



Bankometer Appraisal of Commercial Banks Soundness in Nigeria

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Abstract: This study appraised the soundness of the old and new generation banks using Bankomter. The objective was to examine the difference between the old and new generation banks between 2019 and 2020. Time series data of the variables were sourced from financial statements of the quoted commercial banks within the period. The study used capital adequacy, capital assets ratio, equity to total assets, nonperforming loans ratio, income ratio and loan to assets ratio. Simple average and ranking was used as data analysis method. The result measured the Bank soundness using Bankometer S-score which assigned different weight to the variables of the model. From the analysis the Union bank is ranked the first while United Bank for Africa is rank the second while Stanbic IBTC is ranked third. However, the banks are judged to sound based the value of the S-score which is greater than 50 in 2019. From the analysis the Wema bank is ranked the first while Sterling is rank the second while United Bank for Africa is ranked third. However, the banks are judged to sound based the value of the S-score which is greater than 50 in 2020. From the findings the study concludes that there is no significant difference between the old and the new generation banks. The recommend that policies should further be made to deepen the capital adequacy of the commercial banks to enhance capital adequacy of the quoted commercial banks in Nigeria and the management and the regulatory authorities should ensure that the asset quality of the commercial banks is line with international standard.

Keywords: Bankometer Appraisal, Commercial Banks Soundness, Capital adequacy, new generation Bank, Old generation Bank

INTRODUCTION

Deposit money banks financial soundness evaluation is essential for the smooth operations of the banking sector, this is done to detect and remove potential vulnerabilities. The banking system provides a framework for economic transactions, any disruption in its activities affects both the depositors and creditors and also the overall economy making it mandatory for the efficient valuation of the soundness of the banks to ensure that corrective measures are timely to guard against its exposure to fragility. Therefore, it is not surprising that the banking sector is one of the most regulated in any economy. Banks are important component of the financial sector of any economy because of their role as financial intermediaries that helps facilitate capital to promote productivity thereby enhancing growth and development in the economy, but this role can only be played effectively when the banks are health, sound and stable (Qamruzzaman, 2014). There are several methods that can be used to predict bankruptcy, but the researchers choose to use the

Bankometer S- score method because its elements are specifically tailored to the banking industry. The Bankometer S- score method is a method developed based on International Monetary Fund recommendations. This method is also easier to be use and is more accurate. In addition, the process of developing this model is in accordance with the conditions of the banking system so that it can better illustrate the performance of a bank. This method is also used by a number of researchers to predict bankruptcy in the banking sector.

In 2002, the International Monetary Fund (IMF) developed a new model called Bankometer (S-Score). This model is a modification from the CAMELS stress test parameters. The modification was made only to synthesize the measurement of banks soundness. This procedure has a minimum number of parameters with a maximum of accurate results (Qamruzzaman, 2014). Yameen and Ali (2016) used Bankometer to evaluate the financial health of 13 banks located in Jordan. It can be concluded that the banks examined are financially



healthy. Bankometer model can help internal management of a bank to avoid bankruptcy with precise control over their operations and can help quantify the problem of solvency. A study conducted by Qamruzzaman (2014) compares the Z-Score model and Bankometer in assessing the financial health of private banks in Bangladesh for the period 2008 to 2012. The result of the Bankometer model shows the Bank to be in good financial health, while the Z-Score model shows the possibility of bankruptcy.

Bankometer ratios are derived from both the CAMELS stress test parameters with some modifications. The changes in the selected ratios are made only to synthesize the measurement of banks soundness. Following IMF (2000) recommendations, the procedure of Bankometer is used to measure commercial banks in Nigeria. This procedure has the quality of minimum number of parameters with maximum accurate results. The parameters include: Capital Adequacy Ratio (CA between 8% to 40%), Capital to Assets Ratio (CAR higher than 4%), Equity to total Assets (EAR greater than 2%), NPLs to Loans (below 15%), Cost to Income ratio (less than 40%) and Loan to Asset Ratio (below 65%). The Bankometer S- score model is a model used for evaluating the soundness of a bank with the Solvency (S-score) parameter developed based on the IMF recommendations. Bankometer S- score is a comprehensive procedure developed based on the author's initiative which makes the IMF recommendations (2000) as the basis for developing the model. The S- score bankometer was developed to measure vulnerability in financial institutions and is better than other models such as the Altman Z- score because the model is adjusted for the banking industry. This model was developed to improve bank's performance and soundness, and it is hoped that this model can help the internal management team to avoid bankruptcy. This model is expected to help potential investors, account holders and bank management in making decisions and controlling the financial system to avoid the possibility of future financial crises. The Bankometer S- score method can be used to compare two different types of banks, namely Islamic and Conventional Banks in Nigeria.

