CAMEL Rating System and Financial Performance of Islamic Banks in Kenya

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Authors' contributions

This work was carried out in collaboration between both authors. Author GRJ designed the study, performed statistical analysis, wrote the protocol, wrote the first draft of the manuscript, edited and made all the corrections. Author COO supervised all the processes involved in preparing the manuscript. Both authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Kenyan Islamic banks are facing a myriad of credit risk issues adversely affecting their financial performance. Importantly. CAMEL rating system has been identified as an effective approach when making credit risk management decisions. However, most of the research associating financial performance of Islamic banks has ignored issues arising in emerging market such as Kenya, a knowledge gaps this research locked. Quantitative approach was utilised while adopting correlational research design. The research had its target population as being the three (3) Islamic banks which had been operating in Kenya between the year 2012and 2020 where census was employed. The researcher compiled financial data from secondary data for between 2012 and 2020. Quantitative analysis approach was applied in the analysis to yield respective statistics; descriptive and inferential. The study concludes that; capital adequacy has a statistically significant positive, assets quality has a statistically significant negative, management efficiency has a statistically significant positive, earnings ability has a statistically significant positive, and liquidity

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has significant negative, effect on financial performance of Islamic banks in Kenya. Accordingly, CAMEL rating model is appropriate for assessing financial performance of Islamic bank in Kenya. The study recommends that the Kenyan Islamic bank, should employ the optimal investment strategy for capital adequacy determination, manage their assets, enhance their management efficiency capability, improve their earnings ability, and strictly adhere to recommended liquidity levels. The research recommends that Kenyan IBs should be employing CAMEL rating model on yearly basis to identify elements requiring special attention.

1. INTRODUCTION

1.1 Background of the Study

The growth of the banking sector is beneficial to economic growth, as the operations of banks increase the mobilization of deposits, boost the productivity of capital allowances and promote technical progress [1]. Apostolos, John and Pavlos [2] indicate that the sector plays a major role in facilitating sustainable socioeconomic growth by providing effective monetary intervention; by mobilizing financial resources, the banking sector is a key contributor to country development In the last two decades, monetary changes have led to the growth and progression of banking principles leading to rapidly progressing Islamic banking, [3]. Islamic banks extended their tentacles globally, in a very short period, winning strong market shares from their competitors [4]. They operate contrary to conventional banks, as a strategic option, by depending on the principle of risk sharing and value sharing to be listed as debt-like finance systems for their financial commodities; profit and loss mutual funding and resources [5].

Islamic money is capable of reaching the level of the world's cross-border brokerage by offering a variety of impartial alternatives in support of conventional business activities [6]. In order to make a successful contribution to economic growth and to ensure the viability and survival of Islamic banking, Islamic bank money needs to be made, which requires adequate assets to help achieve their business goals and objectives [7]. The asset quality must be sufficient in terms of the percentage of high-yielding and non-yielding assets. According to [8], in order to manipulate bank market and earnings, banks appear to take more risks over time and manage their assets and liabilities. Owing to this, Islamic banking in Kenya is confronted with the dilemma of non-performing loans and high default rates suggesting credit risk problems [9]. Notably, the role of Islamic credit-creation banks is a risky involvement when conducting their money-related intermediation in the economy in that it includes risks and, more precisely, credit risk, which must be prudently handled because it has negative effects on bank results [10].

Therefore, performance of IBs in Kenya lies in their ability to effectively manage their credit risk exposures through making relevant decisions with regard to credit risk in their institutions. It is in this respect that credit risk management has merged as the key to performance determinant of Islamic banks. IBs should control their efficiency effectively through their credit strategy, which should lay out the bank's lending strategy, relevant processes and methods of tracking lending practices [11]. In credit risk management, CAMEL (Capital adequacy, Assets quality, Management Efficiency, Earnings ability, Liquidity) rating system has been endeared as a convenient means of managing as well as mitigating possible crisis by focusing on credit risk and other ratios for ensuring performance of institution [12].

In Global perspective, most government entities and commercial entities have begun to pay attention to CAMEL, with banks' pressure on credit risk management growing from 2007 to 2018 [13]. CAMEL has featured as an essential system for assisting make credit risk management decisions and hence attracting much attention in research. Muhmad and Hashim [14] showed that CAMEL affects Malaysian banks financial performance variously with capital adequacy, asset quality, earnings quality and liquidity being significant management efficiency exhibited as being insignificant. The performance of Islamic banks in the financial crisis of mid-2008, however was far higher than that of conventional banks. In the empirical research by Loghod [15] conducted within the Gulf Cooperation, the results indicated that

liquidity risks were rare among Islamic banks despite the conventional banking being more trusting on than Islamic banks on external liabilities. In African context, employment to CAMEL model in making decisions on credit risk has of late been gaining momentum in the banking sector due to increasing NPLs attributed to bad credit appraisal, inability to track loans, lending terms and conditions, excessive lending, impaired credibility, and inadequate systemic capability [16]). In Nigeria, an empirical research on capital adequacy as a determinant Nigerian CB's performance was prepared by Udom and Eze [17], at time when liquidity was associated with determining efficiency Nigerian banks by Sathyamoorthi et al. [18].

In the Kenyan, there is rising utilisation of CAMEL, primarily by Central Bank of Kenya (CBK) for legislation as well tracking efficiency of lending institutions in the country. CAMEL is a six-parameter; capital adequacy (C), asset quality (A), management efficiency (M), earnings stability (E), and liquidity (L) to assess the banking as well as finance enactment [19].Owing to the debt-like aspect of their obligations, banks are required to maintain a minimum capital to equity ratio that lowers the bank's risk-taking incentive. Capital adequacy serves as a hedge that can cover for the losses of borrowers (depositors) and, in the case of financial crisis, allows for the orderly liquidation and disposition of assets [20]. When asset impairment challenges financial institutions 'solvency, asset quality determines financial institutions' health against lack of asset value [21]. As used in finance, management quality includes commitment to the criteria set, willingness to prepare and be proactive in the bank's changing climate, leadership, creativity and managerial competence. Management is measured in the standard CAMEL system according to: technical capability, leadership and managerial capacity [22]. Liquidity is the ability of lending establishments to repay liabilities and to fulfill obligations where they are needed [23].

