Spillover of COVID-19 on the Performance of Deposit Money Banks in Nigeria

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Abstract. This study assessed the spillover of COVID-19 on the performance of deposit money banks in Nigeria. Specifically, the study assessed effect of liquidity, profitability and capital adequacy on the performance of deposit money banks in Nigeria before and during the pandemic. The causal comparative research design was used in the study. Secondary panel data spanning covering 2017-2018 and 2019-2020 respectively was pooled in the study. Data gathered was estimated using descriptive statistics, multicollinearity test; pooled OLS estimation and post estimation tests. Discoveries from the study revealed that return on equity exerts positive significant impact on the performance of deposit money banks before the pandemic and during the pandemic that return on equity affects return on assets negatively and significantly with coefficient estimate of .0267839 ($p=0.07<0.05$) and -.0051766 ($0.038<0.05$) respectively; capital adequacy ratio before COVID-19 exerts negative significant impact on the performance of deposit money banks and during the pandemic the ratio also exerts negative significant effect with coefficient estimate of -.0068171 ($p=0.044<0.05$) and -.0063416 ($p=0.032<0.05$) respectively and prior to the pandemic; liquidity ratio exerts positive insignificant impact on the performance of deposit money banks in Nigeria and during the pandemic liquidity ratio exerts negative significant impact on the performance of deposit money banks in Nigeria with coefficient estimate of .3234067 ($p=0.098>0.05$) and -.111219 ($p=0.051=0.05$). Hence, the study suggested adequate monitoring of the capital adequacy, liquidity and leverage limit of Nigeria deposit money banks be caused by the Central Bank of Nigeria; the management of Teir 1 asset portfolio should be regularly assessed and reviewed by the Central Bank of Nigeria and Central Bank of Nigeria should introduce a standard capital adequacy ratio that will ensure the effectual usage of banks assets.

Keywords: COVID-19, Capital Adequacy, Liquidity, Profitability, Return on Assets, Nigeria Deposit Money Banks

Introduction

The emergence of COVID-19 pandemic in Nigeria occasioned massive challenges to the economy of Nigeria and most importantly the banking industry which holds the financial resource that drives economic growth and development of countries across the globe (Fapetu & Obalade, 2015). The significance of the banking sector places it at a height that is practically unattainable for other sectors as it is the most regulated sector in the economies of countries across nations especially Nigeria (Adaramola *et al.,* 2018). However, the surging effect of the pandemic precipitated utter lock down and at some point relatively reduced scope of operation for all business that operates within the country. Deposit money banks as firms that operates with high level of interpersonal communication was grossly affected as movement was banned and premised upon this, banks maintained flexible working hours despite operating in selected branches for almost over (7) months (Iwedi, Gbarabe & Uruah, 2020). The Nigeria banking sector which has struggled with recovering from several economic crisis with several reformation policies introduced by the Central Bank of Nigeria was further marred by the pandemic hence aggravating the operational lapses, poor corporate governance, weak risk management, bad internal control measures and heightening non-performing loans that exists in the sector that has constrained the performance of deposit

money banks which in effect reduces the performance of the sector has exposed it to numerous banking crisis including the critical effects of the global pandemic (Alalade, Adekunle & Oguntofu, 2016). This which births economic crunch in any financial system is usually deleterious as the deposit money banks becomes less willing to lend money, this further enhances financial crises in the economy and makes banks more susceptible to illiquidity, capital inadequacy, deteriorating profitability which increases the vulnerability of banks to poor financial performance (Jesuwunmi *et al.,* 2019).