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LITERATURE REVIEW

Bankometer

The ability to predict which banks is vulnerable to financial distress is critically important for Central Banks, creditors and equity investors (Shar *et al.*, 2010). When a bank goes insolvent, creditors often lose portion of the principal and interest payments, while equity investors can potentially lose all of their investments (Shar *et al.*, 2010). Therefore, It is important for management to focus more on trying to predict the banks that are vulnerable to financial distress in the near future by using bankometer model (Shar *et al.*, 2010). Ratios used within the bankometer model are ratios taken from CAMEL model and CSLA (*Credit Leona's Securities Asia*) stress test model with slight changes in their limits and percentages (Shar *et al.*, 2010). International Monetary Fund (IMF) has developed a model with norms to identify the financial soundness of the firms. This chapter deals with analysis of financial soundness of select banks and identification of the factors that determine the financial soundness of select banks in India through Bankometer model. Bankometer model is applied at global level which prescribes a procedure to gauge the weakness of an individual bank. The Model helps to find the solvency scores of the banks to avoid insolvency issues and to measure the financial position by taking into account the contribution of each ratio in the model according to the IMF (2000) norms.

Capital to Asset Ratio calculates how much assets are financed either by equity or long term debt, the greater the ratio means that the bank is much more secure as the



assets are financed by long term funds. As per the Bankometer criteria capital to assets ratio of the bank should be greater and equal to 4 percent. It is found that over the study period of time this ratio is above the criteria which indicates our banks are good capitalized. Further if we check the progress of the capitalization, in year 2009 this ratio was 8.09 percentages which decreased up to 5.96 percent in year 2018. Which indicates that Indian banks are successfully meet its capital requirements.

CAR should remain above the prescribed limit as per Basel III [Minimum Common Equity Tier 1 Ratio plus Capital Conservation Buffer of 8percentage, Minimum Total Capital Ratio (Minimum Tier 1 Capital Ratio + Tier 2 Capital) of 9percentage and Minimum Total Capital Ratio plus Capital Conservation Buffer of 11.50percentage] in which it is above all the minimum limit prescribed by the Reserve Bank of India which is considered to be highly safe in terms of capital.

Capital Adequacy Ratio

Since Capital adequacy ratio (CAR) is the ratio that is set by the regulatory authority in the banking sector, and this ratio can used to test the health of the banking system. Hence, capital adequacy ratio for banking organizations is an important issue that has received a considerable attention in finance literature. According to Al-Sabbagh (2004), capital adequacy is defined as a measure of bank's risk exposure. Banks risk is classified into credit risk, market risk, interest rate risk and exchange rate risk that are included in the calculation of capital adequacy ratio. Therefore regulatory authorities used capital adequacy ratio as an important measure of safety and soundness for banks and depository institutions because they view capital as a buffer or cushion for absorbing losses.

Theoretical Framework

Buffer Theory of Capital Adequacy

The objective of ensuring that bank capital is adequate is to withstand and absorb monetary and macro-economic shocks which bank operation is very sensitive. However, banks may prefer to hold a buffer of excess capital to reduce the profitability of falling under the legal capital requirements, especially if their capital adequacy ratio is very volatile (Ikpefan, 2013). Capital adequacy has in recent time gone beyond that of banking supervision instrument and become a monetary policy tool of achieving financial stability. Section 7 (2) of BOFIA

states that any banks that fail to comply with the capital adequacy within such period as may be determined by the CBN shall be a ground for revocation of license. Section 13 states that bank shall maintain at all times capital funds unimpaired by losses in such ratio to all or any assets or to all or nay liabilities or both such assets and liabilities of the bank and all its offices in and outside Nigeria as may be specified by CBN. The revocation of some banks license in 2005 after the consolidation and recapitalization reforms were reference to these sections. The buffer theory of Calem and Rob (1996) predicts that a bank approaching the regulatory minimum capital ratio may have an incentive to boost capital and reduce risk in order to avoid the regulatory costs triggered by a breach of the capital requirement. The collapse of some Nigerian Banks has been traced to high risk taking couple with poor capitalization.

