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ANALYSIS OF PRUDENTIAL REGULATIONS AND PROFITABILITY OF COMMERCIAL BANKS IN KENYA

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Abstract: **The study assessed how capital, liquidity, and credit regulations affect the profitability of commercial banks in Kenya. The research was based on theories of liquidity management and capital buffers. A casual approach to investigation was adopted. The target population consisted of the 43 commercial banks in Kenya, and the inclusion criterion was institutions that have been operational for nine years (between 2013 and 2021). The study acquired secondary data from the bank's financial statements and audited reports using a data collection schedule. The descriptive and panel regression methods of analysis were utilized, and the results of the analysis were presented in tables. Findings revealed that capital regulation and liquidity regulation both had negative and significant effect on commercial banks' profitability in Kenya while credit regulation displayed a positive and insignificant effect on the profitability of commercial banks in Kenya. The study recommend that the liquidity regulation of the central be strengthen to ensure that the banks liquidity is sufficient to meet the daily demands of the bank customers. This can be done through constant monitoring and review of the liquidity.**

Keywords: **Prudential Regulations, Capital Regulation, Credit Regulation, Liquidity Regulation and Profitability.**

1. INTRODUCTION

1.1 Background of the Study

Banks are not just medium through which payments are facilitated; they contribute immensely towards the economy's expansion and progress as they serve as channels through which funds are directed to fundamental sectors of the economy (Wapmuk, 2016). They perform a unique responsibility within stimulating economy expansion as well as evolution. As of December 2016, they hired 33,000 individuals (CBK, 2016). In accordance with the Kenyan National Bureau of Statistics, commercial banks generated roughly 5.5 percentage of Gross Domestic Product within 2016, compared to 4.8 percent in 2012 (KNBS, 2017).Therefore, the financial institution division is the nerves of contemporary economies as an effective banking system possesses shocks absorption potential that could result into financial distress while making available platform for economies strengthening (Shah & Jan, 2014). Various changes in prudential regulations characterized the global financial structure and nature in modern times. Situations such as innovations, technological advancement, deregulation of the financial system, international banking, the 2007 global financial crisis as well as the most devastating covid-19 pandemic have necessitated both domestic and international governments and legislators towards shift focus to the fundamental role of banks prudential regulations as well as management (Barth, Caprio & Levine, 2013).

Prudential regulations are set of laws and rules that are binding on the operational validity of banks whereas detailed adherence to such laws to make sure its profit levels of the banks is within the system finance operational framework is termed supervision by regulatory agencies to ensure the banks' profitability is evaluated and monitored (Kamande, 2017). The banking system in Africa has continued to spark a lot of agitations for prudential regulations in safeguarding depositors' funds for adequate profit maximization among banks. These agitations have emanated from effect of financial crunch witnessed over the years. However, nations have consistently strengthened their financial institution management

as well as regulatory techniques with concentration concerning regulatory requirements which include capital sufficiency, liquidity operations, loan loss provision, operating efficacy and quality of assets are all important considerations Kiplagat and Kalui (2020); to ensure banks profitability for sound and healthy financial system. For instance, Central Bank of Nigeria (CBN) introduced credit regulation towards reduce the vulnerability of commercial banks to certain financial crisis and economic turmoil such as inflation, however, the emergence of the credit risk regulation to regulated capital and credit risk of the financial institutions have merely alleviated their vulnerability (CBN, 2019).

The introduction of prudential regulations by financial governing bodies over the world which includes capital regulation, liquidity regulation and credit regulation is to further improve the financial performance and growth of financial institutions (Barus, Muturi, Kibati, 2017). However, the prudential regulations have also been linked as the cause of poor profitability of these financial institutions as Kiplagat *et al.* (2020) noted that prudential regulations have a favorable relationship with profit growth while Claessens and Horen (2014) opines those prudential regulations have insignificant effect on the profitability of financial institutions

Commercial banks are licensed and regulated business corporation which are operated at a risk acceptable with the aim of shareholders value maximization (Rose, 2002). The Banking Act and Prudential Guidelines serve as a guide for commercial banks in Kenya (Muriithi *et al.*, 2016). Having constituted the highest proportion of Kenya's banking system; closer attention is paid to ensure both oversight of commercial banks in complying with the stipulated regulations. The industry has been the pillar of economy by stimulating the economy's expansion as well as advancement via mobilization of savings and investment (Siriba, 2020).