This suggests that in the discourse of banking sector performance and its deterioration per time in Nigeria, the microeconomic and macroeconomic environment that has remained volatile and further worsened by the advent of COVID-19 cannot be neglected. Economic crisis in Nigeria has exposed the nation to the idea that there may exists unstable financial system despite stable inflation; this affirms that sustainable economic growth cannot be attained without obtaining sound performance of deposit money banks which precedes stable financial system (Jesuwunmi *et al.,* 2019). The former Governor of the Central Bank of Nigeria, Charles Soludo at the inception of 2008 financial crisis described deposit money banks in Nigeria as robust and sound enough to absorb losses as they are shielded from any crisis stemming from the global financial system; although the position of Soludo was rendered invalid by numerous scholars especially after the stress test conducted by the new governor of CBN in 2009 evidence several underperforming banks (Fidelity Bank, 2017; Gbadebo, 2014). However, till date deposit money banks and the entire banking sector has suffered worse effect of global economic crisis thereby making insignificant the role of prudential financial regulations that ought to sustain the soundness of deposit money banks and the entire Nigeria financial system.

During the course of history and in recent time, the Nigerian banking system has dealt with several banking failures; and as evident in the merger of Access Bank and Diamond Bank in 2019, the challenges faced by deposit money banks still persists (Marshal, 2017). The banking sector which has maintained the bid to consolidate its performance was visited by the COVID-19 pandemic which restricted entrance into these banks towards reducing crowd and permitting social distancing which is an approach to control the spread of the virus; this in a way dragged down deposit mobilization that adversely affected the capital adequacy, liquidity position of deposit money banks and reduces profitability which consequently contributes to the unimpressive financial performance of the banking sector relative to other countries around the globe. Furthermore, the reduction of business activities in other sectors also contributed to the relatively reduced deposits from customers which aggravated the poor liquidity and profitability challenges of corporate and business firms which include banks; the banking sector at this time also experienced increased credit losses hat affected asset quality, capital and liquidity of deposit money banks hence posing constraints to satisfying customers' needs (Iwedi *et al.,* 2020).

The event exacerbated and took a toll on the position of financial performance of deposit money banks in the second quarter of 2020; although some banks with effectual virtual platforms and channels attained increase in their profits. Albeit, the performance of several other banks dropped significantly and uncontrollably thereby hampering their intermediation role which ultimately obstructs the prosperity of Nigerian economy (Iwedi, Kocha & Oriakpono, 2020; Iwedi *et al.,* 2020). Again, the pandemic occasioned credit risk for both corporate and retail customers of deposit money banks thereby exposing the industry to about 14 percent stock of non-performing loans (NPLs) in the second quarter of 2020 which totaled about N1.218 trillion; the value of non-performing loan which grew from N1.059 trillion in 2019 further evidences the severity of poor capital adequacy which further threatened the sustainability of deposit money banks performance and signaled the need for

reformation that usually leave an unforgettable effect on the going concern of deposit money banks in Nigeria (Iwedi & Lenyie, 2021).

Even though numerous studies have tracked the effect of COVID-19 on banking sector, the effect of several financial soundness indicators including capital adequacy, liquidity and profitability on the performance of deposit money banks before and during the pandemic has not been completely explored. Evidently, Iwedi and Lenyie (2021) analyzed COVID-19, oil price shock and banking system funding and its impact on the Nigeria Economy. Omaliko *et al.* (2021) assessed the impact of COVID-19 pandemic on liquidity and profitability of firms in Nigeria giving no attention to the banking sector which is the most affected during the pandemic even though the sector has the most significant role in the growth of Nigeria economy. Furthermore, Obalade, Babatunde and Akande (2021) assessed political risk and banking sector performance in Nigeria giving no attention to the effect of the COVID-19 on the performance of deposit money banks, and Iwedi *et al.* (2020) investigated the impact of COVID-19 on stock price of quoted banking firms in Nigeria ignoring the performance of banks precipitated by their financial soundness indicators that were grossly affected during the pandemic. Following this backdrop, this study sets out to establish the spillover of COVID-19 on the performance of deposit money banks in Nigeria.

Literature Review

COVID-19 Pandemic

COVID-19 is traceable to Wuhan in China in the late 2019. The pandemic of COVID-19 has been affecting all spheres of human endeavour in the recent time. As the coronavirus affects public health services at global level, it also does to global economies. The pandemic of COVID-19 is worrisome because it is inevitable in leading to the global economic recession (Hope, Saidu & Success, 2020). World Health Organization (2020) notes that, the victim of COVID-19 will surely experience respiratory illness and older people and more importantly, people with medical or health problems such as diabetes, cancer respiratory disease among others are likely to be infected with COVID-19. It is reiterated that COVID-19 can spread easily through the nose or mucus discharge and droplets of saliva especially through sneezes and coughs (World Health Organization, 2020).

