Credit Risk Assessments and Firm Value of Listed Commercial Banks in Kenya

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Despite the various control measures put in place especially the CBK's prudential laws to ensure that the performance of commercial banks in Kenya is ensured, most commercial banks have been collapsing in the recent past. It is in this light that the current study sought to ascertain the impact of bank liquidity, capital adequacy, asset quality and earnings on the firm value of listed Commercial banks in Kenya. Descriptive research design was employed on a population sample of eleven publicly listed retail banks. Secondary data was collected from CBK and other public financial reports over the 12-year period from 2009 to 2020. The collected data was analysed using1a multivariate panel regression1model to generate the relevant regression tests. The1study established that the capital adequacy has a marginal positive impact on the firm value while earning ability was found to have a statically insignificant positive effect on firm value among Kenyan commercial bank. The study findings indicated that liquidity was insignificantly and negatively correlated with firm value as asset quality had insignificant positive effect on firm value among Kenyan commercial bank. The study recommends that, managers of listed banks should embrace utilization of internally generated equity capital to ultimately promotes credit risk assessments as they maintain optimal levels of liquidity to maximize firm value and maintain high quality of assets as they sustained levels of earnings that boost output. This paper explained a credit risk rating concept that had not been examined in Kenya before.

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1. INTRODUCTION

1.1 Background

Banks perform an incredibly important role in the overall economic growth of a country because they have tremendous influence over the provision of money and are therefore essential catalyst for economic change [1]. In the banking industry, commercial banks make up an integral part of the financial system worldwide [2]. In this respect, the general economic growth of most countries is entirely affected the role that commercial banks play in including mobilizing deposits, funding projects and improving both domestic and global trading practises [3]. However, in Kenya, commercial banks are typically subject to multiple threats in Kenya of risks in their credit function [4]. The financial risk facing Kenyan banks appears to have a long-term effect on both their financial results and their survival; adversely affecting their firm value. So, in order to minimize these risks and boost their firm value, Kenyan retail banks must use effective risk management strategies.

The cost of funds spent in managing the non-performing loans can be far much saved if the management outs in place robust measures aimed at assessing credit risk since it impairs the profitability of companies [5]. Therefore, as soon as they are identified, a financially stable company is able to meet both the short term and the long-term obligations as when they fall due. In addition, Muthee [4] observes that the overall principle of financial credit rating is much more interested in the ability of the firm to show an increasing and sustained trend in growth of its revenue streams. It is for this reason that credit risk assessments is predominantly becoming an area that cannot be ignored by any institution regardless of the nature of industry that the business operates in [6]. Literature was drawn up and released by the Basel Committee in reaction to the financial crisis of 2007-2008, which sought to assess the way financial crisis aggregately impact on both the banking sector as well as wider financial environment [7]. In order to measure and to determine the minimum capital requirement, operating risk was included in the revised deal. In this respect, a bank's minimum capital ratio is measured as the amount of the bank's credit, market and operating costs. The Basel findings demonstrate that the financial and economic crises of 2007-2008 and the poor capital levels forced the banking sector to struggle to withstand severe systematic risk and credit losses. Basel also implemented several crucial changes such as Basel III in order to manage the failures triggered by the recession. Basel III's key goal is to stabilize financial reserves, risk assessment and liquidity risk by implementing a single leverage ratio and two additional liquidity ratios [8]. Following the changes adopted in Basel III, the three main fields of liquidity, bank capital and debt levels have been significantly strengthened.

A study by Wachira [9] on the effects of credit risk management practices on loan performance of commercial banks in Kenya using Nyeri County as a case study emphasised the need for commercial banks in Kenya to put in place strong mechanisms to mitigate their credit risk which seemed to erode a significant portion of their profitability. Muigai and Maina [10] established that credit risk management practices should be integrated in the organisational management of the commercial banks in Kenya under the umbrella of enterprise risk management.

1.2 Firm Value

Basically, the firm value of company, indicates the monetary value of all the resources an organisation owns. According to Gichobi [11] the term firm value is viewed as the worth a company is valued and thereby rendering a viable economic concept. The value of any firm attracts the attention of many parties who are the stakeholders of the company.is of great interest not only to the shareholders alone but also to the employees, the suppliers, the customers, the government, the society as well as the wider stakeholder category of such firms. Firm value is viewed as the total worth of the firm's assets acquired through its operations as at a given period. The current business environment is witnessing various measures by corporations geared towards value maximization through the diversification of products and markets to ensure that the market value of such firms is continuously growing to remain sustainable even unto the foreseeable future.

1.3 Credit risk assessments

Credit risk assessments connotes the valuations and surveillance of the strengths and

vulnerabilities of financial systems in the quest to enable them to reach a higher plane of long-term survival [6]. A credit conscious banking system ensures that there is sustainable economic development and welfare by forming adequate capital and availing credit to the viable investment projects, facilitation of payment services and a robust financial system. Commercial banks are to be dynamic, responsive and financially sound enough in meeting the challenges and taking advantage of any opportunities at their disposal [12]. It is therefore very important to determine overall credit risk assessments in order to ensure the banking industry's successful and profitable practices through locating and eliminating any faults that are likely to affect the firm value [11].

