

Effect of Treasury Single Account (Tsa) on Deposit Money Banks' Liquidity Performance in Nigeria

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Abstract

This paper investigated effect of Federal Government of Nigeria (FGN) Deposit Withdrawals into the Treasury Single Account (TSA) on Deposit Money Banks' liquidity performance in Nigeria. Secondary data were obtained from [7] Central Bank of Nigeria (CBN) Statistical Bulletin covering pre and post implementation years (2012 to 2017). The dependent variable was represented by Deposit Money banks' liquidity ratio while the independent variable was represented by Federal Government Deposits at the Deposit Money Banks. The study used correlational research design to determine the effect of TSA on Deposit Money Banks' liquidity in the country. Also, the study employed Feasible Generalized Least Square (FGLS) technique of data analysis. It was then found that Federal Government Deposit (FGD) had a positive and significant effect on the Deposit Money Banks' liquidity position in the Pre-TSA Era whereas Federal Government Deposit (FGD) had a negative and significant effect on the Deposit Money Banks' liquidity performance in the Post-TSA Era. It was therefore recommended that the Nigerian Government should consider the hybrid TSA model as a way of boosting the Deposit Money Banks (dmbs) liquidity position. It was then suggested that further researchers could widen the scope by including factors such as GDP, Exchange Rate, Inflation Rate excluded in this study.

Key Words: Treasury Single Account (Tsa), Feasible Generalized Least Square (FglS), Liquidity

Introduction

Background to the Study

Weak liquidity management in Nigerian deposit money banks, otherwise referred to as commercial banks was reported to be rife since 1980s when bank distress and illiquidity became an order of the day. This issue of ineffective liquidity management also led to the consolidation policy in 2005 with minimum capital base of n25 billion naira for all licensed deposit money banks in Nigeria in order to stabilize and solve liquidity problems common among the banks, [5]. Perhaps due to the impact of 2008 global economic meltdown, five deposit money banks viz; Afribank, Finbank, Intercontinental Bank, Oceanic Bank and Union Bank still faced liquidity palaver in 2009. This then made the Central Bank of Nigeria (CBN) to come on a rescue mission by injecting n620 billion bailout fund in 2009 in order to protect banks from complete illiquidity and to enhance stability in the banking sector, [20]. Furthermore, the implementation of Treasury Single Account (TSA) in 2015 arguably threatened the liquidity position and profitability of Nigerian

banking sector when all federal ministries, departments and agencies (mdas) were mandated to pay all government revenues, incomes and other receipts into a single account with the Central Bank of Nigeria. This therefore, made CBN to reduce banks' cash reserve ratio (CRR) from 31% to 25% in 2015 in order to aid their liquidity management, [9].

Furthermore, the International Monetary Fund (IMF) and other development partners have in recent years engaged in the promotion of the implementation of a treasury single account (TSA) in sub-Saharan Africa so as to enhance cash management. The TSA seeks to centralize all public monies in a single account so as to enhance financial oversight and properly mobilize idle funds for necessary expenditure. It has to do with the consolidation of Ministries, Department and Agencies (mdas)'s bank accounts kept with commercial banks into a single account. Therefore, Treasury Single Account (TSA) is a public accounting system that uses a single account to ensure all Government revenue, receipts and payments are performed through a Consolidated Revenue Account (CRA) at the Central Bank of Nigeria (CBN). This electronic payment platform encompasses all public sector entities that collect revenues and other Government receipts such as operating surpluses, refunds, transfers, donations, over-payment, taxes and customs duties among others. There are two structures of TSA. TSA is either a centralized account with transaction sub-accounts domiciled at the central bank or a decentralized TSA with accounts held with commercial banks in which balances in the accounts are transferred into the national TSA. The second option allows mdas to properly handle their financial functions. The first arrangement is majorly embraced by the countries of the West African Economic and Monetary Union (WAEMU) because of the capacity levels of their personnel and their financial management information systems. Centralized TSA is easier to execute due to the limited IT knowledge and capacity of their manpower. However, the decentralized TSA could enhance the commercial banks' stability, foster their going concern status and promote citizens' ability to access financial services from the banks involved. Countries in sub-Saharan Africa such as Nigeria, Tanzania, Mali, Kenya and Ghana have therefore embraced the scheme as an instrument of economic stabilization and growth strategy.

Although, in Nigeria, the pilot TSA scheme started in 2012 using a unified structure of accounting for 217 government Ministries, Departments and Agencies, mdas, for accountability

and transparency in public fund management, the full implementation took effect in 2015. Notwithstanding, Deposit Money Banks (dmbs) can collect revenue on behalf of mdas using Government transit accounts but they must remit such takings to CRA at the end of that transaction day. The essence of TSA is to curb maintenance of multiple bank accounts by mdas so as to effectively monitor government revenue, receipts and expenditures as well as block leakages among the public sector entities. TSA also seeks to address the issue of keeping idle funds in the mdas' bank accounts whereas the Federal Government keeps borrowing for budget implementation. Needless to say, the unutilized public sector funds in the mdas' bank accounts were the ones principally used by Deposit Money Banks (dmbs) to generate free profit. In addition, the new cash management reform has in the short run, robbed off the deposit money banks the monthly opportunities of safekeeping federal allocations released to the Federal, States and Local Governments through FAAC (Federation Account Allocation Committee) of the Federal Ministry of Finance. Dearth of deposited FAAC funds in the mdas' bank accounts is another ugly signal of the implementation of the Treasury Single Account (TSA) to the shareholders and other stakeholders in Nigerian banking firms.

Statement of the Problem

TSA was initially proposed by the Federal Government's Economic Reform and Governance Programme in 2004 but the initiative was jettisoned in 2005 as a result of banking firms' significant pressure. The policy was re-initiated in 2014 by the Administration of Goodluck Ebele Jonathan, which set February, 2015 as the implementation deadline. The idea of TSA implementation was still discarded due to a massive pressure from the banking industry that it could have an adverse impact on the economy. The new administration, which came on board in May, 2015 stood its ground for the implementation of TSA in September, 2015.