The Effect of the COVID-19 Pandemic on Businesses

The lockdown period radically changed the way consumers behave around the world and determined them to prefer online shops (Pinzaru, Zbuchea, & Anghel, 2020). E-commerce continues to grow and companies involved in the supply chain have to find new ways to adapt to the demand. A new mechanism to support the supply chain will appear soon due to technological developments. On the other hand, an increase in the poverty rate is estimated for 29 European countries, from 4.9% to 9.4%, and an average loss rate for low-income workers between 10% and 16.2% (Palomino, Rodríguez, & Sebastian, 2020). At the same time, we must keep in mind that the slowdown in the production process and the adoption of precautionary behaviour by consumers will have a significant impact on industries in general. It is assumed that there will be a greater increase in both poverty and social inequality in Eastern and Southern Europe compared to Northern and Central Europe (Palomino, Rodríguez, & Sebastian, 2020). This differentiation is accentuated by the rise in prevention measures.

The Effect of the Pandemic on the Banking System

Yip and Bocken (2018) summarize that, after the 2008 crisis, banks have a difficult position, especially when it comes to sustainable development, but they still play a unique

role. The losses recorded in the banking system are lower compared to the 2009 crisis. Ensuring that commercial banks maintain the population's access to liquidity has been one of the main priorities along with careful monitoring of the level of external debt (Funke & Tsang, 2020). A successful model comes from Germany, where a practice for providing liquidity is implemented, and in this way, German banks continue to support entrepreneurs and companies to get through this difficult period. They also used this practice in the 2008-2009 crises, when they extended lending to companies. What must not be forgotten is the fact that banks are still better prepared now compared to the previous crisis and should support companies in these difficult times, provide support and, of course, allow rates to be postponed for customers in difficulty.

The COVID-19 pandemic changed many things in the banking system: the way they work, new operations, and proceedings. The essential nature of the banking services required them not to close all their branches and to ensure people's access to financial resources. Around a quarter of bank branches have closed during the outbreak in many countries and territories because of the safety of employees, staff shortages, and less commerce occurring in general. Of the remaining 75 percent, many are open on reduced hours and with reduced staff (KPMG, 2020). With all these challenges around them, they need to pay attention to the strategy that defines their future. According to PWC (2020b), they need to focus business continuity planning on issues for survival: adjust branch hours and staffing mix and times, switch in-branch visits to appointment-only, close some branches temporarily. All these changes implemented in the way they work will definitely influence how the banking system will look in the future.

Methodology

This study adopts the causal comparative research design towards comparing the performance of deposit money banks before and during the COVID-19 pandemic. The study of Omaliko *et al.* (2021) which assessed the impact of COVID-19 pandemic on liquidity and profitability of firms in Nigeria was used to form the model of this study. Even though Omaliko *et al.* (2021) demonstrated no model as it adopted descriptive analysis and test of hypotheses; this study still draws inspiration from the comparative nature of the study. However, a relatively advanced estimation technique - pooled ordinary least regression will be used in comparatively estimating data obtained in the study. For simplicity, the functional and linear model which is adopted in assessing the pre-COVID pandemic and during COVID-19 pandemic performance of FUGAZ Banks in this study is shown below:

$$ROA = f(LIQ, ROE, CAR, FIS) \quad (1)$$

Linear representation of the models:

$$ROA_{it} = \delta_0 + \delta_1 LIQ_{it} + \delta_2 ROE_{it} + \delta_3 CAR_{it} + \delta_4 FIS_{it} + \mu_{it} \quad (2)$$

Where:

ROA = Return on Assets
LIQ = Liquidity Ratio
ROE = Return on Equity
CAR = Capital Adequacy Ratio
FIS = Firm Size
μ = Error term