1.2 Statement of the Problem

Despite their significant participation in the Kenyan economy by providing an opportunity of bringing the unbanked to the banking halls, Islamic banks are facing a myriad of credit risk issues adversely affecting their financial performance [24]. The inadequate performance of IBs is manifesting itself in terms of collapse on a number of Islamic banks including the most

recent of Dubai bank Kenya. (DBK) [25]. The collapse of these banks has been associated with poor credit risk management practices. Research work on effects of Islamic banking on financial performance have yielded mixed findings. In addition, Islamic banking has had a brief period of service in Kenya. Consequently, there is limited analytical literature on the manner in which credit risk management relates to the success of IBs in the region, in particular. Apparently, most of the empirical research relating IBs' financial results to credit risk management have been undertaken with regard to Islamic countries, ignoring issues occurring in emerging markets such as Islamic banks in Kenya, a knowledge gap this research closed by evaluating the effect of; capital adequacy, quality of assets, efficiency of management, earnings potential, liquidity. Furthermore Bhattarai [26] recommends for further research on the influence of credit risk management on the financial performance of banks on retail banks other than those in Nepal using different approach so, this research assessed effect of CAMELS model rating-based credit risk management approach on financial performance of Islamic banks in Kenya.

1.3 Objectives of the Study

1. To establish the effect of capital adequacy on financial performance of Islamic banks in Kenya.
2. To find out the effects of assets quality on financial performance of Islamic banks in Kenya.
3. To find out the effects of management efficiency on financial performance of Islamic banks in Kenya.
4. To determine the effects of earnings ability on financial performance of Islamic banks in Kenya.
5. To find out the effect of liquidity on financial performance of Islamic banks in Kenya.

2. LITERATURE REVIEW

2.1 Theoretical Review

In this analysis; Modern Portfolio Theory (MPT), risk management theory and asset liabilities management structure theory were found useful for informing the concept of the study.

Modern Portfolio Theory indicates that risk-averse investors build a portfolio that results in

full projected returns at a certain degree of risk, meaning that in deciding the level of return, the underlined credit risk is important. Since the use of MPT to control credit risk has not been successfully used, credit risk remains the greatest risk posed by most businesses [27]. Generally speaking, this strategy includes frequent evaluation of the credit standard of loans, a credit risk ranking and a combination of the research conclusions to quantify potential Portfolio losses. This methodology encourages managers to determine changes of individual credit or portfolio trends promptly through the credit review and credit risk rating process. The MPT helps investors to determine both the potential risks and returns for their venture investments statistically. In their fund management, investors aim to optimize their total return on the portfolio on a single portfolio.

The risk management theory focuses on defining and evaluating credit, prioritizing risk, and organizing and applying financial tools economically [28]. The hypothesis indicates that leaving uncertainties unmanaged would most likely have a detrimental effect on shareholders' equity. The emphasis of theory of risk management is on protecting the asset quality. Thus, there is need to ensure that quality of the assets keeps on increase in every effort of improving financial performance of a bank. Therefore, the theory of risk management was useful given that the condition of assets influences or affects the performance of financial institutions. Thus, the use of effective management of credit risk would boost the quality of service and Kenyan IBs' financial performance.

According to Dilek, et. al, [29],asset liabilities management structure theory is a credit risk management strategy intended to make an acceptable return while retaining a safe excess of assets above liabilities, such as loans that outweigh bank deposits. In compliance with the feasibility of the various asset classes and the constraints, such as liquidity and capital requirements, it is the responsibility of each bank to choose the optimal asset portfolio. The risk-taking behaviour of bank managers frequently contributes to low credit quality resulting in an ALM mismatch that can automatically impact operating performance [29].

2.2 Empirical Review

Sibbald and McAlcvey [21] revealed capital adequacy, management efficiency as well as

assets quality as negatively affecting financial performance (measured using Return on Assets; ROA as well as Return on Equity; ROE). On the contrary, earnings quality as well as liquidity revealed positive as well as significant associations with financial performance. A related research by Clarke [12] which studied the influence of credit risk on monetary establishments' financial results in Nepal, revealed a significant correlation between their financial performance and each of NPL and the management efficiency ratio (MQR).The analysis by Hays, et., al. [24] found that Ghanaian bank 's success was significantly influenced by the adequacy of capital while Udom and Eze [17] showed that capital adequacy firmly and effectively stimulates, strengthens and raises the financial efficiency; hence ample capital and adequate management will contribute to better efficiency. According to Diamond [6], capital adequacy is a consideration assessing the success of banks. Musyoka [22] research showed that capital adequacy has a negative significant effect on Kenyan CBs' financial performance.

The research work by Mburu [30] depicted a substantial negative impact on ROE of asset quality, but on ROA, asset quality impact was negative and insignificant while the research by Sile, Olweny and Sakwa [31] exposed assets efficiency as having statistically important effects on monetary enactment of monetary establishments in Kenya In their paper by Lawal, Oluoch and Muturi [32] found that the quality of capital assets has a major positive impact on banks' operating efficiency ratio. Behn's [10] study results show that ROA accounts for 28.7% of results. On the opposite, the Rosly [33] analysis showed that the standard of assets was negligible and negatively linked to ROA. The outcomes of the research by Tuitoek [34] posited out that the affiliation amid asset quality as well as ROA of CBs is negative and negligible. Earlier the research by Cheruiyot [35] had concluded that there is a positive significant relationship between asset quality as well as profitability. The research by Waweru and Kalani [36] concludes that there is an important link amongst the asset quality financial performance of Nigerian CBs.