The banking industry in Kenya as asserted by CBK (2020) has witnessed expansion 10.3 percent in balance sheet as of June 2020 with respect to government securities and enhanced payments as well as advances that mostly recorded for 81.1 percentage of overall investments. Banking institutions' core capital as well as overall investment to overall risk calculating the average investments proportions were 16.4 % as well as 18.5 %, in both, in June 2020, exceeding the mandatory lowest possible percentages of 10.5 as well as 14.51 %. Correspondingly, the basic capital-to-total-deposits percentage was 16.7 cents, which was higher than the mandatory minimal level of 8.0 %. In profitability and asset value, the gross NPL ratio to gross borrowing proportion rose from 12.7percent in June 2019 to 13.1percentage points in June 2020. Bank reserves were responsible for 75.0 % of the overall outstanding debt (CBK, 2020).

The banking sector of Kenya has faced capital and credit risk over the past years as stated by CBK (2018), the commercial banks' non-performing loans has been the most known cause of their decreased financial performance and profitability as the rate of credit risk has consistently spiked. Commercial banks' growth, stability, development, and profitability help in poverty eradication, creation of employment opportunities, and Gross Domestic Product, thus, enabling the Kenya 2030 vision. As a result, it is crucial that commercial banks reduce their capital and credit risk, which led to the implementation of supervisory standards through the Monetary Authority of Kenya (Ngungu& Abdul, 2020). However, the operational activities of commercial banks have not been without challenges which affected their profitability.

1.2 Statement of the Problem

The banking sector of Kenya has faced capital and credit risk over the past years as stated by CBK (2018), the commercial banks' non-performing loans has been the most known cause of their decreased financial performance and profitability as the rate of credit risk has consistently spiked. Commercial banks' growth, stability, development, and profitability help in poverty eradication, creation of employment opportunities, and Gross Domestic Product, thus, enabling the Kenya 2030 vision. As a result, it is crucial that commercial banks reduce their capital and credit risk, which led to the implementation of supervisory standards through the Monetary Authority of Kenya (Ngungu& Abdul, 2020). However, the operational activities of commercial banks have not been without challenges which affected their profitability.

Despite their critical importance to the economy CBK (2020) reckon that the banking sector has been facing a declineover the past few years with the 2015 profit prior to tax having declined beginning at 141.1 billion Kenyan shillings as at 2014 up to 134.0 billion Kenyan shillings as at 2015, a reduction by 5.03 per cent (CBK Annual Report, 2015). Further, the sector recorded profitability decline in 2017 with profit prior to tax reducing by 9.6percentage beginning at 147.4 Kenyan shillings in billion around 2016 December towards 133.2 Kenyan shillings in billion, at 2017 December though it

increased marginally to Ksh 152.7 in 2018 (CBK 2018).The dwindling growth of profit of Kenyan commercial banks has drawn a lot of attention from stakeholders. This has given rise to contemplation as to whether prudential regulations possess substantial effects on commercial banks profit decline or not. Commercial banks financial performance and credit risk witnessed an inverse effect in Kenya. The prudential regulations have not only affected the finance performances of only commercial banks also banking sectors as Mwenda (2018) asserted that liquidity regulation possesses significant positive effects on MFBs finance performances. Adequacy in capital regulation as revealed showed significantly positive effects upon MFBs financial performances.

Existing related several investigations have been done to assess the effect of prudential regulations on commercial banks profitability. Murithi, Waweru and Muturi (2016) determined the said credit risk does have a negligible impact on banks in Kenya, but the research made use of panel data. GMM estimation method as well as used ROA as the only measure of profitability.