1.4 Statement of the Problem

The Kenyan banking industry has faced its own internal challenges in the quest to attain its financial sustainability aspirations [9]. Some of the challenges that have characterised the commercial banks in Kenya include liquidity and credit and these have led to; certain banks collapsing banks or being under receiverships, recapitalization of retail banks, bank bailout programs previously recorded with Chase that was sold out and Imperial banks which was put under receivership [11]. Unfortunately, the loss uncured to issues arising from the said institutions, considerable number of depositors and other important clientele ended up losing significant amount of cash and other forms of assets. This also means that it is very important for the credit risk assessments aspect of commercial banks in the country to promote their competitiveness and survival, while being able to afford to offer their services to clients and members of the general public [13]. Despite innumerable research done of performance of commercial banks, little has been covered on credit risk assessments and on firm value of listed commercial banks in Kenya. Therefore, this study sought to bridge this research gap. The paper explained a credit risk rating concept that had not been examined in Kenya before

1.5 Objectives of the Study

To determine the effect of credit risk assessments on firm value of listed commercial banks in Kenya. The study was guided by the following specific objectives;

i. To determine the effect of bank liquidity on firm value of listed commercial banks in Kenya
ii. To determine the effect of capital adequacy on firm value of listed commercial banks in Kenya
iii. To determine the effect of asset quality on firm value of listed commercial banks in Kenya
iv. To determine the effect of earnings ability on firm value of listed commercial banks in Kenya

2. LITERATURE REVIEW

2.1 Theoretical Review

The theories examined provide an in-depth viewpoint on the generalized explanations for the research goals for the purpose of this review.

Among these theories, the Pecking Order Theory (POR), suggests that organization may prioritize debt and eventually equity when external financing is favourable to equity [14]. Where external funding sources are typically costly to tap, most businesses tend to prefer the use of internal financing [15]. The hypothesis thus postulates that businesses that do not make higher profits tend to favour internal funding options, while companies that are more profitable typically prefer external finance and may therefore produce higher earnings in exchange. In the event that the management of a company makes the current capital available to be deemed inadequate, debt finance must be pursued as a method of safeguarding existing owners, thus minimizing the dilution of company shares. This principle is linked to this study because it helps companies to evaluate their funding choices by using all internal funds initially before transitioning to other external finance strategies, a reality that helps them to achieve sustainable profit and prevent diluting results.

Liquidity Preference theory postulates that most people revert to choosing to keep liquid assets especially currency, as opposed to other non-liquid assets [16]. Liquidity preference theory tries to explain why individuals and firms need be liquid to remain financially sound. When banks do not have ready cash to settle claims as and when they fall due, they face a reputational risk especially when customers take long to get their loan requests approved or no funds at all.

The Modigliani and Miller Capital Structure Relevance Theory proposed that the value of a

firm doesn't depend on its capital structure [17]. This implies that whether a firm is highly leveraged or has a lower debt component has no bearing on its market value. They further argued that the value of a firm is purely determined by the operating profits of that company. The Modigliani and Miller Approach indicates that the value of a leveraged firm (a firm that has a mix of debt and equity) is the same as the value of an unleveraged firm (a firm that is wholly financed by equity) if the operating profits and future earnings are same.

2.2 Empirical Review

According to results from Boateng [6], liquidity has a positive significant effect on Ghanaian banks' performance. As Onyekwelu et al. [18] postulate that effective liquidity control provides high public belief in the banking system of a country and great public confidence stops the 'rush' of the bank system and thus the state of liquidity of the banks, Mananda [19], posits that for commercial bank to satisfy their financial commitments, they are required to retain optimum liquidity ratios. While Khan and Ali disclosed a strong and relevant association between liquidity and commercial bank profitability in their report., Cheluget et al. [20] revealed that liquidity of the insurer and its financial distress are substantially linked. In the study by Kibuchi [21] the research findings showed that the viability of the bank was determined by the chance of liquidity. As Onyango and Olando [2] established that liquidity ratio has a negative association with NPLs. Ndungu [22] found that liquidity has a favorable and significant effect on financial distress as Masdupi et. al. [23] established that liquidity displayed a negative and important impact on financial distress and Kamande, Zablonb and Ariemba [24] found a weak positive relationship between ROA commercial bank and liquidity.

Bhattarai [12] realized that the capital adequacy ratio (CAR) and financial performance are significantly related. While Nyabaga and Matanda [1] showed a substantial positive effect on the ROE and capital adequacy, Kaol [25] suggests that the higher the capital adequacy level that an entity has, the lower the institution's financial output and Bhattarai [12] revealed that the capital adequacy ratio (CAR) is closely correlated with the financial performance of commercial banks in Nepal. Udom and Eze [3] research findings suggest that the appropriateness of capital has a positive effect on the financial performance of banking

institutions while Musyoka [26] concludes that capital adequacy in has a negative and significant on financial performance of commercial banks in Kenya, Kamande et al. [24] showed that capital adequacy ratio is directly proportional to the bank's stability in circumstances of crisis.

in their study Lawal et al. [27] revealed that asset quality has a positive significant impact on banks' operational efficiency ratio while the research by Boateng [6] observed that asset quality greatly influenced the output of Ghanaian banks. Sile et. al. [28] showed that an increasing asset size is connected to the bank's age. The findings of the study by Mananda [19] indicate that assets quality negatively affects ROA as the findings of Musyoka [26] research suggests negative and insignificant relationship between asset quality and ROA and Kaol [25] show asset management as significantly affecting ROA.

Research by Muthee [4] shows that earnings capacity affected financial performance while the the results in the study by Masdupi et. al. [23] revealed earnings as having a negative and significant effect on financial distress. The results of the analysis by Mananda [19] show that earnings ability is positively linked, but insignificant. The study by Kamande et al. [24] found a weak positive relationship between commercial banks' ROA and earnings potential.