Vast array of empirical research has been conducted on management efficiency among lending among banks such Onyango and Olando [37] which using descriptive research design study showed that operational performance is directly proportional to NPL with a moderate

positive impact on NPLs. Omete, Namusonge and Sakwa [38] found management quality as being a strong and important determinant of Kenyan CBs' performance. However, Barus,et al. [39] concluded in their report that management productivity of Kenyan SACCOs as not associated with their financial performance The results of the Mananda [40] study show that management performance is important and positively associated with ROA while earning power is positively linked but negligible. The results of the Musyoka [22] indicate that the relationship between ROA and management efficiency is negative and negligible while Kamande et al. [41] found a poor positive association between management efficiency of commercial banks and ROA while Wako, Kamaria and Kimani [42] concluded in their report that management productivity has no significant effect on the monetary enactment of savings and credit firms in Kenya Nazir [43] study show that management performance is important and positively associated with ROA while earning power is positively linked but negligible.

Boateng [44] study found that earnings had a major effect on Ghanaian banks' results while Ndungu [45] indicates that the bank's earnings improve the firms' performance while the results vary from those of the Karr [3] showed that earnings had a negative and substantial effect on financial distress. The Kaufman [5] research results suggest earnings ability as being favorably associated with the performance of CBs. In a research by Koch, et al. [28], which used the Pearson Moment Correlation, a poor positive correlation was observed between the ROA of CBs and the institutions earnings potential. Lawal et al. [32] study show income efficiency is important in assessing the financial success of the bank.

As Bicker, et.al. [8] research found liquidity ratio having a negatively low relationship with NPLs, Cheruiyot [35] revealed a positive and important effect of liquidity on financial distress. In the analysis by Edwards [20], the results show that liquidity has dramatically influenced the financial performance of the underlying theses. Diamond [6] found that liquidity has a negative substantial outcome on financial distress. The findings of the Deyoung, et., al. [46] research indicate that liquidity as positively correlated with ROA although the association was insignificant. While the research by Mburu [30] revealed that liquidity has an important connection with commercial banks ' financial success in Kenya it has now been concluded in Cheruiyot's [35] report that the profitability of CBs in Kenya has a greatly affects liquidity management positively. A positive insignificant affiliation was established amid liquidity as well as commercial banks in Kenya's financial results in the Githui [47].Kaufman's [5] analysis showed that liquidity was negligible and linked to ROA and also found having negligible associated with the return on investment (ROI).

Accordingly, the research tested the ensuing null hypotheses:

H_{01}: *There is no statistically significant effect of capital adequacy on financial performance of Islamic banking in Kenya.*
H_{02}: *There is no statistically significant effect of asset quality on financial performance of Islamic banking in Kenya.*
H_{03}: *There is no statistically significant effect of management competence on financial performance of Islamic banking in Kenya*
H_{04}: *There is no statistically significant effect of earnings quality on financial performance of Islamic banking in Kenya.*
H_{05}: *There is no statistically significant effect of liquidity ratio on financial performance of Islamic banking in Kenya.*

3. RESEARCH METHODOLOGY

3.1 Research Design

In this study, a correlational research design was chosen based on current research that studies the connection between the CAMEL rating approach and the Kenyan IBs' financial performance. This technique was utilised when studying whether a rise or decrease in one variable or numerous variables cause a positive or negative change on another variable. The variables were calculated without being manipulated during correlation design while the data is evaluated in order to decide how these variables relate. In this report, the researcher measured financial results of Kenyan IBs as determined by the CAMEL model which can only be successfully accomplished through correlation analysis.

3.2 Target Population

The researcher targeted the three (3) IBs that had been working in Kenya between 2011 and 2020, which were; Dubai Bank, First Community Bank Limited, and Gulf African Bank.

3.3 Sampling and Sampling Techniques

The research employed census for its sampling due the ease of accessibility (proximity) and manageability of the target population. Furthermore, a census is suitable, according to Mugenda [48] when the targeted population size falls below 100.

3.4 Research Instruments

The research used secondary data sources focused on the nature of financial studies. The researcher assembled the data using the researcher's own constructed data collection sheet. Data of interest nuclide; tier 1 capital, tier 2 capital, risk-weighted assets, loan loss cover, non-performing loans, equity, net income, total advances, total assets, total loans, total deposits, ROA and ROE.

Reliability

The research assessed the tool of reliability using the Cronbach Alpha system for internal accuracy (Cooper & Schindler, 2015). The Cronbach alpha is a dependability coefficient that tests reliability coefficient reliability or the degree of interior accuracy amid the variables measuring one construction or concept; that is the level of yielding reliable outcomes from different objects measuring the same variable. The Cronbach Alpha (α) has an absolute value between 0 and 1. Kothari (2012) argues that the instrument can be updated by edited or removing objects, if Cronbach alpha value does not surpass 0.7 since this implies inconsistency in the tool. the tool is edited to until it is internally consistent, in case the value of Alpha is 0.7 or greater, the instrument is acknowledged because its regarded as highly and internally consistent.

In this analysis, the research instrument was assessed for its reliability using the Cronbach Alpha system to yield a Cronbach alpha of 0.715. The assessment used data collected from a Kenyan CB, Middle East Bank, which has Islamic banking origin, for the period covering the years 2015 to 2020 and the data was analyzed to obtain Table 1 results.