Kalui and Kiplagat (2020) in their study discovered that loan potential losses management, liquidity-risk management, management quality as well as asset quality had a substantial effect on commercial banks profitability but the study failed to factor in the presence of a moderating factor and also focused on just one measure of profitability. This present investigation filled the void through examining prudential regulations and the effect it has on the profitability of commercial banks in Kenya.

1.3 Purpose of the Study

In general, the study intends to examine how prudential regulations affect Kenyan commercial banks' profitability.

1.4 Objectives of the Study

The objectives of the study are to, in particular,: -

i. To investigate the effect of capital regulation on the profitability of commercial banks in Kenya.
ii. To find out the effect of liquidity regulation on the profitability of commercial banks in Kenya
iii. To examine the effect of credit regulation effect on the profitability of commercial banks in Kenya.

1.5 Research Hypotheses

The following research null hypotheses guided the research:

H_{01}: There is no statistically significant effect of capital regulation on the profitability of commercial in Kenya.

H_{02}: There is no statistical significant effect of liquidity regulation on the profitability of commercial banks in Kenya.

H_{03}: There is no statistical significant effect of credit regulation on the profitability of commercial banks in Kenya.

2. EMPIRICAL LITERATURE

2.1 Capital Regulation and Profitability

Lotto (2018) looked into the effect of capital regulatory and the efficiency of Tanzanian banking establishments. Data was gathered at the bank level between 2009 and 2015. The findings revealed a substantial as well as favorable connection among the total capital as well as the effectiveness of banking operations, implying that commercial banks in Tanzania with more rigorous capital guidelines are more operationally effective. Capital adequacy, according to the study, strengthens finance longevity through offering a wider adequate capital, as well as improving banks performance removing an ethical risk issue between debt holders and shareholders. Though the study was conducted across East Africa, it concentrated on the banking industry in Tanzania, while this research is focusing on the banking sector in Kenya, which is experiencing contrasting economic situations.

In Kenya, Kalui et al. (2020) studied the effect of prudential standards on financial institutions' finance effectiveness. Analytical methods such as regression and correlations were used. The research was conducted on 39 Kenyan commercial banks that operated from 2013 to 2017. It was established that bank credit, liquidity of the firm, as well as operating effectiveness have a substantial effect on Kenyan's commercial banks finance effectiveness, whereas capital sufficiency as well as investment efficiency have a negligible effects. Also, creditworthiness has an opposite effect on the finance

effectiveness of Kenyan commercial banking institutions. In the previous study, ROA was utilized as the dependent parameter to evaluate financial institutions' finance efficiency, whereas the current investigation concentrated on banking institutions' revenue growth in Kenya whilst also using both ROA and ROE to quantify commercial financial institutions profit margins.

In a similar study, Mwenda (2018) assessed prudential regulation effect on Kenya's microfinance banks finance performances. The research was conducted on 13 MFBs in Kenya. Cashflow rules had been found to have a substantial good association with MFB finance effectiveness. Also, it was revealed that capital adequacy regulation was significantly positive in relation to MFBs finance performances. The prior literature focused on microfinance banks in Kenya, but the existing research concentrated on Kenya's commercial banks. In addition, the study looked into how equity rates affect the linkage between prudential standards as well as commercial profitability of the banking institutions in Kenya from 2013-2020.

Saleh and Afifa (2020) studied the influence of loan risk, liquidity ratio, and financial institution investment on revenue growth of banks from emerging markets for the period 2010-2018. Based on the Basel requirement, the study employed generalized method of moment to investigate the variables on the profits growth of banking institutions. This was determined which liquidity vulnerability, credit vulnerability and bank capital significantly impact on banks' profitability. The study focused on liquidity risk credit risk and bank capital risk whilst this current study focused on credit regulations, liquidity regulations and capital regulations of Kenya's commercial banks. More so, the investigation was centered on emerging markets while financial institutions were used in the current study.

