

Research paper

Measuring the Impact of Treasury Single Account on the Failure of Financial Institutions

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Structured abstract

Purpose: This paper evaluated the impact treasury single accounts on the failure of financial institutions in Nigeria. The objective was to determine the influence of the huge cash extraction from Deposit Money Banks which reduced the amount of cash in circulation. The exercise threw most of the commercial banks and the associated institutions financially off balance which negatively affected banks liquidity level and its ability to create credits. The issue also increased bank lending rate, triggered off staffs downsizes which worsen the unemployment situation in the first quarter of 2017 and was perceived to affect the real sector at the long run.

Design/Methodology/Approach: A survey research design approach was adopted. The population of the study consist of 99 financial institutions in the Nigerian business directory. 30 companies with 450 management staff were used as the study sample. Primary data were collected through copies of questionnaire administered and 325 valid responses were returned and analyzed. The response rate of 72% achieved was considered good enough for the analysis. Regression analysis technique with the aid of E-views (Version 9.5) was employed to measure the strength of the relationship between the variables.

Findings: Evidence obtained from the analysis results confirmed that deposit money bank liquidity crisis has significant effect on other financial institution liquidity crunch ($R = .868$ $R^2 = 854$; $P < .05$) and Treasury single account (TSA) has significant impact on the failure of financial institutions ($R = 0.878$; $R^2 = 872$; $P < .05$). Therefore all null hypotheses were rejected and the alternates not rejected.

Research limitations: This study has two known limitations. The first is the size of the population (30 top financial institutions (distributed among deposit money banks, insurance and investment companies). This is regarded as small compare to the total population. Second, the study concentrated on a sub-sector of Nigeria economy. Result may vary if other sectors affected by the treasury single accounts exercise are included in the study.

Practical implications: The two hypotheses developed and tested indicated that the sub variables of the independent have significant impacts on the dependent variable. The study concluded that Treasury single account (TSA) has significant influence on the failure of financial institutions in Nigeria. This is because deposit money bank liquidity crisis would negatively propel all financial institutions liquidity crunch through multiplier effect. Therefore the study concluded that Treasury single account had reliably predicted the failure of financial institutions in Nigeria.

Originality/Value: To the best this researcher's knowledge, no study was conducted to examine the relationship between treasury single accounts and failure of financial institutions. This has prevented conclusion in this direction. In order to address the identified gaps in the literature created by the omission, this study developed two hypotheses to enable the researcher explore the

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influence of TSA on the failure of financial institutions in Nigeria. The study first examined the linkage between liquidity problem of DMBs and that of other financial institutions and then the impact of TSA on the failure of financial institutions.

Keywords: Treasury single account; Liquidity crisis; Financial institutions; financial institutions failures

1. Introduction

The segmentation of Nigerian government cash recourses through various ministries, departments and agencies (MDAs) revenue accounts at different deposit money banks accounts impelled leakages in the financial system and promoted corruption in diverse ways. Some of the direct embezzlements and misappropriations of funds recorded in the public sector were traced to multiple revenue accounts which provided opportunities for some privileged officials (Okpala, Olabisi, & Adebayo, 2017). Some government officials capitalized on this legitimate freedom to place unspent public funds within their agency votes in the interest yielding fixed deposits for personal profit or gain for the few privileged. Some other MDAs officials used these accounts to hide the expired funds contrary to the provisions of the constitution which states that unappropriated funds in any vote must revert to consolidated revenue fund on the 31st December each year (Igbekoyi & Agbaje, 2017). Another predicament was the refusal of some MDAs to comply with the federal government directive which stated that income generating public agencies should declare the revenue earned and remit 25 percent to the treasury (Okpala et al., 2017). The above irregularities and noncompliance inspired by the proliferation of revenue accounts were to a large extent an impediment to cash resources consolidation and the implementation of proper financial management framework in Nigerian public sector (Okey & Eduno, 2014; Oloba, Orenuga & Nkuma, 2017).