On checking the results in Table 1, it can be seen that Cronbach's Alpha is 0.715, which was above the threshold 0.7 suggested by Kothari (2012). In which case, the tool was considered highly consistency and hence reliable because the value of Alpha surpassed 0.7. On this observation, the study retained all items in the tool and adopted it for assembling data. These results show that removal of any if financial performance (α = 0.717) would have caused an increase of reliability to 0.717; a 0.28% increase while removing management efficiency would have increased the reliability to 0.722; a 0.98% increase. It should be seen that removing any of these two items; financial performance or management efficiency, would have increased the internal consistency. However, the impact was paltry 0.28% and 0.98% respectively; would not have any significant effect. Already the reliability was high at 0.715 since it was above the 0.7 threshold (Kothari, 2012). Consequently, the study adopted the tool as it was and proceeded to use it in data collection; bearing in mind that the tool was highly consistent.

3.5 Data Analysis

The analysis was conducted using a quantitative approach to generating descriptive statistics which included means, standard deviation, minimum, maximum, percentage and frequency. The data was illustrated in table and figures form as appropriate.

The study sought to establish relationship between the CAMEL bank model and financial performance of Kenya Islamic banks using inferential statistics; a t 5% significance level. This regression model was;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e \dots \dots \dots \dots \dots \text{(i)}$$

Table 1. Tool's reliability statistics

Item	Cronbach's Alpha if Item Deleted
Financial Performance	0.717
Capital adequacy	0.524
Assets quality	0.700
Management Efficiency	0.722
Earnings ability	0.671
Liquidity	0.571
Cronbach's Alpha (α) = 0.715; N = 6	

Source: Research data (2021)

Where:

Y = Performance of Islamic banks in Kenya
β_0 is the constant term (intercept).
$\beta_1...\beta_6$ are the coefficients of the IVs of the study; capital adequacy, assets quality, management efficiency, earnings ability, and liquidity respectively
X_1 = Capital adequacy
X_2 = Asset quality
X_3 = Management quality
X_4 = Earning Quality
X_5 = Liquidity ratio
e = error term

Diagnostic checked for normality, heteroscedasticity, multicollinearity and autocorrelation will be performed. The Normality Checks complement the normality graphic measurement, contrasting the values in the study to the baseline and mean variance of a naturally distributed range of scores. The distribution of zero mean and constant variance of one, if important, is non-normal [16]. In the normality checking analysis, the Kolmogorov-Smirnov test is used and, if the sample elements do not reach 50, Shapiro-Wilks test would otherwise be used. If the P-Value is > 0.05, this means the remaining is usually asymptotic or the reverse is real.

4. RESEARCH FINDINGS, ANALYSIS AND PRESENTATION

4.1 Response Rate

The researcher was able to assemble data from all respondents (the 3 Kenyan IBs), translating to 100% response rate. Such as response is rate by Mugenda [48] as being very high and appropriate for enhancing production of accurate and reliable credible result. In fact, Mugenda [48] provided certain classification depending on response rates as response rate exceeding; 69% as very high and good for obtaining credible results. Using Mugenda [48] then the response in this study was classified as very good.

4.2 Descriptive Analysis

Under descriptive analysis, in this section, the study presented results obtained from analysing the properties of both IVs and the DV using quantitative approach to produce descriptive statistics. Notably, the results were summarized using descriptive statistics. This included means, standard, minimal, limit, percentage and frequency. These descriptive statistics exposed the trends and patterns among the variables of interest and the associated results captured pictorially on tables and figure with accouplig interpretation of narratives.

4.2.1 Properties of study variables

Through the research embarked on quantitative approach to generating most valuable statistics; descriptive statistics, measured variously as seen in Table 1 that the banks' ROA was captured as the measure for IBs financial performance which is in relations to viability;;Capital adequacy = (Tier 1 capital + Tier 2 capital)/ (Risk-weighted Assets); Assets quality = loan loss cover /NPLs as well as NPLs/Equity, Management Efficiency = Net Income (Net profit Before tax) /Total Advances; Earnings ability = Net Income (Net profit Before tax) /Total Shareholders' Funds, and Liquidity = Total Loans / Total Deposits.

These descriptive statistics on attributes of the IVs and the DV were captures in Table 1.

Table 2. Descriptive statistics

Statistics	N	Mean	Std. Deviation	Minimum	Maximum
Financial Performance	49	-0.04%	5.90%	-16.63%	19.46%
Capital adequacy	49	17.90%	8.17%	7.40%	44.70%
Assets quality	49	24.43%	15.54%	0.00%	69.37%
Management Efficiency	49	-0.97%	9.77%	-40.97%	13.13%
Earnings ability (ROE)	49	1.70%	19.03%	-44.90%	43.86%
Liquidity	49	34.98%	9.30%	14.80%	61.80%
Inflation	49	5.74%	1.46%	3.20%	10.28%
NPL to Equity	49	95.76%	123.40%	0.00%	388.65%
Annual Average Inflation	49	5.93%	1.07%	4.53%	9.38%

Source: Research data (2021)

Table 1 results show that the number of observations, N, were 48 comprising of quarterly data collected among the 3 Kenyan IBs for the period 2012 to 2020about their financial performance as well as CAMEL indicators; CA, AQ, ME, EA, and LR as well as the moderating variables, inflation. All the measurement for the CAMEL indicators were given in percentage while inflation was simply given as a ratio.