3. RESEARCH METHODOLOGY

3.1 Research Design

This thesis adopted a correlational research design on panel data covering the period 2009 to 2020. A correlational research design presumes that there exists a cause effect relationship between the independent and the dependent variables. As Creswell and Creswell [29] agree, descriptive research design is very useful in conduction of analysis, as it helps the detailed evaluation of all variables of study.

3.2 Target Population

In this study, the target group was the 11 commercial banks list at the Nairobi Securities Exchange (NSE). These were the companies that were listed between the year 2009 and 2020. They were active within this period.

3.3 Research Instruments

The study relied solely on secondary data which was collected from audited and published

financial statements and other corporate handbook of the listed commercial banks in Kenya, central bank and commercial banks of Kenya websites. he secondary data was collected using a document review guide ensure all the important dimensions of interests are captured.

3.4 Validity of the Research Instrument

For the purpose of testing the research instrument for specificity and importance, validity checks are performed to evaluate the degree at which the conclusion to be obtained after examination truly describes the phenomena being tested. The study used content validity checks to determine the extent at which data gathered using the study tool might actually reflect the particular domain of credit risk assessments indicators/content on the firm valuation of Kenya's listed retail banks.

3.5 Reliability of the Research Instrument

To ensure reliability of the data collected, the study-collected data from official sources such as audited and published financial statements and other corporate handbooks of commercial banks in Kenya, central bank of Kenya and commercial banks of Kenya websites, monetary policy statements and relevant reports from central bank of Kenya. Using Cronbach's Alpha internal accuracy methodology, the current thesis tested the testing method for reliability.

3.6 Methods of Data Collection

The researcher utilized secondary data for all Kenya's publicly traded commercial banks. It was very important to use this knowledge as it made the study easier to conduct and lowered research expenses as it used the information of another scholar to accomplish the present objective. For a period corresponding to 12 years from 2009 and 2020, data were gathered from the annual audited statements provided by this bank, bank web pages and the Internet.

3.7 Data Analysis and Presentation

Panel data regression was used to analyse obtained statistic data and allow the researcher to obtain a better understanding of the relationship between multiple IVs and DVs. Panel data Regression outcomes were produced using the SPSS version 23, which provided more comprehensive results. the key goal of regression analysis was to summarize survey results, enabling the relation between the variables being analysed to be quickly identified. Results have been provided in the form of frequency tables and figures after regression. Since the data was collected over time, the aspect of time series cannot be ignored. The following equation was useful.

$$Y_{it} = \beta_0 + \beta_1 CA_{it} + \beta_2 BL_{it} + \beta_3 AQ_{3it} + \beta_4 E_{it} + \varepsilon_{it} \text{......... equation ii}$$

Whereby the variables are identified as follows:

Dependent variable Y = Firm value measured
While the independent variables CA=Capital Adequacy, BL=Bank Liquidity, AQ=Asset Quality and E=Earnings Management
ε=is the error term
t=time in years from 2009 to 2020

To test for normality, heteroscedasticity, multicollinearity and autocorrelation, diagnostic tests were performed. Kolmogorov-Smirnov test was used in the research normality test statistics while multicollinearity problem involves dropping strongly correlated variables and checking for the assumptions of autocorrelation would detect using Durbin Watson test (serial correlation).

The research further evaluated null hypotheses (H0) using 5 percent significance level, probability value (p-value) = 0.0.5, where tH0 is approved when the p-value approaches 0.05, and denial of the H alpha alpha (the alternate hypothesis). Nevertheless, if the P-value does not surpass 0.05, then the alternative explanation is accepted and the null hypothesis is dismissed.

4. FINDINGS AND DISCUSSIONS

4.1 Descriptive Statistics

4.1.1 Capital Adequacy and Banks Firm Value

Graph 1 presents the findings on the descriptive statistics for capital Adequacy for the years 2009-2020.

The graph 1 results show capital adequacy increasing from 12.50 to 13.95 between the years 2009 and 2008 while firm value decreased at the same period. Between 2010 and 2011 capital adequacy decreased to 13.57 as firm value increase to 15.65 While capital adequacy started decreasing for 13.57 to 12.68 between

the year 2011 and 2014, firm value decreased from 15.65 to 15.57 the same period. The same trends were observed between the year 2014 and 2019 whereas capital adequacy increased firm value increased and when capital adequacy decreased, firm value decrease. Between this time; firm value increased from 15.71 to 16.34 then decreased to 14.87 cooing down to 13.98 the increased to 14.79 reducing to 11.14 and increasing to 12.80 in the year 2020. Meanwhile, over the same time, capital adequacy increased from 12.68 to 12.69 then to 13.44 before creasing to 12.41 and then increased to 12.43 going up to 12.45 before reducing to 11.04 then to 10.47.

These findings confirm those by Nyabaga and Matanda [1] research which found that adequacy of capital is a crucial indicator that helps banks to evaluate their strategies for risk reduction that companies can adopt to improve their efficiency in a given economy. The study shows that capital adequacy determines the performance of firms in each area because they are closely linked. On the one hand, Boateng [6] argued in their research review that capital adequacy is a major component of financial institutions and can be calculated in the primary capital ratio. By showing the credit risk assessments of the business to the financial institution's properties. More so, liquidity and expansion of resources had a critical relationship with the budgetary execution of Kenya's business banks, while resource productivity had an insignificant connection. Thus, the bank does not earn premiums on the advances that have been operating for a long time; on the contrary, it hurts the benefit of the bank.

4.1.2 Earning Ability and Banks Firm Value

Regarding earnings before interest and tax, the study findings in graph 2 presents for the years 2009-2020.