Before then, public funds were stashed in multiple bank accounts, exceeding more than 10,000 in various deposit money banks in Nigeria, (Okerekeoti & Okoye 2017). At a point, the Ministries, Departments and Agencies (MDAs) that opened these bank accounts and lodged money therein perhaps found it difficult to identify the total numbers of accounts held on their behalf by the deposit money banks in the country. For instance, a particular Federal University had more than 100 bank accounts but the university management could only ascertain some of the bank accounts (Agabi, 2017). From September 2015, the cash resources in all MDAs' bank accounts were then mopped-up into a single account, called TSA with the Central Bank of Nigeria (CBN) for the purpose of transparency, accountability as well as blocking of leakages in public financial management in the country.

Several countries such as United States of America (USA), United Kingdom (UK), France, Sweden, India and Indonesia have adopted TSA and there was no perceived tension in their banking industry. So, why is Nigerian banking industry taking the hit from the TSA implementation in this country? This is arguably due to the fact Federal Government Deposits (Federal Project funds, monthly release of funds through Federation Account Allocation

Committee-FAAC among others) constituted huge chunks of their deposits while deposits from private individuals and institutions were negligible. As the funds were withdrawn from their coffers, tightened liquidity was envisaged.

Subsequently, this paper sought to cover theoretical gaps in the literature that established relationship between F.G. Deposits (TSA) and bank liquidity performance. This study also attempted to address some methodological gaps because some studies on TSA and bank performance in Nigeria used techniques of analysis such as Chi-Square, Paired sample t-test and percentages, trend analysis (bar charts), Ordinary Least Square (OLS) and the Pearson Correlation techniques, which are contentiously weak analytical techniques while some others only carried out a recycling on previous literature. It is based on these methodological shortcomings that this study explores the effect of F.G. Deposit Withdrawals (TSA) on Liquidity Performance of deposit money banks in Nigeria using Feasible Generalized Least Square (FGLS) as an alternative technique of data analysis. The FGLS estimator generally produces better results than the Pearson Correlation Chi-Square and Paired sample t-test as well as OLS estimators. Nonetheless, this research focuses on addressing the following issue. Does F.G. Deposit Withdrawals (TSA) significantly affect the liquidity performance of Deposit Money Banks in Nigeria?

Research Question

This study sought to provide answer to the following crucial question.

Does F.G. (TSA) Deposit Withdrawal have significant effect on liquidity performance of deposit money Banks in Nigeria?

Objectives of the Study

The study has the following objective:

To examine the effect of F.G. (TSA) Deposit Withdrawal on liquidity performance of deposit money Banks in Nigeria.

Hypotheses of the Study

In line with the objective of the study, the following hypothesis has been formulated in a null form:

F.G. (TSA) Deposit Withdrawal has no significant effect on liquidity performance of deposit money Banks in Nigeria.

Scope of the Study

The study investigated the effect of Treasury Single Account (TSA) on liquidity performance of Deposit Money Banks in Nigeria from the years 2012 to 2017. The study period emanated from the fact that there were reforms such as Government Integrated Financial Management Information System (GIFMIS), Accrual-Based International Public Sector Accounting Standards (IPSAS), Electronic Payment System and Treasury Single Account (TSA), aimed at improving the public finance management in Nigeria.

Significance of the Study

The outcomes of this study are anticipated to benefit the Governments at various levels, banking regulators, managements

and boards of banking firms, existing and potential shareholders of banks, creditors, and Researchers.

Moreover, the Federal, State and Local governments could find this paper useful as a result of the fact that the study empirically investigated the effect of one of the public finance management reforms (TSA) as it affects the intermediation function of the banking industry in Nigeria.

Also, Regulators such as Central Bank of Nigeria and Office of the Accountant General of the Federation (OAGF) could find this paper helpful because the study essentially examined crucial TSA issues influencing banks' liquidity performance in Nigeria so as to take necessary actions.

Furthermore, Boards of Directors and the Management of banking firms in Nigeria are expected to have found this study relevant because it examined certain intermediation issues on banks' liquidity performance and it has revealed some possible lapses affecting their liquidity positions, which need additional commitments to their intermediation functions in the society.

Likewise, researchers and students are expected to have benefited from this study because they are normally concerned

with getting an insight into how Treasury Single Account (TSA) implementation affects banks' liquidity performance. It has therefore, served as a source of knowledge and reference point to researchers and students by adding to literature stream. Apart from that, it has contributed to the frontier of knowledge on the implication of the implementation of Treasury Single Account in Nigeria. The study is categorized into the following: Introduction which is Part 1; a Review of Literature which is Part 2; Data and Methodology which formed Part 3; Data Analysis and Discussion of Findings constituted Part 4 while Part 5 is Conclusion and Recommendation.

Literature Review

Conceptual Framework

The merit of application of concept in social science researches cannot be over-stressed. This is because how such concepts are applied in researches may be different from their general application and interpretation. So, this section discussed the operationalized concepts used in this study. The concept of Treasury Single Account (TSA) and banks' Liquidity Performance are explained in this paper.

