Financial soundness of deposit money banks in Nigeria: The camels model approach.

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Abstract

The objective of this paper is to analyze the performance of 10 selected deposit money banks in Nigeria using the simple random sampling technique over a period of fifteen years (2000-2015). The data were sourced from the audited annual reports from the Nigerian Stock Exchange. For this purpose, CAMELS model was used. The CAMELS model established that six of the banks namely; Banks A, B, C, D, E and G were graded as satisfactory (scale point 2) in their general performances based on the 5 point likert scale where 1 is the highest and 5 is the lowest whereas 4 banks; Banks F, H, I and J were graded as fair (scale point 3) indicating that their performances are less than satisfactory. The study went further to test the significant relationship among the variables in the CAMELS model using the Friedman rank test, the result showed that there are significant relationships in capital adequacy, asset quality, management quality, earnings, liquidity ratio and sensitivity among the banks, indicating that the banks are operating at different levels of investment. Based on the findings the following recommendations were made; bank managers should focus on ensuring that their banks are well capitalized, minimize levels of non-performing loans, maintain sound management and ensure adequate liquidity so as to sustain banks' financial soundness and mitigate vulnerability of banks.

Keywords: CAMELS, Banks, Financial soundness.

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Introduction

Financial soundness is a central theme in the agenda of policy makers. It has been defined as the health or condition of a bank either individually or as a group of the banking system (IMF, World Bank, 2005) [1]. There is a fundamental link between economic growth and the financial system. The financial system acts as growth and development stimulant by acting as a channel through which savings can finance investment. According to Toby [2], the financial institutions perform crucial functions which include mobilization of savings, allocation of credit, risk management, reduction of information cost and the provision of payment services.

The banking system provides a framework for economic transactions. Therefore, any disruption in its activities will not only affect the depositors and creditors but also the overall economy making it essential 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.

The financial crisis of 2007-2008 led to a renewed interest in the assessment of the soundness of banks to avoid bank failures, unsoundness and fragility. The crises also illuminated the obvious fact that there exists a link between the macro economy and the financial sector. This made the introduction of appropriate and timely tools for the assessment of the financial system's weakness and strength very necessary. This also led to the development and introduction of the financial system indicators (FSIs) by the International Monetary Fund (IMF) [1] and the compilation of the FSIs compilation guide which is divided into the encouraged set and the core set for the non-banking and banking sector indicators respectively [1].

Theoretical Framework

According to World Bank and IMF (2005) [1], three approaches exist for forecasting bank stability, namely; (i) the macroeconomic approach which uses both bank specific and macroeconomic variables, (ii) bank balance sheet approach (the microeconomic approach) which assumes that bank practices cause failures and uses balance sheet data to assess bank soundness, and (iii) market indicators approach, which supposes that bank equity and debt prices provides information on bank conditions over and above the balance sheet data. Thus, for this study, we shall focus on the microeconomic approach.

The Micro-Prudential Regulation has its bases on the agency theory where regulatory assessment is geared towards protection of public savings when it is endangered by a bank's behavior [3]. Eisenhardt stated that agency problem arises when cooperating parties, (managers as the agents and shareholders as the principals) harbor divergent attitudes towards risk or different goals, and as a result, a breakdown in agency relationships results in increased financial risk

and lower returns due to inadequate risk management. He further stated that agency problems depict themselves moral hazard where the agent does not put the agreed effort or adverse selection referring to the misrepresentation of ability by the agent which ultimately affect the behavior of an organization. Further, Sere-Ejimbi et al. [4] adds that micro-prudential regulation enhances safety and soundness of individual financial institutions and protect clients of these institutions through mitigation of contagion risk and the consequent adverse externalities such as confidence in the overall financial system. Shen and Hseih [5] suggested that this approach employs CAMEL methodology to assess a bank's financial soundness. Equally, Evans, Blaschke and Hilbers [6] concluded that indicators such as capital adequacy, asset quality, management soundness, earnings and profitability, liquidity, sensitivity to market risk and market-based indicators such as market prices of securities and credit ratings are used as indexes of soundness of financial institutions. Saunders and Cornett [7] supported this view when they established that financial soundness of a financial institution is dependent upon factors such as asset quality, liquidity position, capital, management quality, market sensitivity and earnings. They concluded that mismanagement of these factors could adversely affect the financial soundness of a financial institution.