As concerns the performance of the banks, it was found the financial performance within this period, which was measured using ROA, ranged from below zero (0) to a positive value almost approaching twenty percent (Min = -16.63% and Max = 19.46%). From the results, (M= -0.04%; SD = 5.90%), the mean financial performance of Kenyan IBs was -0.04% and standard deviation was 5.90%. Thus, the lowest deviation from the mean value of financial performance was 5.94% while the average financial performance in terms of profitability measured using ROA was -0.04% to indicate that, on average, every investment of Kshs. 1 on asset led to the IBs obtaining loss of 4 cents. The maximum ROA value for the period was 19.46% as the minimum value registered a value of -16.63%. A standard deviation of 5.90% was an indication of financial performance as showing low variation from lowest being 5.94%.The negative value of ROA was an indication of unfavorable financial performance while managing IBs' available assets. This implies that Kenyan IBs earned a considerably no returns from their own assets. Based on CAMEL rating, the financial performance was an indication of these banks having had serious financial weakness which may never be very strong immediately [49]. CAMEL rating ranks any ROA not exceeding 0.25% as being doubtful (Unsatisfactory); denoting high degree of failure [50].

The results of CAR, (M='17.90%, SD=8.17%), measured as ratio of capitals (Tier 1 capital + Tier 2 capital) to Risk-weighted Assets, show average CAR of 17.90% and SD of 8.17%; where CAR's lowest deviation from M was 9.73%. Grounded on this, it means that the IBs have reserved Ksh 17 and 90 cents (Khs. 17.90) to absorb every Ksh. 1 lost due risk and other liabilities. Meanwhile, the results (Min=7.40%; Min = 44.70%) show the range between the lowest and highest value of CAR as being 37.30%; ranging from 7.40% as being the lowest to 44.70% being the highest. According to these results, the average capital adequacy portrayed sufficiency of capital and adequate management

[17]. based on the CAMEL rating, this was a good status of CAR adequacy since it exceeded 15% [50]. Furthermore, Sarwar and Asif [51] posits that CAR exceeding 11% should be rated as outstanding and strong [49]. Despite financial performance results portraying financial weakness among IBs, there was enough capital for banks stability and solidarity. However, the CAR is sufficient for supporting the business in bad times through enhancing their banks' ability to absorb operational losses and uphold lending during crisis [20].

The study found that the asset quality, when computed using loan loss cover to NPLs, as exceeding zero but not reaching 100% (Min=0.00%; Max = 69.37%). The average asset quality was low (M=24.43%); falling short of meeting the threshold of 100% recommend by for CAMEL rating [52]. With the average being 24.43%, it means that for every Ksh. 1 cost of NPLs, the Kenyan IBs placed a loss provision of Ksh 24 and 43 cents. Thus, the provision for loan loss was Ksh 24 and 43 cents for every Khs. 1. The standard deviation was 15.54% which implies that the lowest SD from the mean was 8.89%. Thus, the asset quality among these IB banks was poor or what CAMEL would have declared unsatisfactory since it was greater than 0.95% [51]. This was further justified by calculating asset quality in terms of NPLs to equity (M= 95.76%). According to [52], for asset quality, measured in terms of NPLs to equity, to be considered as credible, it should not exceed 1%. However, this time, the study established that the associated value was an average of 95.76% and ranging between 0.00% and 388.65% with SD = 123.40%; which were extremely unsatisfactory values. Such occurrences are a sign of the IB incur high level of NPLs. According to CBK prudential guidelines, banks are required to maintain NPLs ratio that are not exceeding 5% [53] which was not the case with the IBs in Kenya. This exposes a serious and devastating NPLs problem amongst IBs in Kenya. The findings are evidence of which are portraying increasing accumulation of high level of NPLs. That is widely associated with bank failures. In fact, the findings on bank performance shows as captured in Table 1 are evidence of deplorable financial performance of Kenyan IBs [54].

With regards to the level of management efficiency (ME), the results (Min= -40.97%. Max = 13.13%; M = -0.97%; SD = 9.77%) show that the lowest level of management efficiency as

being-40.97% while the highest level of management efficiency was13.13%. Average management efficiencyrecorded-0.97% with a standard deviation of9.77% to denote its highest deviation from M as10.74% and lowest 8.80%. Comparatively, ME Standard deviation was8.80% when financial performance 'slow deviation was5.94%. Guided by CAMEL ratings, ME which was measured Net Income (Net profit Before tax) to Total Advances was poor or unsatisfactory since the average was below 10% [52]. [52] indicates that the threshold is between 10% and 15%; that is satisfactory ME should be equal to or greater than 10%.

The earnings ability results (Min= -44.90%; Max=43.86%, M=1.70%; SD=19.03%), which was measured using ROE show that the highest level of earning ability was -44.90% as the highest was 43.86%. the average earning ability among these banks was 1.70% and the SD was 19.03% with highest deviation from the mean being 20.73%. Thus, for every investment of Ksh. 1 by the IB banks, they had earning ability of one point seven cents (1.70 cents). Such earnings ability was too weak to sufficiently support the operations of these banks and equally sustain sufficient capital and allowance levels. In all ways, the earning ability of 1.70% was an indication of unsatisfactory level of earning ability Dang, 2011; Babar & Zeb, 2011). While [52] indicates a value of ROE less than 15.00% is not an indication of favorable earning ability, Babar and Zeb [49] posit that a value of ROE below 6.99% is a doubtful earning ability or poor(unsatisfactory) earning ability. Thus, earning ability of 1.0% which was way below 15.00% and even below 6.99% qualified it to be unsatisfactory.

Liquidity results (M=34.98%; SD=9.30%; Min=14.80%; Max=61.80%) indicated the average liquidity was 34.98%; an implication cash availability in that cash equivalent assets averaged at 34.98% per quarter yearly. Accordingly, short-term obligations were repayable by the IBs. For Ksh.1 short term liability, the IBs had ability to pay Kshs34.97from the liquid asset. The highest value was 61.80%, lowest as 14.80% while the SD as9.30%%, and 15.18% as the highest deviation from M (theses are high variations). Matters CAMEL, liquidity of 15.18% was outstandingly strong since it was less than 80.00% [52]. On the other side, Sarwar and Asif [51] show that liquidity is strong when it is under 60.00% while Babar and Zeb [49]

indicate that it is strong when it under 55.00%. Either way, liquidity among the IBs was less than 55.00% which was still less than 60.00% that qualified it to being a strong one [49].