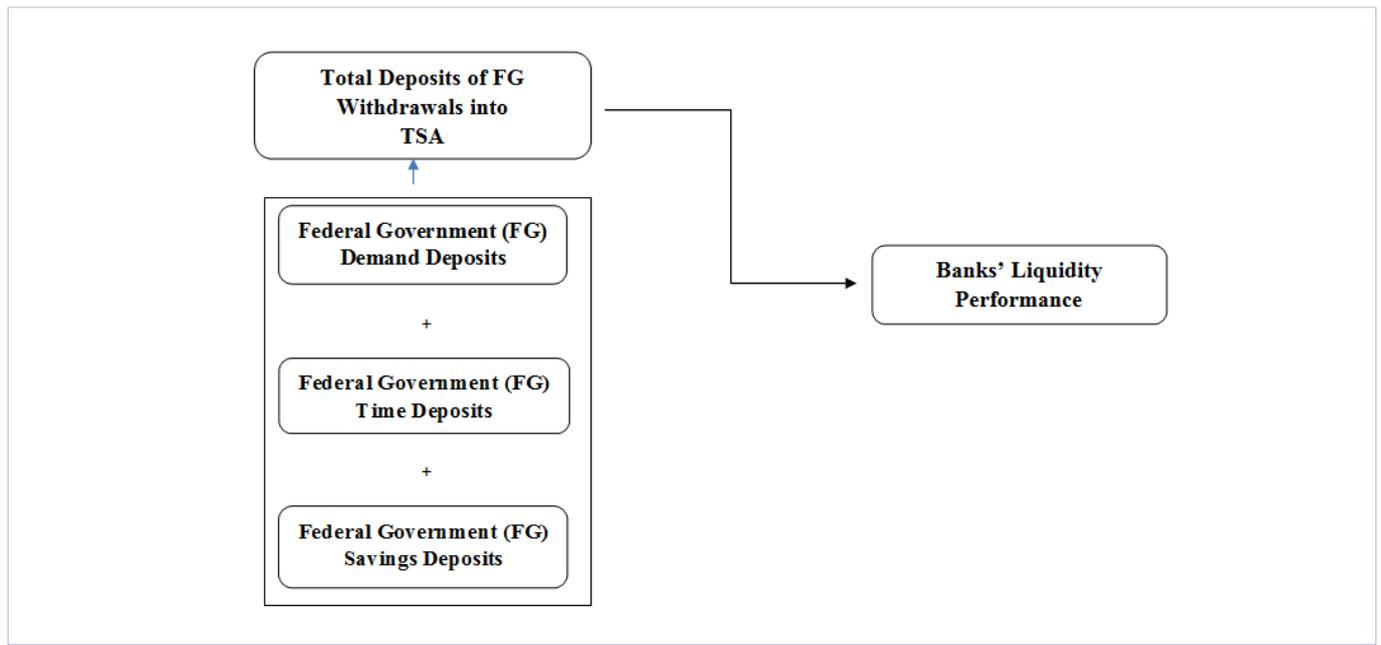


Figure 4.1:Research Framework
Effect of FG Deposit Withdrawals into the TSAon Banks' Liquidity Performance

Deposit Money Banks and Liquidity Performance

Bank liquidity that is managed in an effective, efficient and economical way tends to enhance commercial banks' liquidity performance and financial stability. Thus, [10] described liquidity as a bank's ability to pay cash during unexpected withdrawals of money deposited to it or for any other purposes. So, adequate cash reserves in a bank's coffers implies how liquid the bank is and how easy it is to settle depositor's claim whereas bank's profitability is either met half-way or surrendered. That is, banks

need to compromise profitability for higher liquidity, [3]. So, the liquidity position of a bank is determined by its ability to meet demand deposit withdrawals. On the other hand, investing in long-term loans leads to an increase in profitability but the bank may be at risk of not being able to meet high demand for cash and new loans in the short run. In essence, as a bank incurs too much bad loans, its liquid asset value reduces below the amount of its liabilities, [11]. So, a bank is expected to balance up liquidity and profitability in the performance of its daily operational activities.

Commercial Banks and Treasury Single Account (TSA)

Treasury Single Account is a public accounting system through which all government payments, revenue, receipts and income are transferred into a single account held in the country Central Bank, (Yusuf, 2016) while [17] view TSA as a tool employed to exercise centralized control over governments' revenue through effective cash management. TSA is also a financial policy for the consolidation of all the revenue from the ministries, departments and agencies (mdas) in Nigeria through a deposit into commercial banks traceable into a single account at the country's Apex Bank, (Kanu, 2016). Also, [19] described the TSA as a unified structure of government bank accounts that gives room for consolidation and optimum utilization of government cash resources. Therefore, Treasury Single Account (TSA) is part of the Federal Government of Nigeria (FGN) public financial management reform designed to keep track of all its revenue, receipts and expenditure on a single electronic payment platform so as to have a consolidated view of its cash positions at any point in time. The scheme was designed mainly to block financial leakages, improve transparency and accountability in the Public Sector Organizations in the country.

So, under the TSA, the government bank accounts structure is either a centralized or decentralized system or both as shown in figures 2.2 and 2.3 culled from IMF (2010). Centralized system

is a single bank account with or without sub-accounts and it is maintained at the Central Bank of a country. On the other hand, decentralized or distributed system is a single account with numerous independent bank accounts kept with commercial banks such that consolidated cash balances and position are transferred to TSA at the end of each transaction day, (Sailendra & Israel, 2011). In essence, under the decentralized TSA scheme, any balances remaining with the banking system are moved into the TSA on a daily basis. The government bank account structure of countries such as Sweden, Indonesia, Cambodia and United States is a decentralized TSA Scheme while some countries like France, United Kingdom, New Zealand, Brazil and Russia operate a centralized TSA Scheme. Also, several countries such as Australia, Peru and India operate a combination of centralized and distributed bank accounts structure, otherwise called hybrid system in which main revenues and expenditure pass through the TSA directly while minor transactions are left with the commercial banks. Although, the hybrid arrangement allows that any balances remaining with the commercial banking system be transferred overnight into the TSA, the government funds management team may still leave the net balance of smaller payments with the banking system for investment purpose. This is another way a commercial banking system may still flourish in terms of liquidity under the emerging TSA regime especially in Nigeria. Fig – 4.2, 4.3

