacy prescribed by regulators is 8% while banks are averaging 22% which is above the prescribed minimum. This is evident since many banks are recording proper financial performance with few cases of financial improprieties. Minimum capital held by banks is important in sustaining operations of these crucial players in the financial sector. One of the indicator which customers check before transacting business with banks is the capital adequacy. This is informed by safety and certainty of their investments and properties within their custody.

Customers need assurance from the banks that in case of eventualities how they are going to recover or recoup their investments. One way customers are assured of their safety of investment is banks having requisite capital adequacy that can help customers recover in case of any eventuality. Capital adequacy is crucial in mitigating the financial institution on any possible shock or loss without customers bearing this responsibility. This demystify management ability to identify and safeguard any risk in line with the existing regulations and can be mitigated.

High capital adequacy ratio in banks is considered appropriate and proper regulation that induce desired performance. Liquidity risk is less likely to affect businesses with strong capital ratios. Less liquidity risk imply that the bank can meet its operational obligations without any hindrance. Meeting daily financial obligations by financial institutions is crucial in sustaining their entire operations since inability to meet daily financial obligations compromises how the future will be.

The finding agrees with result by David, et al. (2018) that established that capital adequacy significantly and positively impacts bank financial performance. Moreover, Mulyungi and Musengimana (2016) noted that although capital adequacy ratio improved financial performance of banks but differ depending on the countries. It was also echoed by Musyoka, (2017) who pointed out that commercial bank should hold sufficient capital adequacy.

Cash ratio is considered an important component in running daily operations. Most of the activities in the banks require high liquidity for instance customers withdrawing money daily requires cash to take care of this transaction. Descriptive results indicated that the banks average liquidity was 58.889 percent which is above the minimum prescribed by regulator of 20%. However, this may differ from one institution to another since some may have a higher ratio than the average while others have a lower ratio as compared to the average but many of the banks have liquidity that is above the minimum prescribed rate. This diverse liquidity is supposed to be defined by banks on how they are going to stabilize it with time and also

interventions that promote stable liquidity levels within the bank.

Regulator undertake some interventions which keep liquidity at acceptable levels for instance controlling foreign reserves, tame money related crimes and faking, financial record publishing and disclosure, approval of mergers and acquisition, transfer of assets/liabilities and ensuring that all regulations are followed and conformed to the later. Bank liquidity is always closely monitored by regulator and they are required to be submitting report daily regarding their liquidity status. This is because liquidity is very sensitive and close supervision is inevitable. Failure to monitor liquidity may result to illiquidity. Illiquidity have adverse effect on profitability of banks for instance failure by banks to finance their daily obligations results hindrance in service provision among customers. Failure to offer services as a result of illiquidity may adverse effect on financial performance of banks and customer confidence decline. Some banks went under receivership in Kenya as result of liquidity problem. This is because these banks failed to meet customer obligations. It is crucial for banks to balance their own liquidity and also its significant role of maintaining liquidity of the larger economy.

The finding of this study agreed with a study by Musabi and Mbithi (2018) that found out liquidity requirement regulations have significant and positive effect on bank profitability. Moreover, it concurred with the findings by Onyekwelu, et al, (2018) which found out that liquidity significantly and positively affects banks' profitability. However, it differed with studies by Mohamed and Ade (2020) and Malgit, and Kanang (2019) which established that liquidity have insignificant influence on profitability of banks.

It is important for banks to develop a clear mechanism of identifying and mitigating credit risk. Adequate mitigation of risks is crucial for sustainability of banks in particular to in loaning out financial resources. One of the main objective of a financial institution is to minimize credit risk and also give a room for the institution to remain afloat. Management of credit risk reduces the cases of NPLs among banks and non-financial institutions.

Non-performing loans have adverse impact on the profitability of banks for instance it reduces its returns from interest since bank will generate less income in case there is high prevalence of non-performing loans. In addition, it burdens productive resources of a bank both financial and human resources. Thus it calls for banks to tighten their lending management practices so that they become risk averse and at times limit frequent lending. This may affect operation of some business in the economy especially those that rely on credit financing and overall performance of the economy.

Implementation of prudential guidelines is important in reducing the occurrence of non-performing loans in banks. Banks set aside sufficient amount of resources so that it can mitigate shock when loan payments experience delays. This create incentives which avert accumulation of non-performing loans. Moreover, strengthening policy to deal with insolvency issue is important in the essence that it will give banks' ability to manage upcoming flows of non-performing loans. Addressing the nonperforming loans decisively is important for business to avert accumulation which may derail sustainability of a bank. For that purpose, banks should identify debtor distress early and engage proactively with their debtors to undergo timely and appropriate.

The finding of this study agreed with a study by Mpeanin (2019) which found out that NPL affected profitability negatively. In addition, Munangi (2020) established that credit risk negatively affects bank performance. However, Wairimu, (2017) noted that credits, guarantees and restriction influence the bank performance.

The importance of maintaining adequate capital adequacy ratio, cash ratio and reducing non-performing loans cannot be achieved without a proper mechanism in place. One of the mechanisms that provide such platform is frequent auditing of these processes and procedures. The study finding

affirmed that number of annual audits moderated the relationship of guidelines such cash ratio, adequacy capital and NPLs in enhancing bank performance. This achieved by conforming to various audit measures done as per the requirements and standards laid down.

There are several mechanisms in which audit can be realized for instance presence of internal controls, corporate governance regulations, guidelines and procedures. These are avenues that are optimized by banks to ensure that audit is undertaken and compliance is achieved. Oversight of a process is crucial in identifying gaps and mitigating possible losses that can be accrued by this process. Audit can be in the form of identified risk management guideline, corporate governance guideline and loan loss prudential guideline.

The finding of the study concurred with a study by Owais (2021) which established that audit committee moderates the nexus between corporate governance and financial performance. In addition, Ondieki (2013) found out that internal audit standards, internal audit independence, internal control and audits competence levels positively impacts bank performance. Khalif (2022) established that internal audit significantly affect bank financial.

CONCLUSIONS

Drawing inference from the finding of the objective, this study concluded that 92.3 percent of the banks adhered to the minimum capital adequacy ratio prescribed by CBK of 8%, however 7.7 percent have not met this regulation. Moreover, capital adequacy is also a significant predictor of bank performance. Capital adequacy offers buffer zone that protect banks from any financial shock in case they are facing liquidity challenges.

RECOMMENDATIONS

It is crucial for all banks to have adequate capital ratio as indicated by statutory requirements since. Capital create buffer in case a bank runs short of liquid assets that sustain the operations of the bank daily. It is recommended that banks should strictly maintain requisite capital adequacy at all times. Imposing proper regulation by regulator is instrumental in ensuring that adequate capital ratio is maintained.

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