Sources of Data and Estimation Techniques

This study randomly sample five deposit money banks and five consumer goods firms listed on the Nigeria stock exchange. Data covering the pre-COVID-19 pandemic (2017-2018) and during COVID-19 pandemic (2019-2020) shall be culled from the annual reports

of the sampled tier 1 (FUGAZ) deposit money banks. Descriptive and panel statistical estimation methods were adopted in the study; the Descriptive analysis will demonstrate the measure of central location and measure of dispersion, normality status, skewness, kurtosis of all the variables included in the model of the study. However, as the study intends to adopt fixed effect analysis and random effect analysis of panel statistical estimations; it will conduct pooled ordinary least square (OLS) and other post estimation tests.

Results and Discussion

Descriptive Analysis of Variables

Descriptive statistics reported in Table 1 revealed that the mean values for return on assets, return on equity, capital adequacy ratio and firm size for 2017-2018 and 2019-2020 across the five deposit money banks sampled in the study stood at: .0269, .8737, .2942, .1308, 22.489 billion respectively. Reported minimum and maximum values stood at: .007 per cent and .048 for return on assets, .12 percent and 2.42 percent for return on equity, .1 percent and .972 percent for capital adequacy ratio, .033 percent and .28 percent for liquidity and 19.77 billion and 26.32 billion for firm size respectively. Also, mean values obtained across deposit money banks during and after COVID-19 for return on assets, return on equity, capital adequacy ratio and firm size stood at .0346 percent, 1.3058 percent, .2772 percent, .1598 percent, 22.869 billion while minimum and maximum values stood at: .008 per cent and .113 per cent for return on assets, .135 percent and 3.67 percent for return on equity, .08 percent and .966 percent for capital adequacy ratio, .073 percent and .29 percent for liquidity ratio 20.37 billion and 26.43 billion respectively.

Table 1. Descriptive Statistics

PRE-COVID						DURING AND AFTER COVID			
Variable	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**	**Mean**	**Std. Dev.**	**Min**	**Max**
ROA	10	.0269	.0139	.007	.048	.0346	0.3155	.008	.113
ROE	10	.8737	.8659	.12	2.42	1.3058	1.2827	.135	3.67
CAR	10	.2942	2569	.1	.972	.2772	.3380	.08	.966
LIQ	10	.1308	.0871	.033	.28	.1598	.0804	.073	.29
FIS	10	22.489	2.2168	19.77	26.32	22.869	2.0329	20.37	26..43

Sources: Author's Computation (2021)

Correlation Analysis

Table 2 reported correlation between variables used in the study. From the table it can be observed that there is positive correlation between pairs of variables for Nigerian deposit money banks before and during COVID-19. Result for pre-COVID period showed positive correlation between all pairs of variables with specific correlation coefficient of 0.2182 for return on equity and return on assets, 0.2721 for capital adequacy ratio and return on assets, 0.2613 for liquidity ratio and return on assets, 0.5162 for firm size and return on assets respectively. Again, estimates obtained for deposit money banks during and after COVID-19 also indicated positive correlation between pairs of variables expect liquidity ratio with correlation coefficient of 0.1460 for return on equity and return on assets, 0.7589 for capital adequacy ratio and return on assets, -0.3419 for liquidity ratio and return on assets, 0.8189 for firm size and return on assets. Observably result reflects that the correlations between pairs of variables are relatively strong.

Table 2. Correlation Matrix

PRE-COVID						DURING AND AFTER COVID				
	ROA	ROE	CAR	LIQ	FSI	ROA	CUR	QUR	CAR	GER
ROA	1.0000					1.0000				
ROE	0.2182	1.0000				0.1460	1.0000			
CAR	0.2721	-0.2156	1.0000			0.7589	-0.0255	1.0000		
LIQ	0.2613	0.9205	-0.4934	1.0000		-0.3419	0.7351	-0.5475	1.0000	
FSI	0.5162	-0.0134	0.9134	-02644	0.0042	0.8189	0.1374	0.9171	-0.3790	0.7569

Sources: Author's Computation (2021)

Multicollinearity Test

The presence of strongly correlated variables in a model tends to create a multicollinearity problem. Therefore, the Variance Inflation Factor (VIF) test can be used to confirm the existence of multicollinearity among the independent variables. Based on the rule of thumb, the VIF must be less than 10 to confirm that the estimates of the regression would not be biased due to the presence of multicollinearity.