4.3 Inferential Analysis

4.3.1 Correlation analysis

Using Pearson's product moment correlation, this research examined the IVs for any link with DV with Table 2.

Founded on Table 2, the relationships between the DV and each IV; Capital adequacy (p= 0.000), assets quality (p = 0.000), management Efficiency (p = 0.000), earnings ability (p = 0.000), and liquidity (p = 0.045), registered a value of p less than 0.05. More so, all the relationship except for liquidity (r = -0.299).,had the absolute value for each correlation coefficient (r) greater 0.5; capital adequacy ((r = 0. .512), assets quality (r = -0.561), management efficiency (r = 0. 700), and earnings ability (r = 0. 792).Some of the relationship links their coefficients surpassing 0.6 to suggest strong relationship of the IV and DV, such were between IBs financial performance and; earnings ability (r = 0. 792) as well management Efficiency (r = 0. 700). Those links registering moderate relationship were between IBs financial performance and assets quality (r = -0.561) as well as that of IBs financial performance and capital adequacy ((r = 0. .512) in that their correlation coefficients were not below 0.3 and not surpassing 0.6. However, liquidity (r = -0.299) and IBs financial performance negative moderate negative coefficient (r) which could not surpass 0.3 on its absolute value.

4.3.2 Regression analysis

ANOVA was performed for examining model fitness (goodness of fit) with results entered into Table 3.

In examining the fitness, the research was guided by the beta values of equation (i) to suggest that;

H_0: β_1=0; β_2=0; β_3=0; β_4 =0; and β_5= 0 to imply that the beta for each coefficient of X_1, X_2, X_3, X_4 and X_5, is zero) which yielded the alternate hypothesis; H_α: At least one the beta value: $\beta_i \neq 0$

Table 3. Analysis by correlation analysis

Correlations		Financial Performance	Capital adequacy	Assets quality	Management Efficiency	Earnings ability	Liquidity
Financial Performance	Pearson Correlation	1					
	Sig. (1-tailed)						
	N	49					
Capital adequacy	Pearson Correlation	.512**	1				
	Sig. (1-tailed)	.000					
	N	49	49				
Assets quality	Pearson Correlation	-.561**	-.226	1			
	Sig. (1-tailed)	.000	.060				
	N	49	49	49			
Management Efficiency	Pearson Correlation	.700**	.477**	-.482**	1		
	Sig. (1-tailed)	.000	.000	.000			
	N	49	49	49	49		
Earnings ability	Pearson Correlation	.792**	.399**	-.419**	.675**	1	
	Sig. (1-tailed)	.000	.002	.001	.000		
	N	49	49	49	49	49	
Liquidity	Pearson Correlation	-.299	.161	.000	.178	-.214	1
	Sig. (1-tailed)	.045	.134	.499	.111	.070	
	N	49	49	49	49	49	49

**. Correlation is significant at the 0.01 level (1-tailed).
Source: Research Data (2021)

Table 4. ANOVA for Kenya IBs' financial performance

ANOVA[a]	Sum of Squares	df	Mean Square	F	Sig.
Regression	344.693	5	68.939	28.367	.000[b]
Residual	104.499	43	2.430		
Total	449.192	48			

a. Dependent Variable: Financial Performance
b. Predictors: (Constant), Liquidity, Assets quality, Capital adequacy, Earnings ability, Management Efficiency

Source: Research Data (2021)

Table 5. Analysis by regression against predictor variables

Coefficients'	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.291	3.437		1.249	.219
Capital adequacy	.513	.208	.211	2.471	.018
Assets quality	-.368	.141	-.222	-2.608	.012
Management Efficiency	.289	.134	.256	2.154	.037
Earnings ability	.549	.157	.401	3.487	.001
Liquidity	-4.025	1.783	-.193	-2.258	.029

a. Dependent Variable: Financial Performance

Source: Research Data (2021)

Table 3 results are at 5% level of significance and $H_0$is accepted if p-value is higher than 0.05 while it is on rejected on the contrary; p-value < = 0.05 on which $H_\alpha$is accepted or else it is rejected.

Found on the results ($p = 0.000$, $F = 28.367$), the p-value does not reach 0.05 to imply that at least all/one of the betas is not zero. Consequently, H_0 was rejected leading to acceptance of $H_\alpha$on consideration that P-value < 0.05. accordingly, the study has sufficient evidence to mention that is at $\alpha < 0.05$ at least one of the IVs; capital adequacy, assets quality, management efficiency, earnings ability, liquidity is convenient in estimating financial performance of Kenyan IBs.

Table 4 captured the results of regressing IVs and DV for estimation of the model.

Table 4 helped to test hypotheses;

H_{01}: There is no statistically significant effect of capital adequacy on financial performance of Islamic banking in Kenya.

The results ($p = 0.018$ and $T = 2.471$) show $p<0.05$ leading to rejection of *H_{01}* and therefore meaning that capital adequacy is a significant estimator of financial performance of Kenyan IBs.

H_{02}: There is no statistically significant effect of asset quality on financial performance of Islamic banking in Kenya.

Based on the results ($p = 0.012$; $T = -2.608$), $p< 0.05$ which means that *H_{02}*is rejected and thus confirming that asset quality is a significant predictor of financial performance of Kenyan IBs.

H_{03}: There is no statistically significant effect of management competence on financial performance of Islamic banking in Kenya

Basing argument of the results ($p = 0.037$; $T= 2.154$) then *H_{03}*is rejected because $p< 0.05$ and

this is evidence that management efficiency is significant predictor financial performance of Kenyan IBs

H_{04}: There is no statistically significant effect of earnings quality on financial performance of Islamic banking in Kenya.