Empirical Review

Permata and Purwanto (2018) analyzed the soundness of banking companies listed in the Indonesia Stock Exchange (IDX) during the period of 2012-2015 using CAMEL, Z-Score and Bankometer analysis tools. The study aimed to find the differences and appropriate analytical tools that can be used in analyzing the health of a banking company in Indonesia. Existing samples in this study were banking firms. After analyzing the financial statements and calculating the variables, research showed that there were differences from each analysis tool.

Al Zaabi (2011) shows the Z-Score model can predict bankruptcy and measures the financial performance of Islamic Bank in the UAE. Anjum (2012) stated that Altman's Z-Score model can be applied in modern economics to predict distress and bankruptcy from one, two and three years in advance. Going beyond the CAMEL and Z Score models and based on the recommendation of the International Monetary Fund (IMF), bank health can also be measured through the Bankometer equation (S-Score). The ratio used in this Bankometer consists of six ratios: namely Capital Asset Ratio (CA), Equity to Asset (EA), Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), Cost to Income (CI), and Loan to Asset (LA). Yameen and Ali (2016) analysed 13 banks using the Bankometer and the result is the banks are in good health and that Bankometer models are considered capable of detecting the problem of bankruptcy and can help quantify the



problem of solvency. In reference to these three models, the current research is conducted to analyse the soundness of banking companies that are listed on the Indonesia Stock Exchange (IDX) in the 2012-2015 period by using CAMEL, Z-Score, and Bankometer. This conceptual framework was adapted from Erari *et al.* (2013). The research conducted by Erari *et al.* (2013) applies CAEL, Z-Score and Bankometer to analyse the performance of the Bank of Papua and then compares the results of the analysis. The results of the analysis CAEL and Bankometer show that Bank Papua is in a healthy condition four the years between 2003-2011, whereas the Z-Score analysis shows that the Bank Papua in 2007 and 2011 to be in bankruptcy.

Reddy and Prasad (2011) adapted the CAMEL model to measure the financial soundness of regional rural banks, namely Andhra Pragathi Grameena Bank and Saphthagiri Grameena Bank. Research shows that the overall performance of Andhra Pragathi Grameena Bank is better than Saphthagiri Grameena Bank. Shar *et al.* (2010) use the CAMEL model to evaluate the performance and efficiency of the banking sector in Pakistan at the time before and after reforms. The results showed that before the reform of the banks in Pakistan there was in chaos. But overall after the reform, the soundness of the banking sector showed improvement and the positive impact of the reforms. Adjacent to Pakistan, Reddy (2012) conducted a study using the CAMEL approach for evaluating the performance of the Bank of India. Reddy (2012) concluded that the CAMEL approach is an important tool for assessing the financial strength of a bank and it is helpful in suggesting necessary action to rectify the weaknesses of the Bank. The model was further reinforced by Roman and Sargu (2013) who analysed the health of 15 banks in Romania using the CAMEL approach and from the research, they suggested the 15 banks needed to improve and enhance their performance.