Table 3. Result of Multicollinearity Test

BEFORE COVID		DURING AND AFTER COVID	
Variable	VIF	Variable	VIF
CAR	6.10	CAR	9.25
FIS	8.62	FIS	7.53
LIQ	8.26	LIQ	5.57
ROE	13.31	ROE	4.03
Mean VIF = 9.32		Mean VIF = 6.59	

Sources: Author's Computation (2021)

Table 3 shows that all the variables for deposit money banks during the periods have a VIF value of less than 10, thus implying that there is no strong evidence of collinearity among the independent variables.

Pooled OLS Estimation

Results from estimations presented in Table 4 demonstrated the effect of return on equity, capital adequacy ratio, liquidity ratio and firm size on return on assets when observations across sampled deposit money banks was pooled giving no consideration to the varying effect in the periods investigated. As evidenced in table 4.4 and in the case of the sensitivity of DMBs performance before COVID-19, capital adequacy ratio exert negative significant effect on return on assets with coefficient estimate of -.0068171 ($p=0.044<0.05$) while return on equity and firm size exert positive significant and significant effect with coefficient estimate of .0267839 ($p=0.007<0.05$) and .0074745 ($p=0.042<0.05$) and liquidity ratio exerts positive insignificant effect with coefficient value of -.3234067 ($p=0.098<0.05$). Also, during COVID-19 and the short period after estimation result revealed that return on equity, capital adequacy ratio and liquidity ratio exert negative significant effect on return on assets with coefficient estimate of -.0051766 ($p=0.038<0.05$), -.0063416 ($p=0.032<0.05$), .111219 ($p=0.051=0.05$) respectively while firm size exert positive significant effect on return on assets with coefficient estimate of .0114748 ($p=0.031<0.05$). The obtained R-square stood at 0.5142 for the estimation before COVID-19 and 0.4374 was obtained for estimation during and after COVID-19 which suggests that about 51% and 43% of the systematic change in return on assets of the sampled DMBs can be affected by the explanatory variables.

Table 4. Pooled OLS Parameter Estimates
Series: *ROA QUR, CUR, CAR, GER, FSI*

	BEFORE COVID		***DURING AND AFTER COVID***	
Variables	**Coefficients**	**Probability**	**Coefficients**	**Probability**
C	-.1580887	0.019	-.2163509	0.080
ROE	.0267839	0.007	-.0051766	0.038
CAR	-.0068171	0.044	-.0063416	0.032
LIQ	.3234067	0.098	-.111219	0.051
FSI	.0074745	0.042	.0114748	0.031
	R-square =*0.7301* Adjusted R-square=*0.5142* F-stat=*3.38* Prob(F-stat)= *0.0069*		R-square =*0.6874* Adjusted R-square=*0.4374* F-stat=*2.75* Prob(F-stat)= *0.0485*	

Source: Author's Computation (2021)

Post Estimation Tests

Table 5 reported result of post estimation test conducted to confirm if the specified model aligns with the basic assumptions underlining the panel estimation conducted in the study. The result showed that there is no evidence to reject the null hypothesis on panel homoscedasticity and null hypothesis of no cross sectional dependence and accept the hypothesis of panel normality. Hence, the established result of post estimation test reported in Table 5 validates assumptions normality of the model. Which reflect that the model is fit for inferential analysis.