The results ($p < 0.01$; $T=3.487$) evidently show<0.05 which leads to rejecting *H_{04}* and therefore rejecting *H_{04}*:to mean that at $\alpha = 0.05$, earnings quality significantly predicts financial performance of Kenyan IBs

H_{05}: There is no statistically significant effect of liquidity ratio on financial performance of Islamic banking in Kenya.

The results (p-value $= 0.029$; $T= -2.258$) which affirms $p<0.05$which means that *H_{05}*was rejected to imply that liquidity is a significant estimator of financial performance of Kenyan IBs.

Grounded on Table 4, the regression coefficient; for capital adequacy($\beta_1=0.513$), assets quality ($\beta_1=-0.368$), management efficiency ($\beta_1=0.289$), earnings ability ($\beta_1= 0.549$), and liquidity($\beta_1= -4.025$), are used construct the estimation model;

$$Y = 4.291 + 0..513X_1-0.368X_2+0.289X_3+0.549X_4-4.025X_4 \dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(ii)}$$

According to these results, assets quality ($\beta_1=-0.368$) and that liquidity ($\beta_1= -4.025$) have negative effect of impact on financial performance of Kenyan IBs. However, the other indicators; capital adequacy ($\beta_1=0.513$), management efficiency ($\beta_1=0.289$), and earnings ability ($\beta_1= 0.549$), had positive coefficients indicating positive effect on financial performance of Kenyan IBs.

The predicted modelis summarised in Table 5.

Table 6. Model Summary for financial performance

Model Summary			
R	R Square	Adjusted R Square	Std. Error of the Estimate
0.8760	0.7674	0.7403	1.5589105

a. Predictors: (Constant), Liquidity, Assets quality, Capital adequacy, Earnings ability, Management Efficiency

b. Dependent Variable: Financial Performance

Source: Research Data (2021)

Founded on Table 5, the coefficient of determination was .7674, an indication that 74.74% of variation financial performance of Kenyan IBs is explained by change in; capital adequacy, quality of assets, efficiency of management, earnings potential, liquidity. Therefore, all the variable; capital adequacy, quality of assets, efficiency of management, earnings potential, liquidity are strong determinants of financial performance of Kenyan IBs**.**

4.4 Moderating Effect of Knowledge Type in the Relationship

While constructing the concept framework, the research established that there were other factors which might have had moderated the effect of CAMEL on performance such as inflation. These were the intervening variables that this research accordingly mitigated their multiplicative effect as expressed in Table 6. In seeking to establish the moderating additive effect, this study employed moderated multiple regression (MMR) which on analysis added an interaction term inflation in the in a multiple regression equation (ii).

This analysis relied on the Model 2's R^2 measure in Table 6 to examine the moderator effect. In these results, change in R^2 , signified by R^2, is 0.0102. This is to show that there was increase in variation on effect of CAMEL on performance introduced by inflation (the interaction term) and this is 1.02% (because 0.0102 x 100 = 1.02%). So, the variation of the effect of CAMEL on performance moderated by inflation was1.02%. Further results on p-value indicate p=.0172(Sig. F Change= 0.172). This value surpasses 0.05 to indicate that moderating effect of inflation relationship between CAMEL and financial performance is statistically insignificant (p >0.05). consequently, there is evidence to concludes that inflation has insignificant moderating effect on relationship between CAMEL and financial performance. This further explained moderated MRA reported captured in Table 7.

Table 7. Financial performance moderated model summary

Model Summary[c]									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.876[a]	.767	.740	1.55891	.7674	28.367	5	43	.000
2	.882[b]	.778	.746	1.54231	.0102	1.931	1	42	.172

a. Predictors: (Constant), Liquidity, Assets quality, Capital adequacy, Earnings ability, Management Efficiency

b. Predictors: (Constant), Liquidity, Assets quality, Capital adequacy, Earnings ability, Management Efficiency, Inflation

Source: Research Data (2021)

Table 8. Financial performance moderated regression results

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.291	3.437		1.249	.219
	Capital adequacy	.513	.208	.211	2.471	.018
	Assets quality	-.368	.141	-.222	-2.608	.012
	Management Efficiency	.289	.134	.256	2.154	.037
	Earnings ability	.549	.157	.401	3.487	.001
2	Liquidity	-4.025	1.783	-.193	-2.258	.029
	(Constant)	6.602	3.785		1.744	.088
	Capital adequacy	.425	.215	.175	1.974	.055
	Assets quality	-.348	.140	-.209	-2.475	.017
	Management Efficiency	.320	.135	.284	2.380	.022
	Earnings ability	.579	.157	.423	3.682	.001
	Liquidity	-4.170	1.767	-.200	-2.360	.023
	Inflation	-.312	.225	-.109	-1.389	.172

a. Dependent Variable: performance of publicly funded research institutions in Kenya

Source: Research Data (2021)

The MRA regression is

$$Y = 4.291 + 0..513X_1 - 0.368X_2 + 0.289X_3 + 0.549X_4 - 4.025X_5 \dots\dots\dots\dots\dots\dots\dots\dots(iii)$$

While the equation

$$Y = \beta_0 + \beta_1X_1 Z + \beta_2X_2 Z + \beta_3X_3 Z + \beta_4X_4 Z + \varepsilon\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(iv)$$

Is used to fit moderated equation to yield

$$Y = 6.602 + 0..425X_1 - 0.348X_2 + 0.320X_3 + 0.579X_4 - 4.170X_5 \dots\dots\dots\dots\dots\dots\dots(v)$$

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The study concludes capital adequacy has a statistically significant positive effect on Kenyan IBs' financial performance; where it accounts for 0.425 (42.50%) Kenyan IBs' financial performance such that 0.513 in capital adequacy causes 0.425 rate of change of units rate of change in financial performance of Kenyan IBs and when capital adequacy decreases by one unit it causes financial performance of Kenyan IBs to change at rate of 0.425 units. This is strengthened by the Tier 1 capital and Tier 2 capital while at the same time managing the Risk-weighted Assets.