In an IMF survey of banking sector problems [1], Haussmann & Garvin (1996) advanced that shocks to bank specific factors such as income, asset quality or liquidity could make bank insolvent or illiquid impacting on its ability to honour its short-term obligations. Also, Altman (1977) examined financial problems in savings and loan institutions using ratios that represented asset quality, capital adequacy and earnings. Similarly, Popiel (1988) held the view that mismanagement played a significant role in bank insolvency at the micro-level especially in environments where bank supervision is in effective.

Barr, Killgo, Siems & Zimmel [8] described the CAMEL rating framework as a method of rating designed for on-site examinations of banking organizations. CAMEL as is often commonly referred is a Uniform Financial Institution Rating System (UFIRS) that was first adopted by the United States Federal Financial Institution Examination Council on November 13 1979, and later adopted in October, 1987 by the National Credit Union Administration (The US, UFIRS, 1997). It is internationally recognized as an effective and efficient internal supervisory tool for evaluating the soundness of financial institutions especially banks.

Under the CAMEL system, banking institutions subject to on-site examination are evaluated on six (initially five) basic important scopes relating to its performance and operations. These scopes are commonly known as the constituent factors and they include capital adequacy, asset quality, management efficiency, earnings quality, liquidity and a sixth component which is sensitivity to market risk was added in 1996 to the CAMEL rating system to make it more risk-focused. These component factors are used to show the operating and financial performance and regulatory compliance of banking institutions worldwide. The CAMELS model is based on the core set of IMF formulated FSIs, each of the component factors is rated on a scale of 1 (best) to 5 (worst). Component factors and composite rating are taken as the prime indicator and used to determine the bank's current financial condition.

A lot of theoretical and empirical studies have been conducted on banking sector soundness following the recent global financial crisis. Such studies have shown that regulating and supervising the activities of the banking sector can go a long way in minimizing bank failure and stabilizing the financial system of any economy. With increased banking regulations to ensure the soundness and stability of the banks, a lot of monitoring system has been used to assess the overall condition of the banks. Stress test and Z-score are used to evaluate the soundness of the European financial sector [9]. In the United States of America, a rating system called CAMELS was introduced to assess the banks' capital, asset, management, earnings, liquidity and sensitivity.

The paper therefore seeks to evaluate the financial soundness of deposit money banks in Nigeria using the CAMELS model and stating their significant difference in level of operation.

Statement of hypotheses

$H0_1$ There is no significant difference in the capital adequacy ratio of deposit money banks in Nigeria.

$H0_2$ There is no significant difference in the asset quality ratio of deposit money banks in Nigeria.

$H0_3$ There is no significant difference in the management quality ratio of deposit money banks in Nigeria

$H0_4$ There is no significant difference in the earnings of deposit money banks in Nigeria.

$H0_5$ There is no significant difference in the liquidity ratio of deposit money banks in Nigeria.

$H0_6$ There is no significant difference in the sensitivity of deposit money banks in Nigeria.

Using CAMEL model, Prasad & Reddy [10] and Chowdhury [11] carried independent studies on financial soundness in the Indian banking sector using some selected Private Sector Banks (PSBs) and Non Private Banks (NPBs) and both reported that the Indian banking was sound overall, but the authors only ranked the selected banking institutions on the order of soundness of the overall banking sector.

Prasad and Reddy [10] also applied the CAMEL model to rural and regional banks and distinguished between these two classes of bank using hypothesis testing aided by the t-statistics. However, this was not extended to other banks in the country.

Also, Kumar, Harsha, Anad & Dhruva [12] analyzed the performance of 12 public and private sector banks over a period of 11 years (2000-2011) in the Indian banking sector using the CAMEL approach. They established that private sector banks are at the top of the list, with their performance in terms of soundness being the best. Public sector banks

like Union bank, have taken a back seat and displayed low economic soundness in comparison.