Table 5. Post Estimation Result

Wald test		
Null hypothesis	**Statistics**	**Probability**
Homoscedasticity test	13.53 11.00	0.0090 0.0266
Breusch-Pagan Lagrange Multiplier test		
Null hypothesis	**Statistics**	**Probability**
Normality test	1.65 1.88	0.1992 0.1704

Source: Author's Computation (2021)

Discussion of Findings

Results obtained from the most obtainable estimation conducted in the study evidenced that before the pandemic, return on equity exerts positive significant impact on the performance of deposit money banks captured with return on assets which suggests that a consistent increase in return on equity was experienced then and in effect performance was consolidating. However, findings attained during the pandemic indicated that return on equity affects return on assets negatively and significantly which implies that as return on equity is cascading, performance also falls. Return on equity is no doubt a profitability surrogate that captures the return on funds invested into the business which is at every time urgent as it affirms that banks are in profit and their going concern is guaranteed; however, the banking sector maintained sustainable profit per time before the inception of the COVID-19 pandemic which according to our results constrained banks from making increasing profit which uncontrollably drags down the performance of these big banks and ultimately the baking sector. Shockingly, despite the high regulation that moderates the operation of deposit money

banks and causes them to remain in profit while maintaining performance, these regulations could not withstand or control the interplay of COVID-19 and the increased economic uncertainties that the pandemic posed which hampered the profitability and performance of deposit money banks in Nigeria.

Again, capital adequacy ratio before COVID-19 exert negative significant impact on the performance of deposit money banks; albeit, during the pandemic the ratio also exerts negative significant effect which implies that as capital adequacy is reducing, performance is most likely to shoot up. Even though the Central Bank of Nigeria set an average regulatory standard for capital adequacy ratio towards giving every bank a hedge to sustainably maintain profitability and continue in business for the foreseeable future and by implication increase public confidence in the banking sector. However, findings revealed that its decrease constrains the performance of the big banks that dominates the activities of the sector which suggests that the average banks would experience more adversities in their operation considering the availability of limited capital. Considering this, it is assumable that banks have in recent time and even during the pandemic limited banks from harnessing other investment prospects thereby causing utter underutilization of economic resource which banks should originally possess, this has despite adversely affecting the performance of these banks constrain them from observing adequacy their functions which contributes to the state of the economy of Nigeria.

Furthermore, findings obtained also indicates that prior to the pandemic, liquidity ratio exerts positive insignificant impact on the performance of deposit money banks in Nigeria which suggests that liquidity increased during the period although its increase mildly increase the performance of DMBs; and during the pandemic, from our findings liquidity of banks was observed to be on the decline and in effect drags down the performance of FUGAZ banks. DMBs are expected to meet the financial obligations of both individual and corporate clients while investing its surplus resource in alternatives that guarantees future returns and ultimately give the bank good leverage to sustainably satisfy customers' obligation. Although the advent of COVID-19 dragged down the liquidity of banks as operation remained on a relatively low scale even though banks dished out several forms of loans toward giving the economy of Nigeria some balance; this in a way affected the profitability of banks which holds critical economic uncertainty for Nigeria.

Conclusion and Recommendations

This study has empirically established the effect of COVID-19 on the performance of deposit money banks in Nigeria. Evidence from findings established in the study suggests that with the advent of COVID-19, the performance of Tier 1 banks was highly sensitive to financial soundness indicators and by implication and poor management of financial surrogates (liquidity, capital adequacy and profit) which may be the case during the pandemic coupled with the uncertainties in the macroeconomy of Nigeria during the period marred the performance of banks particularly and the effect which spilled or still affected the performance of DMBs in the present day has constrained the consolidation of bank performance. Hence this study therefore concludes that the performance of Nigeria deposit money bank performance was highly and noticeably sensitive as it fell significantly during the pandemic.

Premised on these conclusions, it is therefore urgent that:

i. Adequate monitoring of the capital adequacy, liquidity and leverage limit of Nigeria deposit money banks be caused by the Central Bank of Nigeria; this would caution banks management from maximizing profit in the stead of consolidating performance.
ii. The management of SIBs asset portfolio should be regularly assessed and reviewed by the Central Bank of Nigeria towards controlling banks' exposure to excessive risk asset

portfolio and securing depositors fund while saving the financial system of the country from collapse.

iii. Central Bank of Nigeria should introduce a standard capital adequacy ratio that will ensure the effectual usage of banks assets as well as reduce significantly credit risk exposure and consolidate the performance of Nigeria deposit money banks.

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