The federal government of Nigeria (FGN) in bid to address the identified anomalies in the cash operations and tighten financial controls in the system introduced a treasury single account (TSA). The primary reason for the TSA was to unify FGN treasury to enable them harmonize all cash receipts and payments at every point in time (Kanu, 2016). The concomitant merits of TSA include blocking financial leakages, reducing corruption, and preventing mismanagement of public funds. This practice would promote transparency and proper funding of government operations. Experts opined that the TSA policy would improve data collection, analysis and timely aggregation of all federal government cash transactions (Okey & Eduno, 2014; Kanu, 2016). The Senate Report (February, 2016) stated that TSA planning started during Jonathan's government but kicked off under the administration of President Mohammadu Buhari in March, 2015. All federal MDAs accounts maintained at different deposit money banks were mandated by the presidency to shut down effectively at the end of September, 2015. The treasury circular reference no TRY/A7 & B7/2015 OAGF/CAD/026/V.11/240 of 17th August, 2015 provided the TSA e-collection Remita procedure which marked the commencement of the policy implementation in Nigeria (Taiwo, 2015; Udoma, 2015). Most deposit money banks (DMBs) complied with the TSA directive and there was enormous harvest in the e-collection efforts (Igbekoyi & Agbaje, 2017).

The cash withdrawn from accounts with the DMBs led to massive one time surge in October, 2015. The CBN (2016) confirmed that the sum of ₦1,553t (One trillion, five Hundred and Fifty Three Trillion Only) was transferred to the TSA in CBN. Recently some studies were conducted on the effect of TSA on liquidity of Nigerian deposit money

banks. The finding showed that both variables have significant relationship (Central Bank of Nigeria, 2015; Kanu, 2016; Okpala, et al., 2017). It was perceived that TSA implementation may through multiplier effect may hinder the aggregate financial service delivery and possibly lead to failure of financial institutions. This could limit the growth of the productive sector of the economy on the long run

The huge cash extraction from DMBs reduced the amount of cash in circulation as the CBN does not transact business with the general public. This threw most of the commercial banks and the associated institutions financially off balance and left negative effects on banks liquidity and ability to create credits as a matter raising. Other problems created were increase in bank lending rate and staffs downsize which worsen the unemployment rate in the first quarter of 2017. It was obvious that while the TSA policy implementation was addressing the issues of financial leakages and poor cash management, the deposit money banks within the economy suffered setbacks. The effective link between organizations in the financial sector suggests that the liquidity shock of one sub sector may result in a full blown financial crisis that may affect the whole financial sector in broad terms. The questions in this research paper were: (i) What impact does huge cash withdrawal from DMBs have on other financial institutions? (ii) How does TSA policy implementation inspire failure of financial institutions in Nigeria? This study attempted to provide empirical evidence to address the above questions. The general objective of this paper was to measure the impact of treasury single account on the failure of financial institutions. In order to achieve this objective, the study intends to examine the connection between DMBs' liquidity shortages and the liquidity crisis of other financial institutions. The study would be of significant value to the investors, banks management and its apex institutions and most importantly, the government policy makers who needs to weigh the implications of their policies before execution. The empirical result obtained would service as a decision template for policy makers.

2. Literature Review

2.1. Conceptual Review

2.1.1. Treasury single account

The treasury single account is described as a public accounting system that accommodate all revenue of the government are collected and paid into a voted account usually maintained by the Central Bank. Payments are also made through the same account (Adeolu, 2015). Sailendra and Israel (2010) noted that the treasury single account in any country is an essential tool for consolidating and managing government's cash flows, thereby reducing external loan and costs of debt servicing. The operation of TSA is simple as depositors make payment to a transit accounts in designated deposit money banks. The money lodged would automatically be remitted through the Remita platform to the consolidated revenue account (CRA) at the CBN (Igbekoyi & Agbaje, 2017; Odewole, 2016). The TSA was structured to contain a self-liquidating ledger sub-account in each deposit money bank which must have a zero-balanced at the end of the agreed period. The Senate Report of February, 2016 stated that the federal government transferred about ₦2 trillion from various revenue accounts at different deposit money banks within the country to the TSA authorized depository. The laws which enables TSA to be used as an economic apparatus for fiscal prudence in the cash management in Nigerian public sector include: Fiscal Responsibility Acts (2007), the CBN 2015 Guidelines for TSA