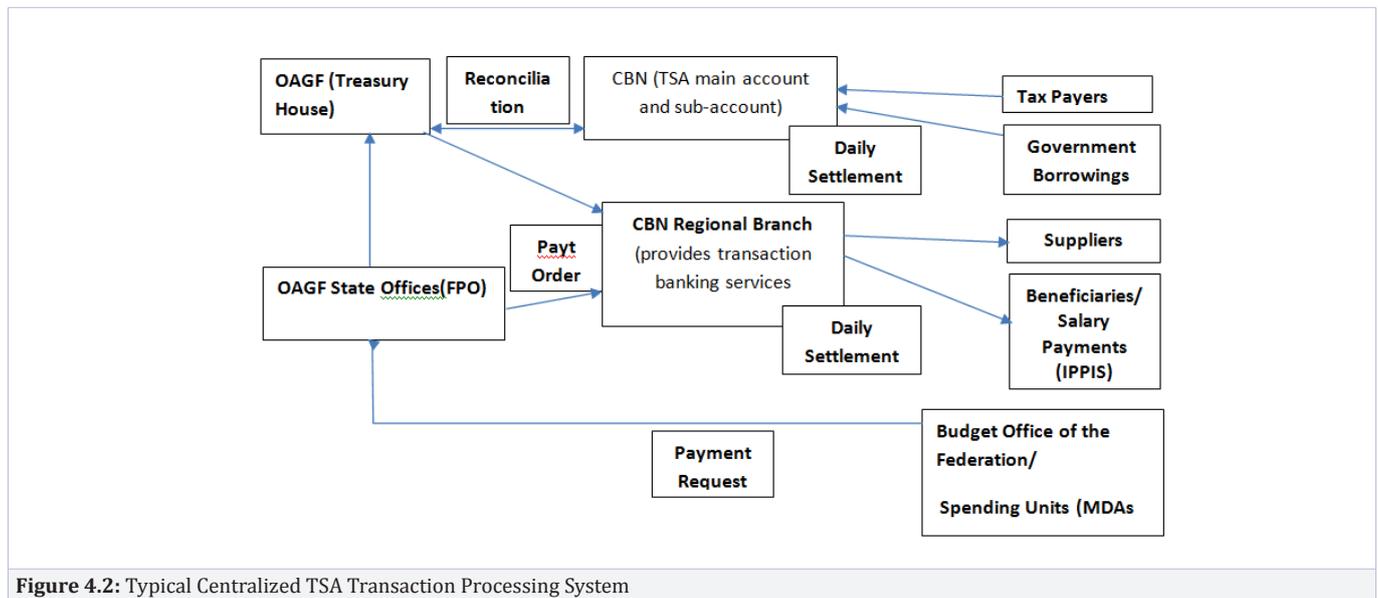


Figure 4.2: Typical Centralized TSA Transaction Processing System

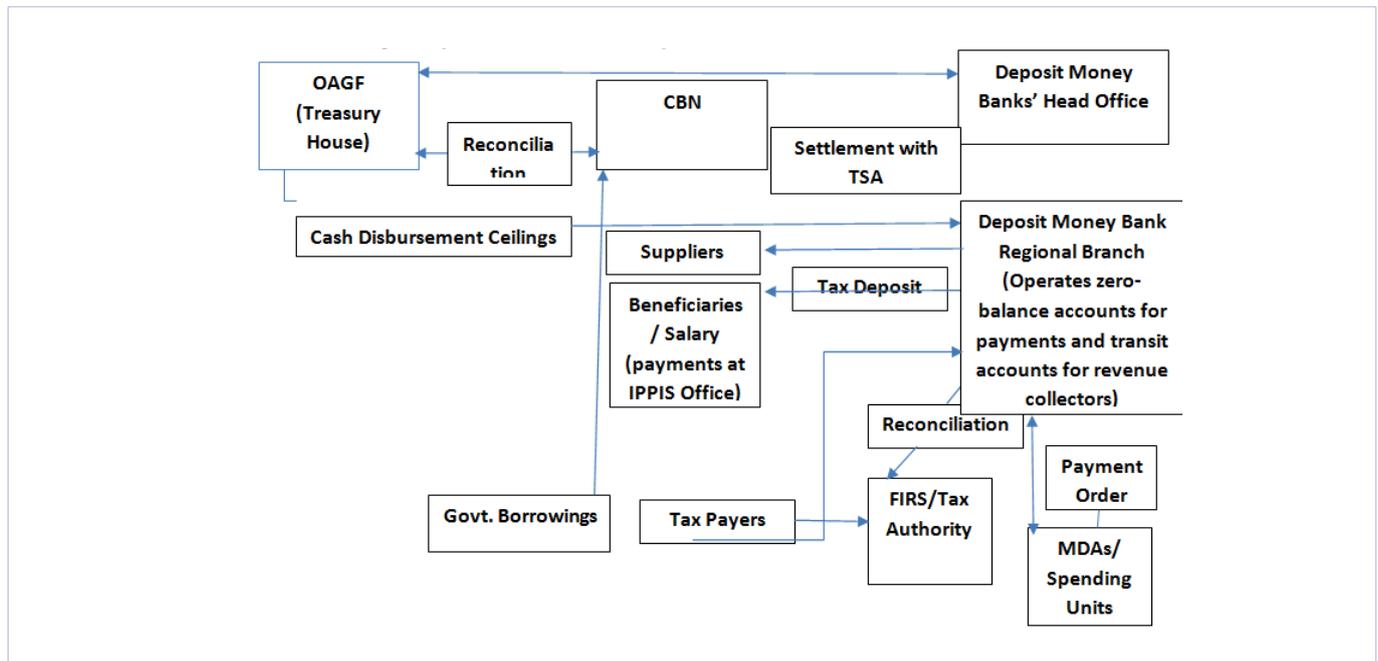


Figure 4.3: Typical Decentralized TSA Transaction Processing System
Note: OAGF: the Office of the Accountant General of the federation and
 IPPIS: the integrated Payroll and Personnel Information System

Empirical Review

This segment presents related literatures on the effect of F. G. Deposit Withdrawals through the TSA on banks' performance in Nigeria.

FG (TSA) Deposit Withdrawals and Liquidity Performance of Banks.

Few studies that concentrate on the impact of TSA on bank performance are reviewed as follows:

Olowokure and Adetoso examined the impact of the Treasury Single Account on the liquidity of money deposit banks in Nigeria. Primary data were collected from five Deposit Money Banks in Nigeria. The study found that there is a significant relationship between treasury single account and bank liquidity. In addition, Ndubuaku, Ohaegbu and Nina, (2017) examined the impact of Treasury Single Account on the Performance of the Banking Sector in Nigeria using secondary and time series data collected from the CBN statistical bulletin 2015. The study used regression technique in analyzing the data. The results of the study showed that there is a positive and significant relationship between TSA and the performance of the Banking Sector in Nigeria. The study however covered the Pre and During-TSA period and not post-TSA Era. Hence, this present study has extended the scope to post-TSA period.

However, [24] used primary and secondary data from Ministries, Department and Agencies (mdas) within Bauchi metropolis to evaluate the effects of Treasury Single Account on Public Finance Management in Nigeria. The analysis of data was carried out through the use of Pearson Correlation techniques. It was then found that there is a strong positive relationship between

Treasury Single Account and Publicfinancial management in Nigeria. Notwithstanding, the study covered only mdas in one out of 36 States of the Federation with 34 observations. Hence, the need to extend the scope of the study to cover larger samples so as to enhance the existing literature on TSA. Therefore, this present paper has covered this gap with larger observations.

Furthermore, Kanu (2016) assessed the impact of Treasury Single Account on the liquidity of banks in Nigeria using a primary data from a sample of ten Deposit Money Banks in the country. The study used Chi-square as a statistical tool when analyzing the primary data. The findings of the study showed that there is a negative impact of TSA on the liquidity base and the performance of banking sector in Nigeria. However, technique of data analysis used in the study appears outmoded. Therefore, this paper has filled the gap by employing more efficient and consistent analytical technique (FGLS).