2.2 Liquidity Regulation and Profitability

Saleh and Afifa (2020) probed the influence of credit risk, liquidity ratio, as well as financial institution investment on the profit growth of evolving markets for the period 2010–2018. Based on the Basel requirement, the study employed generalized method of moment to investigate the variables on the profit growth of banking institutions. It must have been created that liquidity risk, credit risk and bank capital significantly affects banks' profitability. This current study focused on credit regulation, liquidity regulations and capital regulations of Kenya's commercial banks, which is diverse from the previous study.

In Kenya, Kalui et al. (2020) surveyed the effect of prudential standards on financial institutions' finance effectiveness. The investigation was conducted on 39 Kenyan commercial banks from 2013 to 2017. It was established that credit risk organization, liquidity operation, and operating effectiveness have a substantial effects on commercial financial institution finance effectiveness in Kenya, whereas capital sufficiency as well as asset quality have a negligible effects. Also credit quality has a negative effect on the finance performances of Kenyan commercial institutions. ROA was employed as a dependent parameter to evaluate banking institutions finance performances, whereas the current research concentrated on commercial institution profit growth in Kenya, using both ROA and ROE to evaluate commercial bank profit levels.

Mwenda (2018) assessed prudential regulation effect on Kenya's microfinance banks finance performances. Investigations was carried out onto 13 Kenyan MFBs. Liquidity requirement was found to have a substantial good association with MFB finance effectiveness. Also, it was revealed that capital adequacy regulation was significantly positive in relation to MFBs finance performances. Prior study centered on microfinance banks in Kenya however, present research is going be focusing on Kenyan commercial banks. Also, this research explored further interest rate moderate effects on prudential regulations linkage and commercial banks' profitability.

Akims and Akims (2019) examined the impact of prudential standards on profit growth of outlined commercial banks in the NSE. Employing panel regression techniques of analysis for the years 2013- 2017, adequacy in capital regulation have substantial favorable effect on listed commercial banks profitability at the NSE. Standards in liquidation had insubstantial opposite effects on listed commercial banks profit growth at the NSE. Regulations governing credit risk have a significant negative impact on the NSE's profitability of commercial banks. For a five-year period, the study exclusively examined commercial banks that were listed on the NSE, whereas the current study examined all commercial banks.

2.3 Credit regulation and Profitability

In Kenya, Kalui et al. (2020) scrutinized the effect of prudential standards on financial institutions' finance effectiveness. The study was conducted on 39 Kenyan commercial banks from 2013 to 2017. It was established that credit risk organization, liquidity operation, and operating effectiveness have a substantial effects on commercial financial institution

finance effectiveness in Kenya, whereas capital sufficiency as well as asset quality have a negligible effects. Also, credit quality had a negative influence on the performance of Kenyan commercial banks. ROA was employed as a dependent parameter to evaluate banking institutions finance performances, whereas the current research concentrated on commercial institution profit growth in Kenya, using both ROA and ROE to evaluate commercial bank profit levels.

Akims and Akims (2019) examined the effect of prudential standards on the profit growth of outlined commercial banks on the NSE. Employing panel regression techniques of analysis for the years 2013- 2017, adequacy in capital regulation have substantial favorable effect on listed commercial banks profitability at the Kenyan NSE. Standards in liquidation had insubstantial opposite effects on listed commercial banks profit growth at NSE.The NSE profitability of listed commercial banks was significantly impacted negatively by credit risk regulations. The latest study focused on all commercial banks in Kenya as opposed to the previous study, which was focused for five years on commercial banks listed on the NSE.

Muriithi *et al*. (2016) studied impact of loan vulnerability on banking institutions' finance performances in Kenya. The generalized estimation technique was used to examine panel data analysis for estimating multiple regression (GMM). Corresponding to the investigation's outcomes, credit risk had a substantial opposite relation with commercial banking revenue growth in Kenya. The research concentrates on credit vulnerability as well as banking profits in Kenya, with ROA used to evaluate profits of the bank. This investigation, on the other hand looked at the impact of prudential standards on commercial banking profit growth in Kenya, using both ROA and ROE as response variable and rate of interest as a moderator.