Erari *et al.* (2013) apply the CAEL model in analysing the financial performance of the Bank Papua from year 2003 to 2011. Analysis with the CAEL model shows that the Bank Papua during the year 2003-2011 was in a good health condition, very liquid, had strong capital, could manage well, had good profitability, asset quality was good but that the Bank Papua still lacked in efficiency. Yuksel *et al.* (2015) examined the effect of the ratio of CAMEL as a determinant of the level of credit from

deposit banks in Turkey. The results showed that the three components of CAMEL, namely Asset Quality, Management, and Sensitivity to Market Risk influential in the level of credit while the Capital Adequacy and earning no effect. Turkish deposit banks should focus on fixed assets and interest income to have a better ranking. Nimalathasan *et al.* (2012) examined the financial condition of the Bank in Sri Lanka using Bankometer. The results showed that the government banks are in a better solvency position than the private banks. Fayed (2013) analyses and compares the performance of three Islamic banks and six conventional banks in Egypt by using financial ratios to measure profitability, liquidity and credit risks as well as utilizes Bankometer for measuring solvency. Then, Shar *et al.* (2010) applies Bankometer, CAMEL and CLSA stress tests on the banking sector in Pakistan. Banks that are healthy through stress tests CLSA also were declared healthy through Bankometer test results.

Onyema and Okey (2019) evaluation of financial soundness of selected commercial banks in Nigeria: An application of Bankometer S-score model. In this research different statistical tools and financial indicators were used to analyze the financial soundness of selected banks. It was found from the research that a bank with investments, higher deposits, branches, loans and employees does not always reflect better profitability. The research also recommended measures that could be implemented to ensure soundness in bank operations.

Kattel (2018) examined the financial solvency of Selected Commercial Banks of Nepal using application of Bankometer covering the period 2007- 2012. The study established that all the private and joint venture banks are in sound financial position and private sector banks are financially sounder in comparison to joint venture banks. The study also concludes that this recent model for financial soundness measurement will help the bank's internal management in mitigating the insolvency issues by proper control and supervision system at the operational level.

Qamruzzaman (2020) made an attempt to predict bankruptcy of selected private commercial Banks in Bangladesh using “Bankometer’s S-score and Altman “Z-score” model for this analyses, the researcher selected 20 banks from a pool made of 30 publicly listed commercial banks in Dhaka Stock exchange. He found that both Altman Z-score and Bankometer’s S-score



showed similar results about financial position of the selected banks in 2008, 2009 and 2010 but there were exceptions 2011 and 2012.

Erari, Salim, SyafieIdrus & Djumahir (2018) applied three different models such as; CAMEL, Z-score and Bankometer in assessing financial performance of P.T Bank Papua covering the period 2003-2011. Their study revealed that both CAMEL and Bankometer have showed same assessment in determining financial position but Altman's Z-score model (2008) has reversely put Papua banking industry in to gray zone. This study also implied that Z-score model is not suitable for evaluation of banking industry having some limitations. However, the study concluded that Z-score model provides early indication about bankruptcy in assessing financial performance and based on the results of above mentioned three models; Bank Papua's profitability is good.

Makkar & Singh (2015) examined the solvency of 37 Indian commercial banks covering the period of 2006-07 and 2010- 11 using the Bankometer model. They checked whether analyzing the vulnerability of financial distress on the banks is better than the conventional methods like CAMELS and CLSA Stress test. The study found that all the Indian banks are financially solvent and also showed that private sector banks are financially more sound than public sector banks. This study also revealed some unperformed banks and concluded that Bankometer model will assist internal management in avoiding insolvency issues. Arulvel and Balaputhiran (2017) conducted a study of financial performance analysis of private and state owned banks of Sri Lanka using statistical tools like Data Environmental Analysis, CAMELS and Bankometer model. The study covered the period 2006-2010 and assessed financial performance by applying different, they reported that state owned financial institutions performed better than the commercial counterparts.

Shar, Shah & Jamali (2019) examined the performance of banking sector in Pakistan using the Bankometer model by applying it to test the solvency of each bank covering the period 1999- 2002 for evaluation in Pakistan. The results were compared with CAMEL and CLSA-stress test for conducting better comparison. The study concluded that Bankometer S-score scale can be applied at global level to predict the vulnerability of an individual bank.