Conversely, [18] examined the effect of implementation of Federal Government Treasury Single Account (TSA) Deposits and commercial banks performance in Nigeria from the period 2012 to 2016 using time series data. Trend analysis (bar charts) and SPSS 7.0 software descriptive statistics and least square test were used as tools of data analysis. The study then found and concluded that the implementation of TSA in the public sector deposits (Demand, Time and Savings) deposit accounting system did not impact significantly on the performance of the commercial banks. The six observations seem to be small in terms of generalizing the study result across the deposit money banks in Nigeria. So, this present study has sought to cover the gap.

Additionally, [1] evaluated the effects of Treasury Single

Account (TSA) on Performance and Survival of Deposit Money Banks in Nigeria using secondary data with a sample of six (6) banks. The study employed sample t- test analysis techniques and percentages. It was then found that Treasury Single Account (TSA) has no effect on banks performance and survival. However, the study obtained data from financial statements of six banks for one year. This period is too short and a sample size of only six observations may not be adequate enough for generalizing the findings to all the deposit money banks in Nigeria. This present study has extended the scope to six years across 22 deposit money banks in the country.

On the contrary, [2] investigated the impact of Treasury Single Account on the Liquidity of Banks in Nigeria using secondary data drawn from the annual reports of Fifteen (15) listed banks. The study employed descriptive statistics and Paired sample t-test as a technique of data analysis. The findings showed that the implementation of Treasury Single Account had negative impact on the liquidity base of banks in Nigeria. A year analysis with fifteen observations may be too short to generalize the results of the study. Hence, this present study has covered the scope with more observations across time and banks in Nigeria.

Moreover, [25] assessed the effect of implementation of the Treasury Single Account on the Liquidity of Deposit Money Banks in Nigeria. After surveying the theoretical and empirical literature on the subject matter, it was concluded that the implementation of treasury single account would have negative effect on the liquidity of deposit money banks in Nigeria. It was then recommended that further studies be conducted on the relationship between TSA and the liquidity of money deposit banks in Nigeria using performance metrics. This paper has therefore attempted to implement the aforementioned recommendation.

Conversely, [16] assessed the impact of Treasury Single Account on the Performance of Banks in Nigeria using multivariate data were obtained from two commercial banks (Diamond bank and First bank Nigeria limited), Owerri, and Imo State, Nigeria from 2015 to 2017. The study employed multivariate analysis model in determining the Hotelling's T2 statistic; Mahalanobi's D2 statistic and F distribution for the research problem. It was then found that there was no significant difference between the period before and after the introduction of the TSA policy on the performance of banks in Nigeria. The study however, used very few samples from a city in a State out of thirty-six (36) States in Nigeria, which are too small to represent the entire deposit money banks in the country. Hence, there is the need to reinvestigate the study so as to cover wider scope for better generalization of the research findings.

Furthermore, [4] examined the impact of Treasury Single Account (TSA) implementation on Bank Liquidity in Nigeria using data gathered from annual reports of ten (10) deposit money banks for the period 2010-2015. The study applied Regression Models of student t - test statistical technique. It was then concluded that TSA has a negative effect on the banks' current ratio in Nigeria. The study covered the period before TSA and up to the implementation year (2015) but not after.

This paper therefore covers the period before and after the TSA Implementation, thereby enhancing informational value of the research in this jurisdiction.

Also, [12] examined the effects of Treasury Single Account (TSA) and Bank performance in Nigeria. A survey research design and Ordinary Least Square (OLS) were employed in the study. The finding then showed a negative and significant relationship between TSA and bank Liquidity. Nonetheless, the outcome of the primary data collected from the personnel of deposit money banks in five cities (Agbor, Asaba, Awka, Benin, and Onitsha) out of seven hundred and seventy-four (774) local governments may not be generalized to have revealed the effect of TSA on bank performance in Nigeria.

Similarly, [21] investigated the opinion and perception of Treasury Single Account (TSA) adoption in Nigeria. Data were relationship among the variables studied. Another flaw is that there was no any hypothesis tested during the course of the study. Therefore, this particular paper has addressed the above-mentioned shortcomings in the literature.

Theoretical Framework

The conceptual framework shows how F.G. Deposit Withdrawals (TSA) is related to bank performance based on the theoretical point of view. The explanation of shift-ability theory is presented below.

As stated by [14], the Shift ability theory of liquidity was postulated by Harold G, Moulton in 1915. The theory propounds that a bank that is short of ready money can shift (sell) its assets (financial instruments such as treasury bills, commercial papers) to a more liquid bank, in an organized secondary market. With this, banking firms can be protected against liquidity crisis in banking firms that may warrant huge withdrawals by depositors.

The empirical studies on the effect of F.G. Deposit Withdrawals (TSA) on banks' performance are still scanty in Nigeria. Therefore, this study sought to fill an essential literature gap by improving stakeholders' understanding on the effect of TSA on banks liquidity performance in Nigeria.

Research Methodology

This study is limited to the deposit money banks in Nigeria from the years 2012-2017. Secondary and time series data of twenty-two (22) deposit money bankswere obtained from the 2017 CBN Financial Stability Report. The use of deposit money banks can be justified based on availability and reliability of data from the Apex Bank. The study used correlational research design because it allows for testing of relationships between or among variables and making of predictions concerning these relationships. The variable of the study was chosen based on shift ability theory insights. The model can therefore be represented hereunder:

$$\text{Lastlit} = \beta_0 + \beta_1 \logfgd_{it} + \varepsilon$$

Where:

LASTL (Liquidity Ratio) = Liquid Assets to Short Term Liabilities

LOGFGD = (F.G. Deposit) = Log of Total F.G. Deposits at Time
t, Bank i

β_0 , and β_1 are parameters to be estimated with a priori expectation.

ϵ = The Error Term.