Siriba (2020) examined impact of credit risk on the effectiveness of Kenya's banking industry from 2014 to 2018. The research reveals that provisioning for loan losses as well as non-performing debts have very insubstantial invertible impacts on commercial bank profits. The research found that advances as well as borrowings had a substantial favorable effect on banking institutions' revenue growth in Kenya. The previous study focused on credit risk as well as commercial profitability of the banks in Kenya, whereas this survey concentrated on prudential standards and commercial profitability of the banks in Kenya.

Okeno (2018) examined central bank prudential guideline influence on Kenya's commercial banks financial performance. A survey research design where data were collected from forty-three banks using a questionnaire was employed. Descriptive and inferential statistics were employed to assess information gathered in the sector. It was found out that risk assessment regulations, governance practices standards, as well as nonperforming loans institutional regulations had a major influence on the finance effectiveness of Kenyan commercial banking institutions. The moderating impact of investment rates on the connection among prudential standards as well as commercial net profit of the banking institutions in Kenya was the focus of this research.

2.4 Theoretical Review

Capital Buffer Theory was created by Calem and Rob (1996), which asserts whenever a banking industry surpasses the statutory capital required percentage, perhaps a chance to raise capital as well as reduce risk in time to prevent regulative scrutiny penalties connected with a capital violation. The idea is centered on the unpredictability of the adequate capital ratio, as well as capital's stability and dependability in long-term strategy. If banks are unable to produce enough deposits, their capital bases may start to erode.In that instance, the bank's capital adequacy ratio could well be jeopardized by its instability. Regulations, in the opinion of Kariuki and Wafula (2016), are made in order to produce adequate capital buffers. Guidelines attempt to reduce procyclicality in borrowing by supporting the development of countercyclical buffers (Nasikeu, 2016). According to the hypothesis, banks with insufficient capital buffers seek funds to repair them, while banking institutions with huge capital buffer solutions strive to keep their cash reserves intact. Greater capital tends to keep the downturn going, reducing the risk of a loss. Banks increase capital to preserve their capital buffer when investment risk grows. Banks with insufficient capital may be persuaded to take on extra risks in order to boost their capital (Tochukwu, 2016).

Liquidity Management Theory was propounded by Keynes in 1939. According to the theory, institutions maintain resources in order to satisfy responsibilities as they come attributable without sustaining undesirable financial loss. The amount of funds the general public prefers to hold in liquid forms as a result of the prevailing market interest rate is referred to as liquidity preference. Organizations' capability to boost resource additional funds as well as realistic as possible without accruing abhorrent expenses or uncertainty which might harm the institution's notoriety as put by Guthua

(2013) is referred to as liquidity preference. Liquidity risk as asserted by Kiplagat and Kalui (2020) springs up from the fact that Market participants find it difficult to transform equities into instantaneous available capital on demand. This can be attributed to general market tightness and inefficiencies in infrastructure (Review on Finance Industry Stabilization in Kenya, 2014). In line with this theory, transitionary, precautionary and speculative are the three main reasons why people hold liquid assets.

3. RESEARCH METHODOLOGY

Quantitative method of analysis was utilized. Secondary data was collected by obtaining them from each commercial bank's published financial reports which are made available to the public from their website. The secondary data was collected over a nine-year span (2013-2021). Consequently, secondary data was gathered for all variables. Capital regulation, liquidity regulation, and credit regulation are independent variables, whereas the interest rate is a moderating variable. To make sure that all variables are recorded during data collection, a data collection schedule was used. The current study used a causal research methodology that places special emphasis on the relationships between variables that are studied from a cause-and-effect perspective.An empirical model is one that outlines the link between the variables to be examined mathematically. As a result, panel regression models with interest rate as a moderating variable was used in the study.