Lucky & Akani [13] examined quoted Nigerian commercial banks from 1997– 2016 (pre and post consolidation). The aim was to examine, evaluate and compare pre and post consolidation banking system soundness using the CAMEL approach. Findings showed that the performance of the commercial banks in the post consolidation was better than the pre-consolidation. Using the CAMEL system, the study reported a significant difference between the pre and post consolidation of the quoted commercial banks

Kenn-Ndubisi & Akani [14] examined the effects of recapitalization on commercial banks survivals in Nigerian: pre and post consolidation using CAMEL analysis. Using CAMEL framework as indicators for measurement, Chow test was conducted on structural differences between the pre and post consolidation. The result of the regression model of Minimum capital base on CAMELS indicated an increase after recapitalization and consolidation.

Ihenetu & Iwo [15] accessed the performance of banks in Nigeria using CAMEL rating. 19 years' data were collected and analyzed through ordinary least square and result shows that capital adequacy, management efficiency, earning and liquidity have no significant impact on the profitability of the banks. Assets quality has a negative impact on the profit of the bank. They recommended that the banking industry in Nigeria should generate enough capital to run the business through sales of shares, debt, investment, retain earning etc. to boast their profit, they should also improve their quality of assets and ensure that their assets are more of performing rather than non-performing assets.

Prasuna [16] analyzed the performance of 65 Indian banks using CAMEL model and concluded that better service quality, innovative products and better bargains were beneficial because of the prevailing tough competition.

Sarker [17] examined Bengali Islamic banks using CAMEL model which enabled the regulators to get a Shariah benchmark to supervise and inspect Islamic banks and financial institutions from an Islamic perspective.

Nurazi and Evans [18] show that Adequacy ratio, Assets quality, Management, Earnings, Liquidity and bank size are statistically significant in explaining bank failure.

Gupta [19] analyzed the performance of 30 Indian private banks using Camel Model for the period 2003-2007 and gave rating to top five and bottom five banks.

Siva and Natarjan [20] tested the applicability of CAMEL norms and its consequential impact on the performance of SBI Groups. The authors found that CAMEL scanning helps banks to diagnose its financial health and alert the bank to take preventive steps for its sustainability.

Olweny and Shipo [21] analyze the determinants of bank failures in Kenya. They found that Asset quality and liquidity are the determinants of Kenyan bank failures.

Chaudhry and Singh [22] analyzed the impact of the financial reforms on the soundness of Indian Banking through its impact on the asset quality. The study identified the key players as risk management, NPA levels, effective cost management and financial inclusion.

Mishra [23] analyzed the performance of different Indian public and private sector banks over the decade 2000-2011 using CAMEL approach and found that private sector banks are at the top of the list, with their performances in terms of soundness being the best.

Kabir and Dey [24] examined the performance Private, Commercial of Bangladesh banks by adopting the CAMEL Model. The author concluded that the central banks of all around the world have improved their supervision quality and techniques.

Research works have been done using the computation of FSIs to assesses the vulnerabilities and strength under the headings of, capital adequacy, asset quality, management soundness, earnings and liquidity (CAMEL). This paper aims to further analyze the soundness of deposit money banks in Nigeria using the CAMELS model by including their sensitivity to market risk to measure the sensitivity to changes in market risks.

Methodology

This study followed the quasi experimental research design, it applied the investigation and analysis of relationship among selected banks' performances using the CAMELS variables. The data for this study is from 10 selected banks in Nigeria and the scope of the study is from 2000 to 2015.

CAMELS

The bank soundness using CAMELS was evaluated using composite rating with the following scales:

Friedman rank test

The Friedman Rank test is the non-parametric alternative to the one-way ANOVA with repeated measure. It is used test for difference between groups across multiple test attempts, it is also used to determine whether any of the differences between the medians are statistically significant and compares the p-value to the significant level to access the null hypothesis. Friedman was adopted because of the ranking that was used in the CAMELS parameters and also because of the time series aspect of the data. The Friedman Rank Test is given by:

$$F_R = \frac{12}{nk(k+1)}\left[\sum_{j=1}^{k}\left(\sum R_j\right)^2\right] - 3n(k+1)$$

Where,

R_j - Rank for the j^{th} subject

n - Number of observations

k - Number of subjects for comparison

The decision rule is to reject the null hypothesis if the

calculated F_R is greater that the tabulated F_R at α level of significance or if the p-value is greater than the α level of significance (Table 1).