Table-1: Description of the variables and their expected relationship

Variables	Measure	Notation	Source
Dependent variable:			
Liquidity Ratio	Liquid Assets/ Short Term Liabilities of the bank in year _t	LASTL	(Ajetunmobi, Adesina, Faboyedeand Adejana, 2017)
Independent Variable			
F.G. Deposit (TSA)	Log of Total F.G. Deposits in bank _t , year _t	LOGFGD	(Onuorah, 2016)

The study employed Feasible Generalized Least Square (FGLS) an alternative technique of analysis to Random Effect (RE) Model while estimating the parameters of the afore-stated model. FGLS was applied in this study as a result of the fact that it controls for autocorrelation and heteroscedasticity simultaneously. It is arguably more consistent and efficient than RE model.

Data Analysis and Discussion of Findings

Data Presentation

The following data were obtained from the Central Bank of Nigeria (CBN). The Liquidity Ratios for the period 2012-2017 were gathered from the CBN-Financial Stability Report 2017 while the data on Federal Government of Nigeria (FGN) total Deposits consisting of Time, Savings and Demand Deposits in the twenty-two (22) Deposit Money Banks were collected through the CBN 2017 Statistical Bulletin- Financial Sector. Table - II

Descriptive Statistics

Descriptive statistics were presented in this part of the study so as to assess the relationship between explanatory variable (TSA) and dependent variable (Liquidity Ratio). Table - III

Table III revealed that LASTL, representing bank liquidity performance has a mean of 0.23233 and standard deviation of 0.03371; TSA has average value of 5.45667 and standard deviation of 0.70099. The analysis indicated that the TSA has the highest average value of 5.45667 and the deviation from the mean at 70.01% while Liquidity Ratio (LASTL) has the lowest mean (0.23233) and standard deviation (0.03371), indicating that the data are clustered around the average thereby making it more reliable. The coefficients of skewness and Kurtosis for TSA and Liquidity Ratio confirm that the data conform to the Gaussian distribution requirement. The results of the correlation among the variables are explained in the following section. Table - IV

Table II: Research Data

LIQUIDITY RATIO						
YEAR	2012	2013	2014	2015	2016	2017
RATIO	0.221	0.231	0.167	0.271	0.245	0.259
TOTAL FGN DEPOSITS (TSA)						
YEAR	2012	2013	2014	2015	2016	2017
(N' MILLION)	1,112,985.85	2,932,355.79	764,578.53	53,806.95	67,831.42	60,343.33
LOGFGN						
DEPOSITS	6.0465	6.4672	5.8834	4.7308	4.8314	4.7806
2017 DEPOSIT MONEY BANKS (COMMERCIAL BANKS) IN NIGERIA						
Access Bank Nig.	Citibank Nig.	Diamond Bank Nig.	Ecobank Nig.	Enterprise Bank	Fidelity Bank	First Bank Nig.
FCMB Nigeria	GTB Nigeria	Heritage Bank Nig.	Keystone Bank	Main street Bank	Skye Bank	Stanbic IBTC
Standard Chartered	Sterling Bank	SunTrust Bank Nig.	Union Bank Nig.	UBA Nigeria	Unity Bank Nig.	Wema Bank Nig.
						Zenith Bank Nig.

Table – III: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
LASTL	132	0.23233	0.03371	0.167	0.271	-0.8871	2.75329
LOGFGD	132	5.45667	0.70099	4.73084	6.46722	0.18555	1.28691

Table IV- Correlation Matrix

	lastl	logfgd
lastl	1.000	
logfgd	0.639	1.000

Correlation Matrix

In table IV above, the correlation coefficient is concerned with the linear relationship between dependent and independent variables. The result of the pairwise correlations indicates some degree of correlation between Liquidity Ratio (dependent variable) and FG Deposits-TSA (independent variable). The overall correlation fell below 0.7, signifying a negligible level of collinearity between the variables.

Presentation and Discussion of Regression Results

The robust regression result is discussed and analyzed in this section. After the analysis, the hypotheses testing and discussion

of policy implication of the findings then followed. The summary of the robust FGLS regression results is presented in table IV of this paper.

Hausman Test

The efficiency and consistency between the FE and RE estimators is tested through Hausman Specification. In this paper, the Hausman test was employed to determine the efficiency between Fixed Effect and Random Effect Models. The Null hypothesis is rejected if Prob> chi2 is not found to be significant, indicating that Random Effect (RE) should be employed in estimating the research model. Otherwise, Fixed Effect would be used. The test result is attached as Appendix to this paper.

Table V- Summary of Robust Regression Results

Cross-Sectional Time Series FGLS Regression					Cross-Sectional Time Series FGLS Regression					Cross-Sectional Time Series FGLS Regression				
(PRE-TSA ERA)2012-2014					(POST-TSA ERA) 2015-2017					(PRE&POST-TSA ERA) 2012-2017				
Var	Co-eff	Std Error	T-value	P-value	Var	Co-eff	Std Error	T-value	P-value	Var	Co-eff	Std Error	T-value	P-value
Cons	-0.3611	0.05069	-7.12	0	Cons	1.49434	0.058728	254.45	0	Cons	0.400036	0.017707	22.59	0
logfgd	0.92531	0.008259	11.2	0.000***	logfgd	-0.2585	0.001228	-210.47	0.000***	logfgd	-0.30734	0.003219	-9.55	0.000***
Coefficients: generalized least squares					Coefficients: generalized least squares					Coefficients: generalized least squares				
Panels: homoskedastic					Panels: homoskedastic					Panels: homoskedastic				
Correlation: no autocorrelation					Correlation: no autocorrelation					Correlation: no autocorrelation				
Wald chi2(1) = 125.54					Wald chi2(1) = 44297.19					Wald chi2(1) = 91.17				
Prob> chi2 = 0.0000					Prob> chi2 = 0.0000					Prob> chi2 = 0.0000				
No. of Obs= 66					No. of Obs= 66					No. of Obs= 132				

Source: State (***, **, *) indicates level of significance at 0.01, 0.05 and 0.10, respectively

Subsequently, the test of the above Hausman specification supported the use of random effect (RE) model. However, the Feasible Generalized Least Square (FGLS) was explored to further model the relationships among the variables under study because it basically corrects for autocorrelation and heteroscedasticity. Our interpretation is therefore based on FGLS Regression, which has perhaps proven to be more efficient than RE. The summary of the regression result obtained from the FGLS ($LASTL.it = \beta_0 + \beta_1 logfgd.it + \epsilon.it$) was presented and analyzed. Table - V

The findings from the table IV implied that the results of FGLS are more consistent and efficient than other techniques attached as appendix to this study. The Wald Test of p-value 0.0000

also showed that the variables and the model used are jointly significant and accurately specified.