The data analysis results from the above indicate that there was a decrease in firm value from 15.87 in 2009 to 15.19 in 2010 owing to the post-election skirmishes in Kenya between 2007 and 2008 whose effects affected value of most firms in this industry as earnings management was continued to increase but at a reduced rate from 12.82 to 13.12 in the same period. Firm value increased from 15.19 to 16.34 between 2010 and 2015. This is attributed to a relatively stable political environment in the country which promised a conducive environment for growth.

More fluctuations in earnings ability were exhibited between 2017 and 2020 due to a stable political environment and the completion of most of the infrastructure for the big 4 agenda. The change to 14.79, then to 11.14 and up to 12.80 in 2020 emanates from restated investor confidence that became key in the development of the economy. As regards earning ability, most of the times, trends were dissimilar those of firm value. As from 2010 the earnings ability increased from 12.82 to 13.12 before reducing to 12.65 due to the turbulent times in the campaign period that affected most revenue sources for the banking industry. This rate later increased to 13.43 after which it reduced 12.27 in 2016 ushering the risky political environment in 2017 with a continued further decrease in earnings ability of 8.78 in 2020 that was further worsen by the COVID 19 pandemic.

Notably, the analysis by Sile et al. [28] followed the use of ratios as a metric of bank financial output and asset quality as it is a verifiable way of calculating the extent of operations of companies. More often than not, a bank's loan is the key asset that produces the big share of bank revenue. The efficiency of the loan portfolio is determined by the banks' profitability. The study suggests policies that facilitate income diversification, minimize credit risk and allow banks to minimize their liquidity holdings, based on the results. Further the findings agree to Ndungu [22] study which found that financial instability was impacted favourably and dramatically by earnings (measured by ROA). This high earnings quality will act as a reliable indicator of the future status and operational performance of an organisation. It should also mirror the organization's current organizational performance.
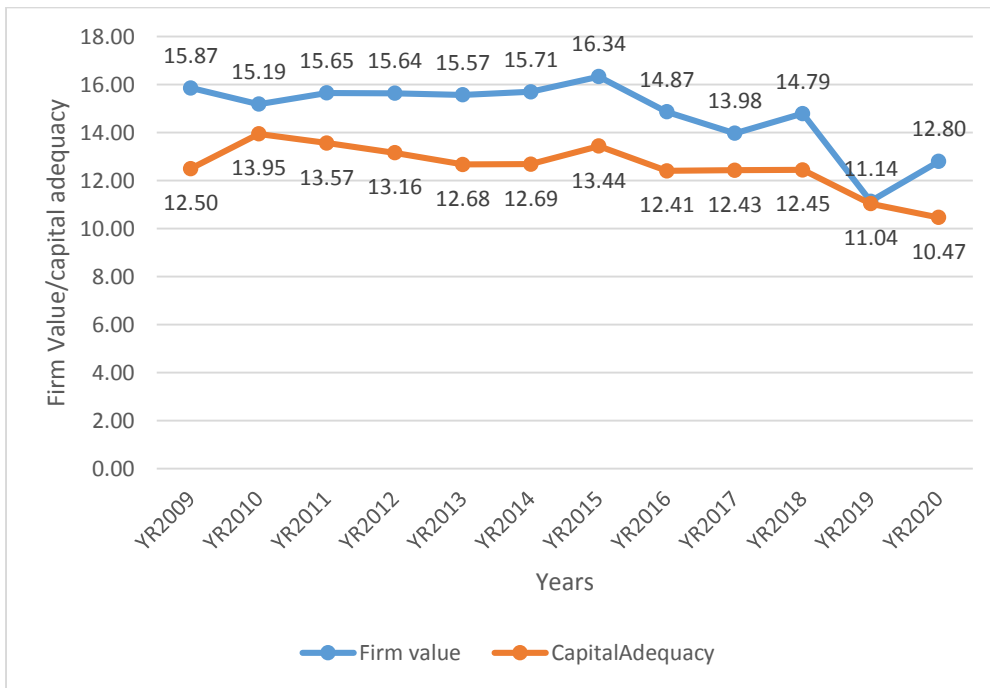
4.1.3 Liquidity and Banks Firm Value

The findings pertaining to liquidity management in Graph 3 presents for the years 2009-2020 reveal a steady increase generally from 2009 to 2020.

Liquidity value reduced between 2009 to 2012 before further decreasing to 10.34 in 2013 from 13.12 in 2009 and 12.55 in 2010. This represents a relatively unstable economic environment in that borrowing platforms had not much come to play as seen in the later years of 2014 to 2019 (liquidity value from 12.48 to 12.05) during which period mobile application platforms have tremendously increased that helped in availing credit among the borrowers. During this period