The study concludes that assets quality has a statistically significant negative effect on Kenyan IBs' financial performance occasioned by loan loss cover, NPLs and shareholders' equity. When there is high provision loan loss, then much of funds are directed towards cushioning for NPLs, which would incredibly weaken the financial performance of the IBs hence poor performance. in this case, the cost of shareholders' equity is seriously devastated due NPLs problems. Amongst the IBs in Kenya asset quality has a negative effect on financial performance of Kenyan IBs accounting for 34.80% of change in financial performance of Kenyan IB in the opposite direction.

The study concludes that management efficiency among Kenyan IBs, measured as net income (net profit before tax) to total advances, is poor and unsatisfactory (at -0.97%), leading to weak financial performance of these banks. Thus, financial performance of Kenyan IBs is weak and unsatisfactory due to the management efficiency being poor this is because management efficiency is directly proportional to financial performance. It was revealed that management efficiency has a statistically positive effect on financial performance of Kenyan IBs accounting 32.00% change in financial performance of Kenyan IBs. The poor management efficiency leads to increased NPLs which adversely affects the financial performance. Management efficiency is significantly important for aligning business processes and essentially a prerequisite for improving the IBs' financial performance.

The study concludes that earnings ability among Kenyan IBs is poor since for every investment of Ksh. 1 by the IB banks, they earn 1.70 cents. This poor earnings ability is too weak to sufficiently support the financial performance of Kenya IBs and the banks operations and equally maintain adequate capital and allowance levels. It was revealed that earnings ability has a statistically positive effect on financial performance of Kenya IBs, accounting for 57.90% change of financial performance of Kenyan IBs such that when earnings ability increases by a single unit, this cause financial performance of Kenyan IBs to increase by a rate of 0.579 and vice versa.

The study concludes that liquidity ratio is negatively related to financial performance of Kenyan IBs and has significant negative relationship with financial performance of Kenyan IBs. Thus, liquidity ratio is indirectly proportional to financial performance of Kenyan IBs, where liquidity ratio has a negative significant influence financial performance of Kenyan IBs. Thus, an increase in liquidity ratio leads to decreases in financial performance of Kenyan IBs and a decrease in liquidity ratio leads to an increase in financial performance of Kenyan IBs.

The study concludes that the Kenyan IBs are exhibiting substantial concern when rated using CAMEL rating model. using CAMEL rating model, it is clear that the banks need to take immediate action in their; capital adequacy, assets quality, management efficiency, earnings ability, liquidity coupled with carefully monitoring their loaning function. Thus, the composite CAMEL rating model is appropriate for assessing financial performance of Kenyan IBs and for helping the banks in complying with banking regulations

5.2 Policy Recommendations

The following policy recommendation was made based on the reproach findings. First, the study

recommends that the Kenyan IBs while managing their capital adequacy should employ the optimal investment strategy. Already, the capital adequacy is above the prescribed threshold and therefore the asset portfolio value requires to be improved while maintaining constant capital adequacy constant and again at the optimum minimum value. It should be noted that financial performance is weak and requires strengthening using optimal investment strategy. This is where the Kenyan IBs would implement optimum investment policy to diversify their asset base away from volatile and risky assets into riskless treasury assets. Thus, the banks should diversify their asset holdings in an effort to reduce risk.

Secondly, the IB should manage their asset soundly with the loan management function being vigilant in setting effective lending policy that does not adversely impact profitability. In advance, they should understand the way the credit policy affects the operation of their banks in order to ensure judicious use of shareholder's equity deposits and value maximization. The quality of its assets and the development of credit losses and non-performing loans that can potentially lead to financial losses. Asa result, Kenyan IBs need to make efforts strengthening their financial soundness through use of collateral as protection for the issuing of loans. Advanced loan should be continuously followed and checked in order to minimize the additional occurrence of collateral from faulty debts. They should in addition know the purpose of the loan and guarantee the viability of any suggested loan default. The bank should relax in their resolve to granting risky loans.

Thirdly, the analysis establish that the management efficiency was subjecting the IBs to compliance weakness, which are supposedly among factors adversely damaging the banks future capability of improving their financial performance. So, there is need to ensure that the supervisory function improves the management efficiency for making right decisions on compliance with banking regulations and laws. The study recommends for that the directors of these IBs should enhance the banks' management efficiency capability aiming at safety soundness, and efficiency of operation through risk identification, measuring, and control activities premise on strict compliance with applicable regulations.

Fourthly, the research revealed earnings as likely not comprehensively supporting the operations of the banks; as informed by unsatisfactory earnings ability of Kenyan IBs. Then this research recommends that Kenyan IBs should increase their earnings ability through generation of sufficient revenue to over their yearly overheads while minimizing these overheads and embarking innovative attractive products.

Fifthly, the research recommends the Kenya IBs should stick on keeping the recommended liquidity levels. They should particularly pay essential attention on their liquidity management and especially their loaning policies for effectiveness, and loan monitoring and recovery. The research recommends for Kenyan IBs to employing interest gap analysis purposely for assisting determine the banks' investments profitability though sustaining the balance between rate sensitive liabilities (interest-sensitive liabilities) and rate sensitive assets (interest-sensitive assets). Gap analysis would help the IBs assess their liquidity risk while concurrently timing their cash flows together with availability of assets for repaying liabilities.

Lastly, the research recommends that Kenyan IBs should be employing CAMEL rating model on yearly basis so that they might be able to identify elements requiring special attention; which will assist their managers in complying with banking regulations and associated laws.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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