F.G. Deposits and Liquidity Performance- PRE-TSA ERA

The coefficient of the variable, F.G. Deposit (TSA) represented by log of Federal Government Total Deposits at Deposit Money Banks (logfgd) signified a positive coefficient and significant at 1% on Liquidity, a measure of bank performance. The findings revealed that a 1% change in Federal Government Deposits could give rise to an increase in bank liquidity performance by 92.53% while other factors are held constant. This reveals that the deposit money banks in Nigeria depend heavily on Federal Government

lodgments by way of monthly allocations from federation Account Allocation Committee (FAAC), Internally Generated Revenues from mdas, F. G. Independent Revenues, proceeds from the sale of Crude Oil, Tax Remittances, mdas Project funds and other forms of receipts from the Federal Government. This result is consistent with that of Yusuf (2016); [15] whose studies covered majorly the Pre-TSA period.

F.G. Deposits and Liquidity Performance- POST-TSA ERA

As expected, the coefficient of F.G. Deposit Withdrawals (TSA) revealed that a negative and statistically significant relationship with banks' liquidity in Nigeria at 1% level of significance. This signifies that 1% increase in F.G. Deposit Withdrawals into the Treasury Single Account (TSA) could lead to a substantial decrease in banks liquidity by 25.85% and 30.73% for POST-TSA and PRE&POST TSA Era respectively while other variables remain constant. Therefore, the negative relationship between

F.G. Deposit Withdrawals into TSA and bank Liquidity could be due to high dependence of the deposit money banks on lodgments from the Public Sector Entities instead of transforming millions of unbanked Nigerian populace into bankable ones. From the FGLS Regression Result, the Wald chi2 of 91.17, which is significant at one percent (1%), indicates that TSA and bank liquidity model are fit. This reveals that there is 91.17% probability that the relationship among the variables is not due to a mere chance. Hence, the function for our regression equation is as follows:

$$(LASTL.it = 0.400035 - 0.307335CAD.it + \epsilon.it)$$

Test of Hypothesis

This section presents the result obtained from the FGLS regression analysis in order to test the hypothesis of this study. The regression result used to test the hypotheses of the study is presented in table IV below in order to produce an evidence of rejecting or not rejecting the null hypothesis. Table - V

Table V. Regression Coefficients of the Model of the Study

Var	Co-eff	Z-value	P-value	Accepted	Rejected
logfgd	-0.3073	-9.55	0.000***		✓

Hypothesis

H0: F.G. (TSA) Deposit Withdrawal has no significant effect on liquidity performance of deposit money Banks in Nigeria.

Based on the above FGLS estimations, there is a negative and significant relationship between TSA and bank liquidity in Post-TSA Era at 1% level of significance. Based on this, the null hypothesis is rejected as anticipated. This negative correlation between F.G. Deposits

(TSA) and bank liquidity is consistent with previous studies such as [13], (Ajetunmobi, Adesina, Faboyede & Adejana, 2017), (Zayol, Iorlaha & Nege 2017), (Ighosewe & Ofor, 2017) and (Solanke, 2018) but contrary to the shift ability theory due to the fact that the deposit money banks find it challenging to shift (sell) their liquid assets to more liquid banks in the Nigerian banking industry.

Implication of Findings

Findings emanated from this study have several implications for shareholders, investors, regulators and bank management. Considering the evidence on what affects bank liquidity, deposit money bank managers will know better the effect of the Treasury Single Account (TSA), which led to complete withdrawals of Federal Government Deposits from the banks' coffers. Understanding the effect of the withdrawn F.G. deposits into TSA will enhance their innovation in the application of information technology, cost reduction and credit risk management among the deposit money banks for boosting their earnings rather than excessively relying on the Government deposits. The finding of this study therefore implies that the implementation of the TSA

has adversely affected liquidity in the banking system, leading to a pressure on interest rates and inadequate availability of credit to the Nigerian economy.

Moreover, the result of the negative and significant relationship between TSA and dmbs' liquidity performance is unsurprising due to the fact that some deposit money banks in Nigeria failed to file their Audited Financial Statements as and when due. For instance, Skye Bank plc submitted only 2015 audited report to the Nigerian Stock Exchange but it has not been able to file that of 2016 and 2017 audited financial statements as at the end of third Quarter of 2018. In addition, Banks such as Fidelity Bank Plc., Unity Bank Plc., Union Bank Plc., Diamond Bank Plc. And First Bank had not filed their Audited Financial Statements for the year ended December, 2017 even as at the end of June, 2018. This worrisome situation leaves much to be desired as their inability to open up by way of published financial statements kept casting doubts into the minds of investors, regulators and the general public concerning the true state of their liquidity performance.

Conclusion and Policy Recommendations

Conclusion

Relevant literatures have been reviewed while the results and discussion have also been carefully analyzed. The study then concluded that there is a positive relationship between F.G. Deposits and bank liquidity performance in the Pre-TSA era whereas there is a negative relationship between F.G. Deposits and bank liquidity performance in the Post-TSA period. Overall, the F.G. Deposit is negatively related to bank liquidity performance, which signifies that as Federal Government deposited funds are

withdrawn into the TSA, the banks' liquidity became chronically and persistently threatened, thereby affecting the banking firms' financial health and soundness.

Recommendations

Therefore, in line with the findings and the conclusion reached in this study, the following recommendations are made:

The bank managers should aggressively transform unbanked members of the public into bankable individuals for higher liquidity performance of the deposit money banks.

Also, the country's fund managers should consider a hybrid system of TSA so that minor cash balances that may be left with the commercial banking system could be invested to boost the banks' liquidity and generate returns on invested funds for the government as well.