credit rating agencies became more vocal that helped to reduce default risk as most people were borrowing. The situation only changed in 2020 following the announcement of announcement of COVID19 cases in the country thus credit risk increased reducing liquidity. These results reveal a steady increase in firm value between 2011 and 2015 due to a relatively stable political climate from 15.19 to 16.34 in the year 2015. The promises of a stable government led to the sharp increase in firm value between 2016 and 2017 from 16.34 to 14.87 then reduced to 13.98. More fluctuations were exhibited between 2017 and 2020 following the handshake period effects on the economic environment that helped boost investor confidence.
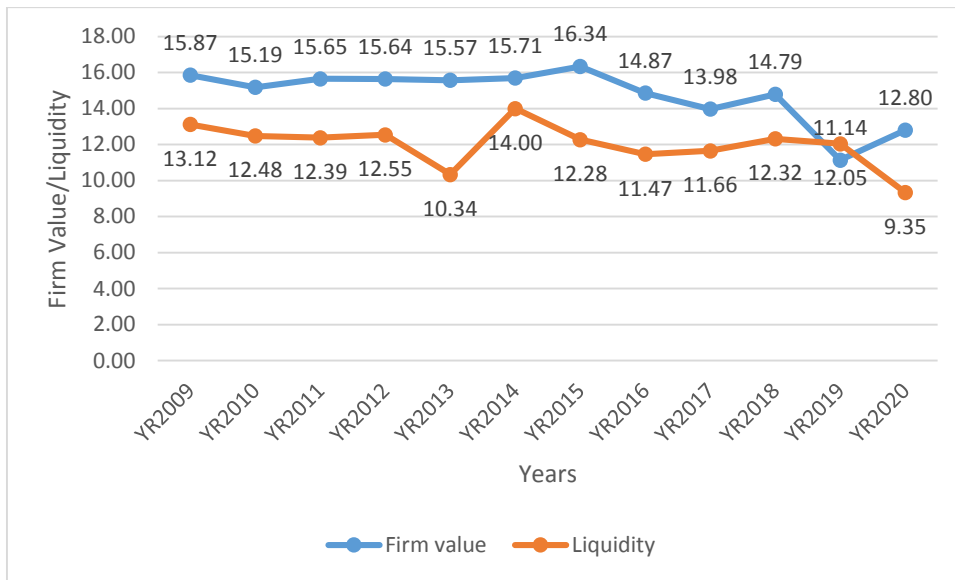

Graph 1. Capital Adequacy and firm value
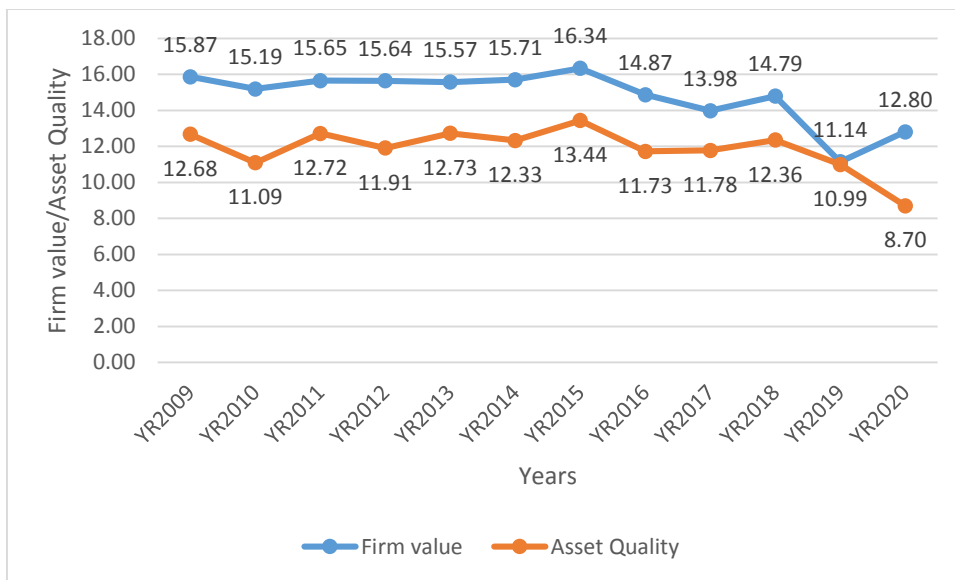*Source: Research data (2021)*
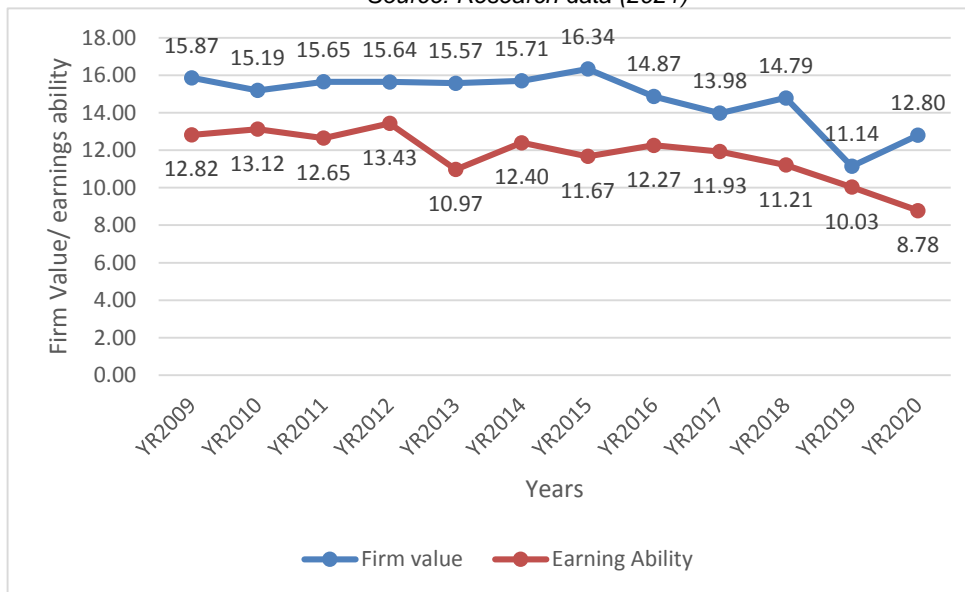
Graph 2. Earnings ability and firm value
Source: Research data (2021)

Graph 3. Liquidity and firm value
Source: Research data (2021)

Graph 4. Asset Quality and firm value
Source: Research data (2021)

Notably, Kibuchi [21] research findings showed that the viability of the bank was determined by the chance of liquidity. These results agree to the research by Onyekwelu et al. [18], which demonstrate that liquidity influences banks' profitability ratios in a positive and significant manner and that liquidity often has a positive and significant effect on the return on capital employees. Efficient liquidity control creates a deep public trust in a country's financial system, and great public faith stops the bank system's 'panic' and therefore the banks' liquidity status.