compliance and section 80(1) and 162(1) of the 1999 constitution of the federal republic of Nigeria, as amended to date (Ekubiat & Ime, 2016). These laws place statutory obligations on FGN to achieve financial discretion. TSA exercise is in line with the provisions 1999 constitution setting up CRF and the federation account upon which all specified revenue received are lodged to facilitate fiscal transparency, budget practices and appraisable macroeconomic objectives overtime (Fatile & Adejuwon, 2017).

The benefits of treasury single account to the government, productive sector and the citizens are enormous. According to Chukwu (2015), these includes: treasury unification to assist the relevant authorities to have full oversight of cash resources at all times (Okpala et al., 2017), it enhances monitoring of receipts and payment to prevent financial leakages (Yusuf, 2016), TSA supports aggregate control of cash balances and allows complete and timely information on the cash position, it encourages effective fiscal accountability of funds (Yusuf et. al., 2015), it allows online banking operation on real-time basis (Taiwo, 2015), it may encourage banks to embrace its core financial intermediation, and proper implemented would ensure that government undertake viable projects to provide enabling environment. This would propel revival of the real sector of the economy. The chains of effect may enhance the citizens' standard of living (CBN, 2016).

2.1.2. Financial institutions

Financial institutions are those establishments that directly or indirectly conduct financial and related transactions such as investments, financial intermediations, loans, and accept deposits and payments. They are classified into three broad categories as follows: (i) Depository institutions which comprise of commercial banks, building societies, credit unions, trust unit companies and mortgage companies which accept deposit, manage it, give loans and make payments on behalf of its clients. (ii) Contractual savings institutions (CSI). These are establishments that obtain their funds through long-term contractual arrangements and invest them in the capital markets such as insurance companies and pension funds, bureau de change. Usually, CSI does not usually experience liquidity difficulties. They invest in securities such as bonds and common stock and (iii) Investment institutions consist of investment banks, finance companies, underwriters and brokerage firms. They are intermediaries that perform different types of services for individuals, private and public sector organizations such as underwriting debts, equity offerings, acting between surplus and deficit units, managing securities and the investing public, making markets, facilitating mergers and other forms of company's reorganization, as well as brokers for institutional customers.

2.1.3. Bank liquidity and institutional failures

Bank liquidity is the amount of cash assets that is available to the banks and other financial institutions for investments and spending. Optimal liquidity suggests that a bank and the associated finance houses have adequate cash or near cash properties particularly to satisfy the depositors withdrawal need, give loans and transact other financial business to keep afloat and earn profit (Okpala, 2014). Liquidity adequacy enables a bank to meet three risks namely: time risk, funding risk and lending risk. Time risk enables a bank to compensate for non-repayment of funds if the borrower defaults on their commitment at a specific time. Funding risk signifies the ability to replace net outflows of funds, either

via the usual withdrawals of retail deposits or non-renewal of wholesale funds. Lending risk denotes bank's ability to meet occasional withdrawals of funds from cogent customers (Okpala, 2013). Deposit money banks' need to monitor and maintain adequate liquidity to reduce the possibility of the above risks, prevent raising loans under unfavourable agreements and meeting the depositors' payment on random demand. The DMBs deal with the general public hence its cash holding determines the level of cash in circulation. Therefore, the illiquidity of DMBs has chains of effects as the activities of other financial institutions, the economy in general and their performances (Edem, 2017).