Data Presentations and Discussion

Findings from the CAMELS ranking

Table 2 is a display of the ranking of the various CAMELS Model parameters based on 5-point likert scale where 1 is the highest and 5 is the lowest. The result shows that within the year under review, that Bank D and G had the best capital adequacy on the scale point of 1 followed by Banks A, C, and I with a scale point 3 while others are in scale point 4. This is in line with Van-Roy [25] which concluded that well capitalized banks will tend to be highly rated in terms of financial strength.

The analysis further shows that the asset quality for all the banks fall within 2-3 point scale. The quality of bank loans is affected by the level of nonperforming loans, appropriateness of loan loss provisions, management and administration of loans. Grier [26] agrees with this by noting that poor asset quality is the main cause of bank failures.

The management quality is within the range of 1-2. Grier [26] also pointed out that management is deemed a significant element as it plays a role in a bank's soundness.

Bank D has the highest earning with scale point 1 while the earning is minimum for Bank J with scale of 4. Earning is an indicator of bank's ability to employ bank resources efficiently to generate value for stakeholders and to sustain the bank. Erina [27] posited that bank profitability was influenced by asset portfolio composition, management quality and operational efficiency.

Liquidity ratio was at its best in Banks A, D, E, and H while other Banks are at scale of 2. Liquidity ratio indicates whether a bank is able to efficiently meet current and future cash flow requirements without negatively impacting on its daily operations or incurring losses. Ratnovski [28] posited that liquidity buffer acted as an insurance against small shocks during the crisis.

Sensitivity was at its best in Banks B and E while other banks are within the range of 2-3. Baral [29] indicated that financial soundness of a bank which is highly sensitive is more hazardous than that of a financial institution which is less sensitive

Hence using the overall grading in Table 3, Banks A, B, C, D, E and G are in satisfactory grade while others are in fair grade. None of the banks is on strong grading which is the best that can be attained neither is there any that is at marginal and unsatisfactory which are the second to the least

Table 1. *CAMELS Composite Rating for Bank Soundness.*

Scale	Composite Range			Grade	
1	1.0-1.49			Strong	
2	1.5-2.49			Satisfactory	
3	2.5-3.49			Fair	
4	3.5-4.49			Marginal	
5	4.5-5.0			Unsatisfactory	
The Composite rating was based on the weighted mean of the individual CAMELS parameters with the following scale:					
CAMEL	**Scale**				
Parameter	**1**	**2**	**3**	**4**	**5**
Capital Adequacy	>1	16-20	15-Nov	10-Jun	<5
Asset Quality	<20	20-40	41-60	61-80	>80
Management Quality	>40	31-40	21-30	20-Nov	<20
Earning	>50	46-50	41-45	30-40	<30
Liquidity Position	>40	31-40	21-30	20-Nov	<11
Sensitivity	>20	15-19	10-14	5-9	<5

Table 2. *Measurement of Bank Soundness using CAMELS over the years under study.*

NAME OF BANKS	Capital Adequacy	Rank	Assets Quality	Rank	Management Quality	Rank	Earning	Rank	Liquidity Ratio	Rank	Sensitivity	Rank	Overall Ranking	Soundness Grade
Bank A	10.848	3	58.709	3	49.321	1	43.127	3	42.855	1	19.134	2	2	Satisfactory
Bank B	9.260	4	36.316	2	37.751	2	47.791	2	37.970	2	19.585	1	2	Satisfactory
Bank c	13.443	3	24.701	2	44.736	1	42.604	3	29.859	3	19.052	2	2	Satisfactory
Bank D	32.079	1	56.901	3	46.676	1	52.803	1	41.963	1	13.875	3	2	Satisfactory
Bank E	10.443	4	55.994	3	45.730	1	45.636	2	41.739	1	19.966	1	2	Satisfactory
Bank F	9.231	4	57.208	3	36.821	2	46.378	2	39.001	2	12.070	3	3	Fair
Bank G	35.656	1	38.678	2	49.468	1	44.220	3	36.908	2	18.783	2	2	Satisfactory
Bank H	9.823	4	61.660	3	51.067	1	42.316	3	44.611	1	13.648	3	3	Fair
Bank I	10.655	3	57.374	3	42.184	2	41.744	3	39.827	2	13.282	3	3	Fair
Bank J	8.779	4	28.704	2	34.885	2	33.979	4	36.777	2	18.627	2	3	Fair
Source: SPSS Version 20														