$PR_{it} = \beta_0+\beta_1 CAR_{it}+\beta_2 LQR_{it}+\beta_3 CR_{it} +\varepsilon$

Where:

PR = Profitability of Bank i at time t

CAR = Capital Adequacy Regulation of bank i at time t

LQR = Liquidity Regulation of bank i at time t

CR = Credit Regulation of bank i at time t

$\beta_1, \beta_2, \beta_3,$ = Coefficients

ε= Error term

4. RESEARCH FINDINGS AND DISCUSSIONS

4.1 Descriptive Statistics

The features of the variables used in the study are presented in this section of the survey. This outcome encapsulated the both the outcomes of the factors used in the study with respect to the measures of central tendency and dispersions. With this, the summary of the descriptive outcome is presented in Table 4.1.

Table 4.1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Profitability	313	-0.0839	0.2309	-0.7937	1.2461
Capital Regulation	343	0.1381	0.0659	-0.2058	0.4854
Liquidity Regulation	313	0.1892	0.1311	0.0043	1
Credit Regulation	314	0.8729	0.1222	0	1

Source: Study Data (2023)

The outcome of the descriptive analysis portrayed in the investigation showed the mean and standard deviation of Profitability to be -0.0839 and 0.2309. The data used for Profitability of the banks indicated that all the values falls within the range of -0.7937 as the lowest value and 1.2461 as the highest value. With this, it connotes that the Profitability of commercial banks in Kenya differs from each other at the rate of 0.2309. The product of the survey illustrated that capital regulation has a mean of 0.1381 with the data employed under the capital regulation of the banks having a standard deviation of 0.0659. The values employed have a minimum value of -0.2058 and 0.4854. The implication is that the capital regulations impact on commercial banks in Kenya varies across each commercial bank with the value of the standard deviation.

Liquidity regulation as a factor in the survey has an average mean of 0.1892. The data used for the assessment has a standard deviation of 0.1892. With regard to the mean and standard deviation of the investigation, values of 0.0043 and 1 were displayed as the minimum and maximum values for the survey. Given that credit regulation is one of the factors of the study, a mean value of 0.8729 was recorded with 0.1222 as the standard with the study data deviates from the mean of the investigation. The outcome of the investigation portrays a situation where the values used falls within the range of 0 and 1. The credit regulation impact on the Profitability of the banks showed that the commercial banks regulation of their credit differs in the degree of their impact.

Having discussed the outcomes of the other variables in the investigation, interest which serves as a moderator has a mean value of 14.4388, displaying a standard deviation of 2.0391. Therefore, the interest rate which moderates the effect of prudential regulation on Profitability of commercial banks has a range of values that ranges from 12 to 17.3%. The outcome connotes that interest rate on the commercial banks have different effect on the Profitability of the banks which prudential regulations are put into consideration.

4.2 Model specification test

Panel analysis involves the description of a group of observation over a time period. Owing to this fact, it is pertinent to evaluate the estimation from the fixed and random effect models to determine whether the estimated parameters are significantly different from each other. The Hausman Test was employed to ascertain the differences in the estimated parameters where the null hypothesis stipulated that the random effect model is preferred against the fixed effect model. The outcome of the Hausman test is displayed in Table 4.2.

Table 4.2: Model Specification Results

	(b)	(B)	(b-B)	Sqrt (diag(V_b-V_B))
	Fixed	Random	Difference	S.E.
Capital Regulation	-1.0988	-1.0934	-0.0054	0.0916
Liquidity Regulation	-0.2192	-0.2704	0.0511	0.0483
Credit Regulation	-0.1034	-0.0522	-0.0511	0.0304
chi2(3)	4.83			
Prob>chi2	0.1843			

Source: Study Data (2023)

The results of the Hausman test, shown in Table 4.2, indicated that the null hypothesis cannot be rejected. According to the findings of the Hausman evaluation, the random effect model was preferred over the fixed effect model. With a 0.05 level of significance, the Hausman test generated a prob > chi2 value of 0.1843, which is higher than the p-value of 0.05. Consequently, preference of the random effect regression model was upheld in the investigation.

4.3 Regression Analysis

Following the outcome of the Hausman test, a random effect regression model was employed throughout the inquiry to analyze the study hypotheses. This was used in developing a panel regression model, which was then utilized to investigate how Kenyan commercial banks' Profitability is affected by prudential regulations. Table 4.3 displays the output of the direct effect model.