Bank failure may occur when the bank concerned is unable to meet its financial commitments to its depositors and creditors due to insolvent capacity or illiquidity to meet its current liabilities. In a more specific term, bank failures economically occur when the market value of the bank assets declines below the market value of its liabilities. The commercial link and the intercompany transactions between institutions in the financial sector creates produce negative impact on others the possibility for a failure in a subsector. Financial failures were experienced at the international financial sector some years ago where Stanford International Bank Ltd was in liquidation and Bank of Antigua and ABI Bank Limited were close to failure. British American Insurance Company Ltd (BAICO) and the Colonial Life Insurance Company also collapsed with it associated implication on other institutions (Soverall, 2012). The near failure of ABI Bank Limited prompted the intervention of Central Bank of Eastern Caribbean - ECCB to save the situation (Layne, 2010). The authorities reported that the failure was primarily connected to the bank regular going concern issues on the ground of (i) liquid assets inadequacy and (ii) poor corporate governance resulting in poor capacity to effectively manage the establishments (ECCB, 2011).

Liquidity is one of the determinants of survival, growth, sustainability and performance of institutions in the financial sector. Therefore, liquidity crunch or mistakes in planning and implementation might affect banks and its associates' operations. It might also exhibit long term effect on the economy (Edem, 2017). The two options available to an insolvent bank is either source for fund from other solvent banks or sells its assets below the market price to produce cash necessary to settle its depositors on demand (Rochet & Xavier, 2004). The inability of the illiquid banks to pay depositors on demand and give loans to the customers may create an alarming situation among the depositors as more customers try to take out cash deposits from the bank. This is known as a "Bank Run" A bank run is situations where depositors withdraw their deposits from banks because of fear of the safety of their deposits. They believe the bank may cease to function in the near future (Iyerl & Manju, 2012; Udoma, 2015). A failed bank can be acquired by another bank or taken over by the apex body if shareholders capital ratios has fallen below the minimum capital requirement. All these issues may directly or indirectly affect the individual or corporate organization's ability to take mortgage, buy shares or stocks, and take up insurance policy etc. The cyclical effect of the illiquidity of commercial banks may in turn reduce the earning power and subsequently the profit of organizations in the financial sector. This can induce loss making of financial institutions which may lead to corporate failure (Rochet & Xavier, 2004).

2.2. Theoretical underpinning

The Foundation of this study is based on the trade-off and asset management theories.

2.2.1. Trade-off theory

The Trade-off theory has an immense consequence on holding liquid assets. Under perfect capital market assumptions, holding cash asset do not creates nor obliterate value. The bank may raise funds from capital markets when the occasion arises with a transaction. The funds can be raised at a fair price because the capital markets are assumed to be fully informed about the prospects of the bank. According to this theory, banks objective is to have an optimal level of cash assets to balance the cost and benefit of adequate liquidity. The costs of holding cash includes low rate of return due to liquidity premium and tax disadvantage while the benefits are saving of transaction costs to raise funds in which assets are liquidated to make payments and using of liquid assets to finance its activities and investment where other sources of funding are not available or very expensive. This theory was used by Ghazouani (2013) to explain idea that a company chooses how much debt finance and how much equity finance to use by balancing the costs and benefits in Tunisian firm. Onuorah (2016) also explained that the trade-off model enables firms with high leverage to attract high cost of debt servicing thereby affecting its profitability. This makes it difficult for such firm to raise funds through other sources.

2.2.2. Asset management theory

The above theory is supported by the asset management theory which affirmed that banks must seek high returns, reduce risk and make sufficient provisions by holding liquid assets to mitigate the upshot of uncertainties in the banking operations in the short term assets and the needs for liquidity. The above theories were relevant to the current study and based on this premise, the study was underpinned by the trade-off theory on the ground that holding optimum liquidity level would prevent cash-out risks, improves banks performance and strengthens the financial sector (Onuorah, 2016).