and the least grading respectively. This agrees with the works of Gupta [18] which analyzed the performance of 30 Indian private banks using Camel Model for the period 2003-2007 and gave rating to top five and bottom five banks.

This work differs from some other works that have analyzed private and public sector banks and applied the rating system such as; Mishra [23] established that private sector banks are at the top of the list with their performances in terms of soundness being the best in Indian banking sector. Also, Kumar, Harsha, Anad & Dhruva [12] confirmed that private sector banks are at the top of the list with their performance in terms of soundness being the best while Public sector banks have taken a back seat and displayed low economic soundness in comparison.

Findings from the friedman rank test

The result of the analysis of capital adequacy of the banks using Friedman Rank Test in Table 3 tested the difference in capital adequacy among the banks and between the years. The result shows that there are significant differences in capital adequacy among the banks and between the years with the Friedman Statistic of 34.61 and 115.61 respectively. From the result, it was discovered that on average, Bank G had the best capital adequacy while Bank J had the least and capital adequacy was best in 2012 and worst in 2002.

Table 4 shows the result of analysis of asset quality of the bank on average as well as that of the years for all the banks under review. A significant ($p<0.05$) difference in asset quality was found among the 10 banks and between the years of study for the banks. The Friedman Statistic is 84.89 and 78.81 for the banks and years respectively. Bank H had the best asset quality while Bank C had the worst asset quality. On the other hand, the asset quality for the entire banks on average is best and worst in 2013 and 2002 respectively.

Table 3. *Analysis of Capital Adequacy Ratio using Friedman Rank Test.*

Bank	Median	Sum of Rank	Year	Median	Sum of Rank
Bank A	9.252	87.5	2000	6.144	33
Bank B	8.155	57.0	2001	6.049	31.5
Bank C	10.182	109.5	2002	5.849	21
Bank D	9.386	84.5	2003	6.292	37
Bank E	9.505	92.5	2004	7.156	49
Bank F	9.240	84.0	2005	7.74	63.5
Bank G	14.798	128.5	2006	8.475	76
Bank H	9.208	87.0	2007	9.303	87
Bank I	9.678	103.0	2008	9.753	95.5
Bank J	8.068	46.5	2009	10.949	105
Freidman Statistic =34.61 p-value =0.000			2010	13.44	105.5
			2011	14.194	108
			2012	15.315	133.5
			2013	15.551	133
			2014	15.643	137
			2015	16.057	144.5
			Freidman Statistic=115.61 p-value =0.000		
Source: **Mini tab Version 15**					

Table 4. *Analysis of Asset Quality Ratio using Friedman Rank Test.*

Bank	Median	Sum of Rank	Year	Median	Sum of Rank
Bank A	65.54	113.5	2000	38.02	36.0
Bank B	41.94	48.0	2001	38.19	45.0
Bank C	19.75	50.0	2002	37.88	37.0
Bank D	63.54	109.5	2003	38.81	39.0
Bank E	61.70	115.5	2004	42.94	55.0
Bank F	61.36	104.0	2005	48.13	66.0
Bank G	42.12	63.0	2006	52.92	67.0
Bank H	69.33	129.0	2007	59.17	92.0
Bank I	63.81	121.5	2008	63.44	*Freidman* 112.0
Bank J	32.95	26.0	2009	64.37	117.5
Statistic =84.89 p-value =0.000			2010	63.95	120.5
			2011	64.98	112.5
			2012	64.44	108.0
			2013	64.59	104.5
			2014	65.09	119.0
			2015	64.68	129.0
			Freidman Statistic=78.81 p-value =0.000		
Source: Mini tab Version 15					

A Friedman Statistic of 43.38 with p-value of 0.000 and 34.89 with p-value of 0.002 signifying a significant ($p<0.05$) difference in the management quality of the banks under study and years respectively is the result of the analysis in Table 5 bank H was found to have the best management quality while Bank J has the worst within the year under review. On the years, the management quality among the entire banks on average was best in 2006 closely followed by 2015 and worst in 2004.