Ivica, Maja & Bruno (2019) carried out a study to assess companies' bankruptcy using statistical tools from Croatia's commercial banks. Exactly 78 Bankrupt Companies and 78 healthy companies were sampled and statistical model of DA and LR were used. DA model has 79% accuracy in bankruptcy predication while LR model is more robust. Rahman (2017) examined the soundness of twenty- four selected private banks in Bangladesh using the Bankometer model to measure the health status of selected banks from 2010 to 2015. The study revealed that all selected banks were sound individually and the financial system was in a favorable position during period under review. This study aims at analyzing the financial soundness of the commercial banks that operate in Nigeria using the Bankometer S-score model. This study followed the quasi experimental research design to investigate and analyze the relationship among selected bank's performances using the Bankometer S-score model. The data for this study is from 10 selected banks in Nigeria and the scope of the study is from 2000 to 2015. Bankometer S-score model Bankometer ratios are derived from both the CAMELS and CLSA stress test parameters with some modifications. The changes in the selected ratios are made only to synthesize the measurement of banks soundness.

Samanhyia, Oware, & Anisom-Yaansah (2016) found that Altman Z-Score Model and Boone indicator could be used to predict financial distress in the banking sector. Africa (2016) found that there was a financial ratio included in the risk analysis that could be used to predict financial distress in a bank go public in Indonesia namely LDR. Kurniawati & Kholis (2015) found that the accuracy level of the financial distress prediction model in Syariah banking sector was: the first level was the Grover Model, the second level was the Springate Model, and the third level was the Altman Model.

Husein & Pambekti (2014) found that of the four models of Altman, Springate, Zmijewski, and Grover, the best used in predicting Syariah firms was the Zmijewski model. The latest prediction model is the Bankometer Model. The research on this model has not been much done, and the samples selected in the form of banking financial statements are still very few. One study was conducted by Laila & Widihadnanto (2017) on the application of Bankometer Model in Syariah banking and conventional banking. The result showed that Bankometer Model could be applied to predict financial



distress in Syariah banking and conventional banking. Between the two firms, there was no difference in the application of the model.

Akani and Lucky (2015) examined capital adequacy ratios and the impact on the profitability of Commercial Banks in Nigeria from 1980 – 2013. The objective is to investigate whether there is a dynamic long run relationship between capital adequacy ratios and the profitability of commercial banks. Time series data were sourced from Stock Exchange factbook and financial statement of quoted commercial banks and the Johansen co-integration techniques in vector error correction model setting (VECM) as well as the granger causality test were employed. The study has Return on Asset (ROA), Return on Investment (ROI) and Return on Equity (ROE) as the dependent variables and the independent variables are Adjusted Capital to Risk Asset Ratio (ACRR), Capital to Deposit Ratio (CTD), Capital to Net Loans and Advances Ratio (CNLAR), Capital to Risk Asset Ratio (CRA) and Capital to Total Asset Ratio (CTAR). The empirical result demonstrated vividly in the models that there is a positive long run dynamic and significant relationship between return on asset and capital to risk asset ratio and capital to deposit ratio while others are negatively correlated. The findings also revealed that there is bi-directional causality running from ROA to ACRR and ROA to CNLAR.

Buyuksalvarci and Abdioglu (2011) investigated the determinants of Turkish banks' capital adequacy ratio and its effects on financial positions of banks covered by the study. Data are obtained from banks' annual reports for the period 2006 - 2010. Panel data methodology is used in this study and analyzes relationships between independent variables; bank size, deposits, loans, loan loss reserve, liquidity, profitability (return on assets and return on equity), net interest margin and leverage and a dependent variable which is capital adequacy ratio (CAR). The results of the paper indicate that loans, return on equity and leverage have a negative effect on capital adequacy ratio, while loan loss reserve and return on assets positively influence capital adequacy ratio. On the other hand, bank size, deposits, liquidity and net interest margin do not appear to have any significant effect on capital adequacy ratio.

Samad (2011) sought to determine capital ratio that significantly distinguishes failed banks from a group of non-failed peer banks can be used in providing an early

warning signal for bank management and bank regulators. The study tested the hypothesis by using the ANOVA and the Kruskal-Wallis K tests t on four measures of capital adequacy. Data for all failed and survived banks during 2009 are obtained from the call reports of FDIC. Finding Both ANOVA and non-parametric, Kruskal-Wallis, tests strongly supports the hypothesis that there are significant differences between the two groups of banks with respect to their capital holding ratios.