Suggestions for Further Research

It is believed that the study has been able to give room for further research due to the fact that the study only explored one explanatory variable, Treasury Single Account (TSA) proxied by the Federal Government Deposit as it affects banks' liquidity whereas other macro-economic factors such as Gross Domestic Products (GDP), Inflation, Money Supply, Growth in Interest Rate and Growth in Exchange Rate were excluded in this study. It is therefore recommended that future researchers who might be interested in this area of study should expand the scope to include other indices not included in this study

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Appendices

TSA AND NIGERIAN DMBs' LIQUIDITY (PRE AND POST)

OLS REGRESSION

Source	SS	df	MS			
Model	.060802355	1	.060802355	Number of obs =	132	
Residual	.088034993	130	.000677192	F(1, 130) =	89.79	
Total	.148837348	131	.001136163	Prob > F =	0.0000	
				R-squared =	0.4085	
				Adj R-squared =	0.4040	
				Root MSE =	.02602	

lastl	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
logfgd	-.0307335	.0032435	-9.48	0.000	-.0371503	-.0243167
_cons	.4000359	.0178428	22.42	0.000	.3647361	.4353358

FIXED EFFECT MODEL

Fixed-effects (within) regression
Group variable: index

R-sq: within = 0.4085
between = .
overall = 0.4085

corr(u_i, Xb) = .

Number of obs = 132
Number of groups = 22
Obs per group: min = 6
avg = 6.0
max = 6

F(1,109) = 75.28
Prob > F = 0.0000

lastl	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
logfgd	-.0307335	.0035421	-8.68	0.000	-.0377539	-.0237131
_cons	.4000359	.019486	20.53	0.000	.3614154	.4386565
sigma_u	0					
sigma_e	.02841937					
rho	0	(fraction of variance due to u_i)				

F test that all u_i=0: F(21, 109) = -0.00 Prob > F = 1.0000

RANDOM EFFECT MODEL

```

Random-effects GLS regression           Number of obs   =   132
Group variable: index                  Number of groups =    22

R-sq:  within = 0.0000                  Obs per group:  min =    6
      between = 0.0000                  avg   =   6.0
      overall  = 0.4085                  max   =    6

Random effects u_i ~ Gaussian          Wald chi2(1)    =   89.79
corr(u_i, X) = 0 (assumed)            Prob > chi2     =   0.0000
    
```

lastl	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
logfgd	-.0307335	.0032435	-9.48	0.000	-.0370906	-.0243764
_cons	.4000359	.0178428	22.42	0.000	.3650647	.4350072
sigma_u	0					
sigma_e	.02841937					
rho	0	(fraction of variance due to u_i)				

HAUSMAN SPECIFICATION TEST

. hausman fe

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fe	(B) .		
logfgd	-.0307335	-.0307335	3.62e-15	.0014237

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\begin{aligned}
 \text{chi2}(1) &= (b-B)'[(V_b-V_B)^{-1}](b-B) \\
 &= 0.00 \\
 \text{Prob}>\text{chi2} &= 1.0000
 \end{aligned}$$

FGLS

Cross-sectional time-series FGLS regression

Coefficients: generalized least squares
Panels: homoskedastic
Correlation: no autocorrelation

Estimated covariances	=	1	Number of obs	=	132
Estimated autocorrelations	=	0	Number of groups	=	22
Estimated coefficients	=	2	Time periods	=	6
Log likelihood	=	295.3464	Wald chi2(1)	=	91.17
			Prob > chi2	=	0.0000

lastl	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
logfgd	-.0307335	.0032188	-9.55	0.000	-.0370422	-.0244248
_cons	.4000359	.0177071	22.59	0.000	.3653306	.4347413

SUMMARY STATISTICS

Variable	Obs	Mean	Std. Dev.	Min	Max
lastl	132	.2323333	.033707	.167	.271
logfgd	132	5.456671	.7009911	4.730838	6.467216

CORRELATION MATRIX

(obs=132)

	lastl	logfgd
lastl	1.0000	
logfgd	-0.6392	1.0000

LASTL

Percentiles		Smallest		
1%	.167	.167		
5%	.167	.167		
10%	.167	.167	Obs	132
25%	.221	.167	Sum of Wgt.	132
50%	.238		Mean	.2323333
		Largest	Std. Dev.	.033707
75%	.259	.271		
90%	.271	.271	Variance	.0011362
95%	.271	.271	Skewness	-.8870902
99%	.271	.271	Kurtosis	2.753291

LOGFGD

Percentiles		Smallest		
1%	4.730838	4.730838		
5%	4.730838	4.730838		
10%	4.730838	4.730838	Obs	132
25%	4.780629	4.730838	Sum of Wgt.	132
50%	5.357426		Mean	5.456671
		Largest	Std. Dev.	.7009911
75%	6.04649	6.467216		
90%	6.467216	6.467216	Variance	.4913886
95%	6.467216	6.467216	Skewness	.1855275
99%	6.467216	6.467216	Kurtosis	1.286908

TSA AND NIGERIAN DMBs' LIQUIDITY (PRE) 2012-2014

FGLS

. xtgls lastl logfgd

Cross-sectional time-series FGLS regression

Coefficients: generalized least squares
Panels: homoskedastic
Correlation: no autocorrelation

Estimated covariances	=	1	Number of obs	=	66
Estimated autocorrelations	=	0	Number of groups	=	22
Estimated coefficients	=	2	Time periods	=	3
Log likelihood	=	177.2346	wald chi2(1)	=	125.54
			Prob > chi2	=	0.0000

lastl	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
logfgd	.0925314	.0082585	11.20	0.000	.076345 .1087179
_cons	-.3611041	.0506852	-7.12	0.000	-.4604452 -.261763

TSA AND NIGERIAN DMBs' LIQUIDITY (POST) 2015-2017

FGLS

Cross-sectional time-series FGLS regression

Coefficients: generalized least squares
Panels: homoskedastic
Correlation: no autocorrelation

Estimated covariances	=	1	Number of obs	=	66
Estimated autocorrelations	=	0	Number of groups	=	22
Estimated coefficients	=	2	Time periods	=	3
Log likelihood	=	421.1374	wald chi2(1)	=	44297.19
			Prob > chi2	=	0.0000

lastl	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
logfgd	-.2585261	.0012283	-210.47	0.000	-.2609336 -.2561186
_cons	1.494338	.0058728	254.45	0.000	1.482827 1.505848

SYSTEMATICALLY IMPORTANT BANKS IN NIGERIA

1. First Bank of Nigeria Limited
2. Guaranty Trust Bank Plc (GT Bank)
3. Zenith Bank Plc
4. United Bank for Africa Plc (UBA)
5. Access Bank Plc
6. Skye Bank Plc
7. Ecobank Nigeria
8. Diamond Bank Plc.

Source: <http://nigeriannewsdirect.com/eight-cbns-important-banks-account-for-n11-76trn-industry-loans-cbn/>