Bank D has the highest earning while Bank J has the least earning within the year under study. Also earning for the entire banks on average was highest and lowest in 2014 and 2000 respectively. This is evident from the result of the analysis displayed in Table 6. Further analysis also showed that there is a significant ($p<0.05$) difference in the earning of the banks and in the years for the entire banks. This is evident with the Friedman Statistic of 31.7 ($p=0.000$) and 56.06 ($p=0.002$) for the between banks and between years respectively.

Result of Analysis using Friedman Rank test showed that Bank H ranked highest in liquidity ratio while Bank C ranked lowest. Also for the entire bank on average, liquidity was highest in 2012 followed closely by 2013 but lowest in 2009. The test indicated a significant ($p<0.05$) difference in the liquidity ratio between the banks and within the year of study. This is evident from Friedman Statistic of 28.57 with p-value of 0.001 and 59.22 with p-value of 0.000 for the between banks and between years respectively (Table 7).

A Friedman Statistic of 125.94 with p-value of 0.000 and 139.23 with p-value of 0.000 signifying a significant ($p<0.05$) difference in the sensitivity of the banks under study and years respectively is the result of the analysis in Table 8. Bank E was found to be more sensitive among the banks while Bank F had least sensitivity. On the years, sensitivity among the entire banks on average was highest in 2013 closely followed by 2014 and 2015 but lowest in 2000.

The above findings agree with Nurazi and Evans [17] which showed that Adequacy ratio, Assets quality, Management, Earnings, Liquidity and bank size are statistically significant

Table 5. *Analysis of Management Quality Ratio using Friedman Rank Test.*

Bank	Median	Sum of Rank	Year	Median	Sum of Rank
Bank A	50.38	112	2000	37.55	62
Bank B	39.69	57	2001	35.52	69
Bank C	41.86	78	2002	36.33	67
Bank D	48.72	107	2003	35.34	61
Bank E	47.09	99	2004	31.30	32
Bank F	35.65	58	2005	38.66	71
Bank G	52.58	117	2006	47.20	120
Bank H	52.66	120	2007	46.92	102
Bank I	42.87	82	2008	43.60	85
Bank J	33.80	50	2009	42.88	92
Freidman Statistic =43.39 p-value =0.000			2010	44.17	97
			2011	45.84	97
			2012	46.12	92
			2013	46.28	96
			2014	46.64	101
			2015	47.09	116
			Freidman Statistic=34.98 p-value =0.002		
Source: Mini tab Version 15					

Table 6. *Analysis of Earning using Friedman Rank Test.*

Bank	Median	Sum of Rank	Year	Median	Sum of Rank
Bank A	36.446	79.0	2000	29.42	34.0
Bank B	45.117	102.0	2001	38.07	72.5
Bank C	33.668	61.0	2002	37.77	83.0
Bank D	50.188	128.5	2003	32.90	51.0
Bank E	44.557	107.0	2004	36.91	68.5
Bank F	45.364	101.0	2005	34.97	69.0
Bank G	41.645	83.0	2006	34.80	49.5
Bank H	37.320	76.0	2007	37.10	69.0
Bank I	39.346	90.5	2008	40.36	82.0
Bank J	31.712	52.0	2009	41.32	81.0
Freidman Statistic =31.70 p-value =0.000			2010	45.30	101.0
			2011	48.98	116.0
			2012	51.38	106.0
			2013	51.86	120.5
			2014	51.88	126.0
			2015	51.83	131.0
			Freidman Statistic=56.05 p-value =0.002		
Source: Mini tab Version 15					