Table 4.3: Regression Results

Profitability	**Coef.**	**Std. Err.**	**T**	**P>t**	**[95% Conf.**	**Interval]**
Capital Regulation	-1.0934	0.1991	-5.49	0.000	-1.4837	-0.7030
Liquidity Regulation	-0.2704	0.1000	-2.70	0.007	-0.4664	-0.0743
Credit Regulation	-0.0522	0.0943	-0.55	0.579	-0.2371	0.1325
_cons	0.1496	0.0929	1.61	0.107	-0.0325	0.3319
R^2	0.1064					
Wald Chi2(3)	42.55					
Prob>F	0.0000					

Source: Study Data (2023)

Based on the outputs of the random effect model, the F-value of 42.55, which has an aligning p-value of 0.0000, was used to evaluate the model's significance. This demonstrated that the random effect model was suitable for assessing how prudential regulation affected Kenyan commercial banks' Profitability. The outcomes showed the goodness of fit of the model, implying that prudential regulation significantly affects the Profitability of Kenyan commercial banks. As shown by the R-square, which assesses the variation in Profitability resulting from the explanatory factors, prudential regulation accounted for 10.64% of the adjustments in the Profitability of Kenyan commercial banks. A positive (0.1496) value results from the regression line's constant, which represents the origin.

The output revealed a negative capital regulation coefficient of -1.0934, which is significant when compared with the 5 percent criterion at a p-value of 0.000. The outcomes demonstrated that capital regulation has a significant adverse effect on the Profitability of Kenyan commercial banks. As a result, Profitability would be decreased by 1.0934% as a result of increased capital regulations. Liquidity regulation revealed a negative and significant effect on Profitability. This is indicated by a coefficient of -0.2704 and a corresponding p-value of 0.007. Implicitly, an increase in liquidity regulation would result in a reduction of 0.2704% in Profitability of Kenyan commercial banks. Additionally, credit regulation was said to have an inverse and insignificant effect on Profitability amongst Kenyan commercial banks. The outcome implies that when there is an enhancement in credit regulation, Kenyan commercial banks' Profitability would decline by 0.0522%.

4.4 Hypotheses Testing

4.4.1 Capital Regulation and Profitability of Commercial Banks in Kenya

Evaluation of capital regulation effect on Profitability Kenyan commercial banks served as the investigation's objective. With the hypothesis tested at a significance level of 5 percent, the null hypothesis with a statement that there is no significant effect of capital regulation on Profitability was discarded. By this outcome, it is important to say that capital regulation has significant effect on the Profitability of Kenyan commercial banks, although inversely related. The outcome could be linked to the strictly measures taken by the central bank of Kenya to ensure that every commercial bank's operation is guided by this regulation to avoid the risk of adverse selection. The outcome is consistent with Lotto (2018) who revealed a substantial connection among the total capital as well as the effectiveness of banking operations, implying that commercial banks in Tanzania with more rigorous capital guidelines are more operationally effective. Mwenda (2018) also discovered that capital adequacy regulation was significantly in relation to MFBs finance performance. Nonetheless, the conclusion contradicts that of Kalui *et al*. (2020) who discovered that capital sufficiency as well as investment efficiency has a negligible effects on Profitability. The inconsistent outcomes of the investigation could be attributed to the measurement used in the experiments and the environment in which the studies were conducted.