Therefore, liquidity was deemed negligible and negatively associated with asset returns. According to Onyekwelu et al. [18], the above means that maintaining liquid assets, although marginal, has a cost-effective effect on bank earnings. Basically, banks use liquidity to have adequate capital to satisfy their obligations, and this may be the reason why it contrasts poorly with bank performance in terms of asset return. Furthermore, Boateng [6] study revealed that Ghanaian banks' output was greatly influenced by liquidity.

However, Mananda [19] show that liquidity was insignificantly and adversely related to the return on investment. The findings of the analysis suggest that liquidity is one of the factors impacting the financial accomplishments of listed companies. While Onyango and Olando [2] showed that there was a liquidity ratio has a negative association with NPL Ndungu [22] found that liquidity has a favourable and significant effect on financial distress. However, the results differ from Masdupi et. al. [23], who discovered that liquidity displayed a negative and important impact on financial distress. Mugenyah (2015) showed that banks use reserves of their own when the rate of interest is higher rather than international borrowing and interest is paid the same. The investigator concluded, based on this evidence, that banks need to look at their profitability and liquidity to monitor their overall performance.

4.1.4 Asset Quality and Banks Firm Value

The findings on asset quality in graph4 for the years 2009-2020 show increase mean values from the years 2009 to 2020.

Capital adequacy as well as firm value decreased between the years 2009 to 2010 from a mean value of 13.95 to 13.57 in 2009 and 2010 respectively for capital adequacy while firm value dropped from 15.87 to 15.87 respectively in the same period. This was attributed to the devastating effects the global financial crisis of 2007-2008 which significantly negatively affected the availability of capital available for lending. The post-election skirmishes of the Kenya elections also had more devastating effects on the Kenyan economy especially the banking industry. Between the years 2014 and 2015 there was a slight increase in capital adequacy level owing to the recovering of the economy under the President Uhuru big 4 agenda and youth empowerment programmes which increased access to credit. This level later dropped from 13.44 to 12.41 as most investments shrunk owing to the country's preparation for the 2017 general election. Firm value also followed the same trend by dropping from 16.34 to 14.87. With a slight improvement in firm value and capital adequacy between the years 2016 to 2018 due to the relatively stable political environment, capital adequacy continued to show a downward trend following the announcement of the COVID 19 cases in Kenya. Between 2017 and 2018 firm value increased from 13.98 to 14.79 before reducing to 11.14 and then later increasing to 12.80 in the year 2020.

Meanwhile, over the same time, capital adequacy increased from 12.43 going up to 12.45 before reducing to 11.04 then to 10.47 in the year 2020.

The findings agree to Kaol [25] that return on assets clarifies performance. The correlation results showed that there was a clear significant relationship between the return of shareholders and the success of companies that had either merged or acquired. A low return on investment suggests that a company does not make adequate profits or overinvests in non-profitable properties. Furthermore, accumulation-based revenue management could, on the other hand, impact the exact access of investors to an association's authentic budgetary display. Subsequently, this can influence the drawn-out introduction of the reaction of the association to stuns. In this case, income management collections placed together are based on having a negative interaction with the association's money-related execution. As for the calculation of real money execution, the administration is robbed of the impact of spearheading benefit management activities, which are based on showing the association's certified estimate

4.1.5 Firm value over time

The findings for the firm value over time for the 11 listed banks in Kenya for the years 2009 to 2020 are as tabulated below.

Firm value registering various fluctuations despite these being minimal when compare to the IVs, between 2009 and 2010 it changed from 15.87 to 15.19 and then it registered an increase to 15.65 in the yea2011. These results reveal a steady increase in firm value between 2011 and 2014, from 15.65 in 2011 to 15.64 in 2012 then to 15.57 in 2013 then 15.71 in 2014 as it increased to 16.34 in the year 2015. this is followed by a sharp increase between 2016 and 2017 from 16.34 to 14.87 then reduced to 13.98. More fluctuations were exhibited between 2017 and 2020 changing to 14.79, then to 11.14 and up to 12.80.

4.2 Hypothesis Testing

4.2.1 Correlation and Regression

The above data was checked by Pearson's correlation method in panel results. When the likelihood value was higher than 5%, the data association between the approximate equation residual and the adjustable variable was missing.
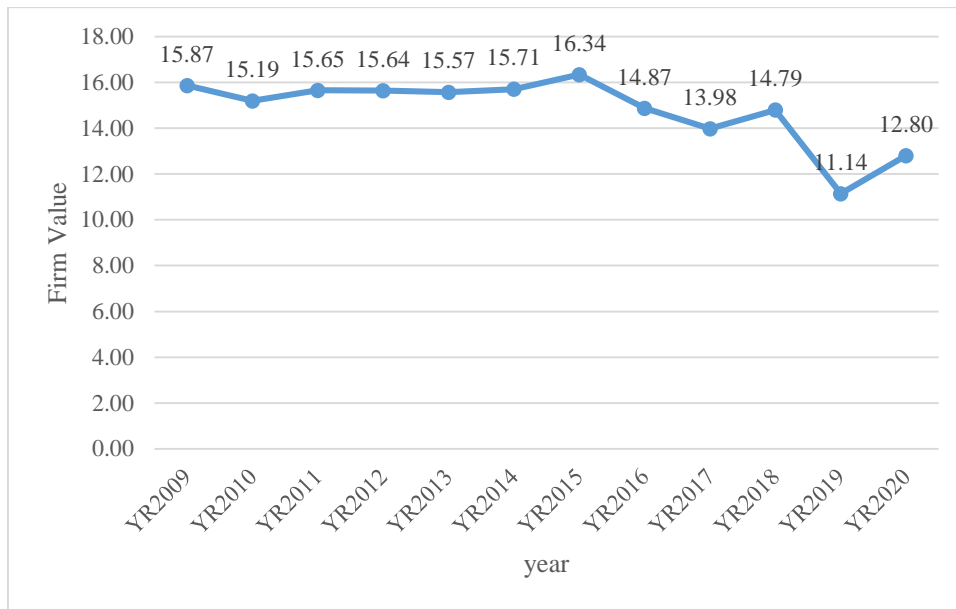
Graph 5. Firm value
Source: Research data (2021)