Williams (2011) investigated the impact of banks characteristics, financial structure and macroeconomic indicators on banks' capital base in the Nigerian banking industry. The study did not account for ratio analysis in the computation of capital adequacy but rather it examined the determinant of capital adequacy in Nigeria during the period 1980 – 2008 within an error correction frame work. They used the error correction methodology to a regression model based on the traditional determinants of capital adequacy in the banking sub-sector of the Nigeria economy distilled from the literature. The independent variables are total loans, money supply, domestic interest rate (real), inflation rate, demand deposit, political instability dummy, exchange rate, liquidity risk, openness of the economy (total trade /GDP ratio), investment. Finding were Co-integration technique revealed that economic indicators such as rate of inflation, real exchange rate, demand deposits, money supply, political instability, return on investment are most robust predictors of the determinants of capital adequacy in Nigeria.

Yuanjuan and Shishun (2012) analyzed the effectiveness of China's Commercial Banks' Capital Adequacy Ratio Regulation. This study sample data 2006-2010 China's 16 listed commercial banks. The capital adequacy ratio (CAR) as a dependent variable, the indicators reflect the level of bank risk and capital structure. In addition to select the following indicators: return on assets (ROA), return on net assets (ROE), earnings per share (EPS) as explanatory variables, these three indicators are to a certain extent, on behalf of the bank's profitability. The finding of the study was Significant positive correlation between the capital adequacy ratio of commercial banks and bank performance level of a certain range, indicating that the capital adequacy requirements on China's commercial banks, has only played a regulatory role to play to a certain extent to resist risks role.



Romdhane (2012) employed half-yearly data from the Tunisian banking industry for the period 2002- 2008. They used the standard capital determinants as explanatory variables. The dependent variable was capital ratio while the explanatory variables were risk, interest margin rate cost of equity, demand deposits variability, intermediation rate, term deposit/ demand deposit, average capital adequacy ratio, size of the bank. They found that the interest margin and the risk affect strongly the capital ratio. The deposit variability and the intermediation rate have the same sign. But, the equity cost and the deposits ratio both have a negative impact. The main determinants are the same for all the countries. Ezike and Oke (2013) investigated the impact of the adoption of the Capital Adequacy Standards on the performance of Nigerian banks. The study involved the use of ordinary least squares (OLS) estimation technique to examine and determine the effect of the independent variables loans and advances, shareholders' funds, total assets and customer deposits on the dependent variables Earnings per share (EPS) and profit after tax. The results of the analysis showed that capital adequacy standards exert a major influence on bank performance. In addition the impact of the Nigerian monetary authority on the new capital requirements was found to be complemented with the adoption of the Basle accord framework. In addition, the study concludes with the recommendation that the CBN should not rely solely on the capitalization of banks as a determinant of bank performance but also should concentrate on efficient and effective bank supervision and risk management.

Yunisa and Omah (2013) examined the role of capital adequacy ratios in deposit money banks in Nigeria. Data procurement was based on parliolitic track of transactions of specific financial institutions under consideration (Nigeria). The analysis was tailored to harness the meritorious advantages of capital adequacy ratio in banks and other financial institutions. The study reveals that the higher the capital adequacy ratio, the greater the level of unexpected losses it can absorb. The study also reveals that capital adequacy ratios measure the amount of a bank's capital in relation to the amount of its risk weighted credit exposures. The risk weighting process takes into account the relative riskiness of various types of credit exposures that banks have, and incorporates the effect of off-balance sheet contracts on credit risk. The higher the capital adequacy ratios a bank

has, the greater the level of unexpected losses it can absorb before becoming insolvent. Finally, the study reveals that the Basel Capital Accord is an international standard for the calculation of capital adequacy ratios. The Accord recommends minimum capital adequacy ratios that banks should meet. The CBN applies the minimum standards specified in the Accord to licensed banks. This helps to promote stability and efficiency in the financial system, and ensures that deposit money banks comply with generally accepted international standards.

METHODS

The study used descriptive research design approach for the data analysis. The approach combined theoretical consideration with the empirical observation and extract maximum information from the available data. The population for this study includes the 22 licensed commercial banks in Nigeria as at December, 2020 (CBN, 2020). Eight commercial banks were selected as the sample size of the study based on the availability of data. The data in this study was sourced from the publications of Central Bank of Nigeria statistical bulletin and stock exchange Factsheets.