Table 7. *Analysis of Liquidity Ratio using Friedman Rank Test.*

Bank	Median	Sum of Rank	Year	Median	Sum of Rank
Bank A	35.37	89.0	2000	31.46	62.0
Bank B	33.22	78.5	2001	32.91	69.0
Bank C	24.78	48.0	2002	32.85	63.5
Bank D	40.94	113.0	2003	33.21	70.0
Bank E	35.68	95.0	2004	33.03	68.5
Bank F	37.56	93.0	2005	32.72	69.0
Bank G	34.63	77.0	2006	33.73	72.0
Bank H	42.03	124.0	2007	35.68	83.5
Bank I	36.48	93.0	2008	30.26	55.0
Bank J	33.24	69.5	2009	29.45	40.0
Freidman Statistic =28.57 p-value =0.001			2010	37.18	89.0
			2011	45.38	103.5
			2012	54.76	123.0
			2013	54.19	119.0
			2014	53.19	131.0
			2015	54.14	142.0
			Freidman Statistic=59.22 p-value =0.000		
Source: Mini tab Version 15					

Table 8. *Analysis of Sensitivity using Friedman Rank Test.*

Bank	Median	Sum of Rank	Year	Median	Sum of Rank
Bank A	20.015	121.0	2000	16.705	14.5
Bank B	20.108	133.0	2001	16.910	21.0
Bank C	19.632	111.0	2002	17.030	31.5
Bank D	14.249	58.5	2003	17.369	44.0
Bank E	20.436	154.0	2004	17.541	42.0
Bank F	12.638	17.0	2005	18.209	62.0
Bank G	19.256	101.0	2006	18.768	74.0
Bank H	14.114	47.5	2007	18.962	87.0
Bank I	13.716	37.0	2008	19.006	93.5
Bank J	18.949	100.0	2009	19.217	96.5
Freidman Statistic =125.94 p-value = 0.000			2010	19.362	108
			2011	19.681	115
			2012	19.862	128
			2013	20.047	137
			2014	20.200	152
			2015	20.201	154
			Freidman Statistic=139.23 p-value = 0.000		
Source: Mini tab Version 15					

in explaining bank failure. Also Lucky & Akani [13] reported a significant difference between the pre and post consolidation of the quoted commercial banks.

Conclusion

From the result, we discovered that CAMELS model has been adequately used to analyze the soundness of commercial banks in Nigeria. Based on the findings from the analysis, bank G and Bank D ranked highest in terms capital adequacy and in the overall ranking, 6 banks; Banks A, B, C, D, E and G were graded under satisfactory according to grading of CAMELS indicating that the banks are at satisfactory level that can be improved further whereas 4 banks; Banks F, H, I and J are graded as fair indicating that their performances are fair, less than satisfactory, barely sufficient and calls for serious improvement on their practices. Based on the analysis, we therefore conclude the following:

- There is a significant difference in the capital adequacy of deposit money banks in Nigeria.
- There is a significant difference in the asset quality of deposit money banks in Nigeria.
- There is a significant difference in the management quality of deposit money banks in Nigeria.
- There is a significant difference in the earnings of deposit money banks in Nigeria.
- There is a significant difference in the liquidity ratio of deposit money banks in Nigeria.
- There is a significant difference in the sensitivity of deposit money banks in Nigeria.

Recommendation

Based on the findings, we recommend that:

- The banking industry in Nigeria should generate enough capital to run the business through sales of shares, debt, investment, retain earning etc. to boast their soundness.

- They should also improve their quality of assets and ensure that their assets are more of performing rather than non-performing assets. This will improve generation base and enhance soundness.
- The managerial efficiency should be to boast the business rather than personal pocket.
- Banks should improve their earning ability by investing in profit generating ventures and avoid giving loans that will lead to bad debt, doubtful debt etc.
- The liquidity of the banks should be well managed to avoid mismatch. The banks should ensure professionalism in managing liquidity to enhance soundness.
- Banks should be more sensitive to changes in the market risks to sustain banks' financial soundness and mitigate against vulnerability.

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