Table 1. Correlation Test

Correlations						
		Firm value	Capital Adequacy	Earning Ability	Liquidity	Asset Quality
Firm value	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	132				
Capital Adequacy	Pearson Correlation	.455**	1			
	Sig. (2-tailed)	.000				
	N	132	132			
Earning Ability	Pearson Correlation	.267**	.136	1		
	Sig. (2-tailed)	.002	.120			
	N	132	132	132		
Liquidity	Pearson Correlation	.489**	.448**	.104	1	
	Sig. (2-tailed)	.000	.000	.237		
	N	132	132	132	132	132
Asset Quality	Pearson Correlation	.417**	.334**	.182*	.298**	1
	Sig. (2-tailed)	.000	.000	.037	.001	
	N	132	132	132	132	132

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

From the findings in Table 1, it1was clear that1there was significant positive relationship between each of variables capital adequacy(p<.01), earning ability (p<.01), asset quality (p<.01) and liquidity (p<.01) and firm value. liquidity (p<.01; r=0.489 had the highest relationship which was a positively high and it was followed by capital adequacy (p<.01; r=0.455) which had a moderate positive relationship and then asset quality (p<.01;

r=0.417) which had a moderate effect and lastly earning ability (p<.01; r =0.267) which had low relationship with firm value.

Table 2 presents results for the model summary of multiple regression analysis (MRA) that was obtained when firm value was regressed against asset quality, earnings ability, capital adequacy, and liquidity.

According to Table 2, 6.77% of the variance in firm value of listed commercial banks in Kenya as shown by the R^2. The coefficient of determination of 0.3677 implies that against asset quality, earnings ability, capital adequacy, and liquidity explain 36.77 percent of the variance in firm value of commercial banks in Kenya.

The model goodness of fit tested using ANOVA had its results in Table 3.

From the analysis of variance in Table 3, the F Test of 20.048 indicates that the regressions explanatory power on the overall significance was strong. This was because ($F_{4,105} = 20.048$, $p < .001$) is greater than (F-critical$_{4,127}$ = 2.445). The significance value of p<0.01 obtained implies that the regression model was significant in predicting the relationship between financial soundness on firm value of commercial banks in Kenya and the predictor ariables as it was less than α = 0.05. This significance level means that the chances are almost zero that the results of the regression model were due to random exogenous events instead of the true relationship existing in the model. The MRA results are captured in Table 4.

Taking the year 2020 as the base year, generally there has been a significant improvement in firm value over the years. This is backed by the fact that these firms considered in the study had beta values of less than 0.05

The MRA results show that each of the capital adequacy (p<0.007), earnings ability (p=0.022), liquidity (p<0.01) and asset quality (p=0.004), and are significant estimators of firm value. The coefficients from the MRA model in Table 4 shows1that when each of; asset quality, earnings ability, capital adequacy, and liquidity is zero, then the value of firm value of listed commercial banks in Kenya will be 1.905. A unit increase in capital adequacy will lead to 0.340 units' increase in firm value, a unit increase in earning ability will lead to 0.186 increase in firm

value, a unit increase in liquidity will lead to a 0.339 decrease in firm value and a unit increase in asset quality will lead to 0.308 increase in firm value. On the opposite, a unit decrease in capital adequacy will lead to 0.340 units' decrease in firm value, a unit decrease in earning ability will lead to 0.186 decrease in firm value, a unit decrease in liquidity will lead to a 0.339 increase in firm value and a unit decrease in asset quality will lead to 0.038 decrease in firm value.

Accordingly, the prediction model below was constructed;

$$Y = 1.905 + 0.340X_1 - 0.186X_2 + 0.339X_3 + 0.308X_4$$

To implies that

Firm value of listed banks = 1.905+ 0.340 Capital adequacy - 0.186Bank liquidity + 0.339Asset quality+ 0.308Earnings ability

Importantly, in this analysis, findings obtained indicate that the adequacy of capital has a significant positive impact on the firm valuation of Kenyan commercial banks to agree with Mananda [19] that capital adequacy is a deciding factor in banks' bank performance. However, Kaol [25] research indicates that the higher the capital adequacy ratio an entity has, the lower the institution's financial performance. However, the outcomes of Nyabaga and Matanda [1] research suggests major positive impacts on equity and asset returns of capital adequacy while Boateng [6] found capital adequacy as positively influencing the efficiency of Ghanaian banks.