Data Analysis Methods

Descriptive analysis will be used to analyses commercial bank soundness using bankometer. Descriptive analysis is a basic statistical tool which is widely used to analyses and interprets secondary data. Descriptive statistics provide simple summaries about the sample and about the observations that have been made. Such summaries may be either quantitative. Descriptive statistics is a powerful beast of burden: (1) It collects and summarizes vast amounts of data and information in a manageable and organized manner, (2) A fairly straightforward process that can easily translate into results in a distribution of frequency, per cents and overall averages. (3) Establishes standard deviation, (4) It's used when it may not be desirable to develop a complex Research models, (5) Deals with immediate data and single variables rather than trying to establish conclusions, (6) Can identify further ideas of research, (7) A good primer to learn about statistical processes, and (8) Can lay the groundwork for more complex statistical analysis.

Mean: The average difference between the two variables.

Standard deviation: The standard deviation of the difference scores.



Standard error mean: The standard error (standard deviation divided by the square root of the sample size) used in computing both the test statistic and the upper and lower bounds of the confidence interval.

t: The test statistic (denoted t) for the paired T test.

df: The degrees of freedom for this test.

Sig. (2-tailed): The p -value corresponding to the given test statistic t with degrees of freedom df .

Calculating the value of S-Score and position of the select banks under study by using Bankometer model:

$S = 1.5X_1 + 1.2X_2 + 3.5X_3 + 0.6X_4 + 0.3X_5 + 0.4X_6$ (1)

Where:

X_1 = CA or Capital Asset Ratio X_2 = EA or Equity to Asset X_3 = CAR or Capital Adequacy Ratio X_4 = NPL or non-performing loans to Loans X_5 = CI or Cost to Income X_6 = LA or Loan to Asset Criteria to be considered: a) for the value of $S < 50$ means that the company is experiencing financial difficulties and high-risk. b) For the value of $50 < S < 70$ then the company is considered to be in the gray area (gray area). c) For S greater than 70, provide an assessment that the company is in a very healthy state.

ANALYSIS AND DISCUSSION OF FINDINGS

Table 1: Bankometer Appraisal of Old and New Generation Banks (2019)

Bank	CR	CAR	ETAR	NPLR	CTIR	LTAR	S-Score	Rank
The Old Generation Bank								
First Bank Plc	4.9	2.5	7.0	4.9	6.20	4.3	51.73	7
United Bank for Africa Plc	5.0	9.1	6.8	3.7	11.6	4.8	57.36	2
Union Bank Plc	4.0	3.8	8.1	6.6	8.4	7.8	59.63	1
Wema Bank	9.4	11.3	8.3	6.91	12.1	7.45	53.62	5
The New Generation Bank								
Stanbic IBTC Plc	3.2	10.4	4.9	6.1	3.37	9.2	54.67	3
Zenith Bank	4.7	11.7	10.5	5.3	5.7	6.78	53.74	4
Sterling Plc	7.77	8.83	8.14	7.64	5.88	7.74	51.89	6
Stanbic IBTC Plc	2.3	8.2	6.4	4.5	13.4	8.30	50.63	8

Source: Financial statement 2021

Table 1 appraised the old and new generation banks using the Bankometer indices in 2019, the result of analysis using solvency or Bankometer model. The result measured the Bank soundness using Bankometer S-score which assigned different weight to the variables

of the model as shown in the equation. From the analysis the Union bank is ranked the first while United Bank for Africa is rank the second while Stanbic IBTC is ranked third. However, the banks are judged to sound based the value of the S-score which is greater than 50.