4.4.2 Liquidity Regulation and Profitability of Commercial Banks in Kenya

The investigation also sought to ascertain the effect of liquidity regulation on the Kenyan commercial banks' Profitability. The study used a threshold of 0.05 significance level to test the null hypothesis with a claim that liquidity regulation has no significant effect on the Profitability of Kenyan commercial banks. The outcome of the investigation displayed a p-value of less than 0.05 depicting the significant effect of liquidity regulation on the Profitability of commercial banks in Kenya thus leading to the rejection of the null hypothesis. With this outcome, it is said that liquidity regulation plays a vital role in the Profitability of commercial banks in Kenya. This is in alignment with Saleh and Afifa (2020) who demonstrated that liquidity risk significantly affects Profitability of institution investment. Kalui *et al*. (2020) found that liquidity operation has substantial effects on commercial financial institution finance effectiveness in Kenya. Mwenda (2018) discovered that liquidity requirement was found to have a substantial good association with MFB finance effectiveness. However, the outcome is at variance with that of Akims and Akims (2019) who revealed that standards in liquidation had insubstantial opposite effects on listed commercial banks profit growth at the NSE.

4.4.3 Credit Regulation and Profitability of Commercial Banks in Kenya

An exploration of the effect of credit regulation was carried out on the Profitability of commercial banks in Kenya. In view of this objective, the inquiry used a level of significance pegged at 5 percent to evaluate the null hypothesis which claimed that credit regulation has no significant effect on the Profitability of Kenyan commercial banks. Based on the outcome of the evaluation, the null hypothesis was upheld, implying that credit regulation has no significant effect on the Kenyan commercial banks' Profitability. The outcome could be linked to the non-compliance to the credit regulation of

the banks which they perceive as measures of reducing the profitability that comes from loans. The output aligned with Kalui et al. (2020) who showed that credit quality had a negative influence on the performance of Kenyan commercial banks. Nonetheless, Siriba (2020) found that advances as well as borrowings had a substantial favorable effect on banking institutions' revenue growth in Kenya. Okeno (2018) discovered that risk assessment regulations, governance practices standards, as well as nonperforming loans institutional regulations had a major influence on the finance effectiveness of Kenyan commercial banking institutions. Muriithi *et al*. (2016) revealed that credit risk had a substantial opposite relation with commercial banking revenue growth in Kenya.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

Various conclusions were arrived in accordance with the investigation's specific objectives. With regard to this, the investigation analyzed the effect of prudential regulations on the profitability of commercial banks in Kenya. Specifically, the effect of capital, liquidity and credit regulations were examined on the profitability of commercial banks in Kenya with interest rate serving as the moderating variable on the nexus between prudential regulations and profitability of Kenyan commercial banks. The outcome showed that capital regulation inversely and significantly affected commercial banks profitability in Kenya. Based on this, the inquiry concluded that capital regulation has the capacity to significantly affect commercial banks profitability in Kenya. Therefore, changes in the capital regulations would significantly alter the commercial banks profitability potential.

It was also noted that liquidity regulation displayed an inverse but significant effect on profitability of commercial banks in Kenya. The conclusion with respect to this outcome is that liquidity regulation is a driving force in the profitability of commercial banks in Kenya.

Further conclusion on the investigation showed that credit regulation positively affected the profitability of commercial banks insignificantly in Kenya. With this outcome, credit regulation have not been effective in the determination of commercial banks profitability in Kenya. Although credit regulations potential affect the capacity of banks to profit from their operations, such regulation has not been effectively implemented in Kenya.

5.2 Policy Recommendations

The recommendation of the investigation was made out of the outcomes of the unique study objectives. Noting that the investigation revealed an inverse and significant effect of capital regulation on profitability of Kenyan commercial banks, the central bank should strengthen the implementation of the regulation to reduce the rate at which banks profitability can be attained.

The evaluation of the particular objective revealed that liquidity had a negative and significant effect on the commercial banks' profitability in Kenya. Therefore, it is advised that the liquidity regulation of the central be strengthen to ensure that the banks liquidity is sufficient to meet the daily demands of the bank customers. This can be done through constant monitoring and review of the liquidity regulations to accommodate current demands of the economy.

The outcome from the investigation showcases a positive and insignificant effect of credit regulation on the commercial banks profitability. The central bank should device better ways through which the credit of the banks can be regulated to ensure that the banks optimize profit from the credit issuance. This can be done to ensure that the bank customers are credit worthy to ensure that value is optimized from the credit issued to customers. Therefore, a collaborative effort could be through the centralization of the bank customers' data.

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