The study by Ndungu [22] found that earnings (measured by ROA) positively and significantly affected financial distress. The observations, however, differ from those of Masdupi et al. [23], which indicate that the earnings ability affects financial distress adversely and significantly. In agreement with the presents study findings, the report by Boateng [6] showed that earnings stood out as the highly relevant factor affecting the success of banks in Ghana. These results confirmed those from Mananda [19] that earnings potential is positively insignificant linked success of commercial banks. It was discovered that earnings potential was insignificant and positively linked to bank results. Banks improve their efficiency by managing overheads. In total, banks have three available streams of funding, in the form of retained profits, debt instruments and

equity. The study by Kamande et al. [24] revealed a weak positive correlation between the ROA in commercial banks and earnings potential.

As per the findings, the negative impact of liquidity management on firm value among Kenyan commercial banks was insignificant to confirm the findings in the research by Musyoka [26] that the relationship between liquidity and ROA is negative and insignificant. Furthermore.

Mananda [19] study that found that liquidity was insignificantly and negatively linked to asset return. However the results of the study by Musyoka [26] show that there is insignificant relationship between financial success and liquidity. While Onyango and Olando [2] research showed that the liquidity ratio has a negative low significant association with non-performing loans. But Onyekwelu et al. [18] found that liquidity had a positive and significant impact upon the e profitability ratios of banks.

Table 2. Regression Model Summary

Model Summary[b]			
R	R Square	Adjusted R Square	Std. Error of the Estimate
.622[a]	.3870	.3677	3.80141

a. Predictors: (Constant), Asset Quality, Earning Ability, Liquidity, Capital Adequacy
b. Dependent Variable: Firm value

Table 3. ANOVA Outcomes

ANOVA[a]					
	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1158.822	4	289.705	20.048	.000[b]
Residual	1835.238	127	14.451		
Total	2994.060	131			

a. Dependent Variable: Firm value
b. Predictors: (Constant), Asset Quality, Earning Ability, Liquidity, Capital Adequacy
Source: Research data (2021)

Table 4. Regression Coefficients Results

Parameter Estimates						
Dependent Variable: Firm value						
Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	1.905	1.867	1.020	.310	-1.793	5.603
[Year=2009]	-.907	1.727	-.525	.601	-4.327	2.514
[Year=2010]	-1.361	1.726	-.789	.432	-4.778	2.057
[Year=2011]	-1.141	1.731	-.659	.511	-4.569	2.287
[Year=2012]	-.995	1.725	-.576	.565	-4.412	2.422
[Year=2013]	.127	1.706	.074	.941	-3.252	3.506
[Year=2014]	-1.273	1.726	-.738	.462	-4.691	2.145
[Year=2015]	-.414	1.734	-.239	.812	-3.848	3.020
[Year=2016]	-.864	1.695	-.510	.611	-4.220	2.493
[Year=2017]	-1.788	1.692	-1.057	.293	-5.140	1.564
[Year=2018]	-1.266	1.698	-.746	.457	-4.630	2.097
[Year=2019]	-3.765	1.669	-2.256	.026	-7.070	-.459
[Year=2020]	0[a]	.	.	.	.	.
Capital Adequacy	.302	.130	2.324	.022	.045	.559
Earning Ability	.186	.084	2.210	.029	.019	.353
Liquidity	.377	.091	4.136	.000	.196	.558
Asset Quality	.297	.111	2.682	.008	.078	.516

a. This parameter is set to zero because it is redundant

Asset quality had insignificant positive effect on firm value among Kenyan commercial bank. Although was shown to have had an association with firm value (p = .008) it had an insignificant effect on the firm value. This agrees to the findings in the study by Nyabaga and Matanda[1] which indicated insignificant positive effect on ROA [29]. However, in the study by Boateng [6] assets quality was found to be significantly affecting the performance of Ghanaian banks while Musyoka [26] showed a negative and insignificant relationship between asset quality and ROA.

5. CONCLUSIONS AND RECOMMENDATIONS

5.2 Conclusion

The study concludes that liquidity has negative moderate and significant effect on firm value of listed commercial banks in Kenya.

In conclusion, the study infers that capital adequacy has a strong positive significant effect on firm value of listed commercial banks in Kenya.

The study further concludes that asset quality has a strong positive significant effect on firm value of listed commercial banks in Kenya.

The study concludes that earnings ability has a strong moderate significant effect on firm value of listed commercial banks in Kenya.

5.3 Recommendation

Founded on the research outcomes about in this analysis, the researcher made a number of recommendations at both firm, and policy levels. Firstly, managers of listed banks should embrace utilization of internally generated equity capital. This mode of financing presents a cheaper and readily accessible source of capital that ultimately promotes credit risk assessments of the firms. The finance managers should utilize external equity sparingly as excessive use of this mode of financing invariably drove the firms to financial distress.

At policy level, government should ensure that a conducive economic environment is maintained for the firms to remain productive. This would enable firms to build more internal capital in form of retained earnings and reserves that fosters their levels of credit risk assessments. This could

be achieved by ensuring low levels of inflation and foreign exchange rates are maintained which translate to stable market interest rates.

Secondly, the regulator of the capital markets (CMA) should maintain stringent measures to ensure that only in deserving cases are listed banks allowed to issue external equity. This could be done by raising the level of compliance threshold as well as conducting a thorough analysis of corporate financial performance prior to giving approval for equity issuance.

5.3.1 Recommendations for further research

As part of the analysis, the impact of credit risk assessments on the firm valuation of commercial banks in Kenya was analysed using the variables selected. Future scholars who could be involved in validating the accuracy of the outcome and presenting additional findings for this study may also provide other variables such as ownership within the banks, macro-economic, corporate governance.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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