Table 2: Bankometer Appraisal of Old and New Generation Banks (2020)

Bank	CR	CAR	ETAR	NPLR	CTIR	LTAR	S-Score	Rank
The Old Generation Bank								
First Bank Plc	4.34	5.45	11.40	8.54	18.53	8.46	61.90	3
United Bank for Africa Plc	8.13	8.17	5.22	8.18	11.20	8.16	59.64	5
Union Bank Plc	5.18	5.19	16.19	6.21	6.20	6.22	61.53	4
Wema Bank	6.40	6.26	6.41	10.44	6.53	6.39	68.83	1
The New Generation Bank								
Stanbic IBTC Plc	5.39	5.44	6.42	6.49	8.52	8.42	56.73	7
Zenith Bank	8.18	6.22	8.18	8.20	8.20	8.20	59.36	6
Sterling Plc	8.26	18.25	17.27	8.24	8.22	6.24	62.63	2
Stanbic IBTC Plc	9.35	8.46	8.53	0955	7.48	7.41	53.73	8

Source: Financial statement 2021

Table 2 appraised the old and new generation banks using the Bankometer indices in 2020, also the result of analysis using solvency or Bankometer model. The result measured the Bank soundness using Bankometer

S-score which assigned different weight to the variables of the model as shown in the equation. From the analysis the Wema bank is ranked the first while Sterling is rank the second while United Bank for Africa is ranked third.



However, the banks are judged to sound based the value of the S-score which is greater than 50.

Discussion of Findings

The objective of the study was to appraise commercial banks soundness using the bankomter indices. The study found that there is no significant differences capital base of the old and the new generation banks which means that the hypothesis was not rejected. The finding of the study implies that the new and the old generation banks are the same in the capital adequacy. This finding confirms the findings of Lucky and Akani (2018) that there is no significance difference on the capital adequacy of commercial banks in the pre and post consolidation reforms. Permata and Purwanto (2018), Al Zaabi (2011), Anjum (2012) Yameen and Ali (2016), Erari *et al.* (2013) that they used only one sample bank, Bank Papua in the 2003-2011 period. The current research avoids this limitation and therefore uses 23 banking companies listed in Indonesia Stock Exchange (IDX) in the 2012-2015 periods as the sample. In addition, this research uses CAMEL in contrast to Erari *et al.* (2013) that use CAEL. The inclusion of management (M) in the model is important to the current research.

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found that there is no significant differences capital equity ratio of the old and the new generation banks which means that the hypothesis was not rejected. The finding of the study implies that the new and the old generation banks are the same in the capital adequacy. This finding confirms the findings of Lucky and Akani (2018) that there is no significance difference on the capital adequacy of commercial banks in the pre and post consolidation reforms. Permata and Purwanto (2018), Al Zaabi (2011), Anjum (2012) Yameen and Ali (2016), Erari *et al.* (2013) that they used only one sample bank, Bank Papua in the 2003-2011 period. The current research avoids this limitation and therefore uses 23 banking companies listed in Indonesia Stock Exchange (IDX) in the 2012-2015 periods as the sample. In addition, this research uses CAMEL in contrast to Erari *et al.* (2013) that use CAEL. The inclusion of management (M) in the model is important to the current research.

Conclusion

There is no significant difference in capital adequacy of the new generation banks and old generation commercial banks using bankometer. There is no significant difference in capital assets ratio of the new generation banks and old generation commercial banks using bankometer. There is no significant difference in equity to total assets of the new generation banks and old generation commercial banks using bankometer. There is no significant difference in nonperforming loans ratio of the new generation banks and old generation commercial banks using bankometer. There is no significant difference in income ratio of the new generation banks and old generation commercial banks using bankometer. There is no significant difference in loan to assets ratio of the new generation banks and old generation commercial banks using bankometer

Recommendations

The following are recommended from the findings of the study:

1. Policies should further be made to deepen the capital adequacy of the commercial banks to enhance capital adequacy of the quoted commercial banks in Nigeria.
2. The management and the regulatory authorities should ensure that the asset quality of the commercial banks is line with international standard.



3. Management should devise measures of managing the bank operating environment to enhance earnings capacity of the quoted commercial banks.

4. There is need to establish institution for risk management and investment appraisal of the commercial banks to avert the occurrence of poor asset quality.

5. The commercial banks should comply with the regulatory authorities on liquidity reserve to avoid overtrading and sensitivity to liquidity shocks.

6. There is need for efficient and effective management team in the banking industry to manage the environmental shocks that affect the performance of the Nigerian banking industry.

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