2.3. Empirical Review

The empirical results captured from previous studies to support the findings of this paper were segmented into three category namely TSA and the economy, TSA and banks liquidity, and Inter banks liquidity shock.

2.3.1. TSA and the economy:

The relationship between TSA and public service delivery was documented by the results of the some studies which showed that TSA is an instrument of financial prudence and supports effective services delivery to the citizens in terms of amenities provisions (Eme & Chukwurah, 2015; Isa, 2016; Oguntodu, Alalade, Adekunle, & Adegbe, 2016). Others research findings confirmed that TSA has positive significant impact on the country's economic growth on the ground of its ability to close up financial loopholes and promote transparency and accountability in the public sector financial system (Oguntodu et al., 2016; Oti, Igbeng & Obim, 2016; Vahyala, Pwafeyeno & Minnessi, 2016; Yusuf, 2016; Utsu, Muhammed & Obukeni, 2016; Igbekoyi & Agbaje, 2017). However, TSA is beneficial to the economy but it prompted illiquidity in DMBs may through multiplier effect have negatively impact on the the economy if not well handled. This was tested in Gabbi, Iori, Jafarey, & Porter (2015). The study was conducted on financial regulations

and bank credit to the real economy. A new agent-based model focusing on the linkage between the interbank market and the real economy with the central bank acting as the lender of last resort. The model was used to address the issue of trade-off between stability and economic performance for different arrangement of the interbank market was used. The study explores the usefulness of financial reforms and the results concluded that the result of regulatory leverage ratios on the sectors performance can vary in a multifaceted and non-monotonic way with the state of economic activity, the level of interbank market connectivity and the amount of bank risks information accessible to market participants.

2.3.2 TSA and banks liquidity.

Empirical studies also indicated that TSA has significant effect on DBMs liquidity. This was backed by Kanu (2016) who measured the impact of treasury single account on the liquidity base and performance of banking sector of Nigeria. Questionnaire was used to collect data from ten banks and data analyzed. The findings revealed that the implementation of TSA has impacted negatively on the liquidity and the performance of banks in Nigeria. Onuorah (2016) examined TSA deposits and commercial banks performance. A time series data were collected from Central Bank of Nigeria. ROE and ROI were used as performance proxies. The study concluded that the relationships between the variables are statistically significant. Okpala et al. (2017) evaluated implementing TSA among federal governments' ministries, departments and agencies in Nigeria with the aim of examining the relationship between TSA and deposit money banks' liquidity. A descriptive cross-sectional survey research design was adopted and 441 management staffs and customers of 21 banks were purposively selected for the study and analyzed for hypotheses confirmation. The results of the study indicated that the TSA implemented by MDAs has a positive relationship with DBMs liquidity. Also TSA impacted significantly on liquidity and performance of Nigerian deposit money banks.

2.3.3 Inter banks liquidity shock.

Afonso, Kovner, & Schoar (2014) conducted a research on trading partners in the interbank lending market. Findings showed that there was considerable heterogeneity in the constitution of trading relationships in the US interbank lending market. While some banks depend on spot transactions, others relay on stable, concentrated borrowing relationships to circumvent liquidity requirements. Greenwood, Landier and Thesmar (2015) examine vulnerable Banks to present a model in which fire sales propagate shocks across bank balance sheets. When a bank experiences a negative shock to its equity, a natural way to return to target leverage is to sell assets. If potential buyers are limited due to illiquidity, then asset sales depress prices, in which case one bank's sales impact other banks with common exposures. The study showed how this contagion effect adds up across the banking sector. Such bank exposures might have system-wide deleveraging, as well as the spillovers encouraged by individual banks. It was recommended that under the condition, European banks need a variety of interventions to reduce their vulnerability to fire sales during the independent debt crisis. Cimini & Serri (2016) evaluated entangling credit and funding shocks in interbank markets which represents the main channels of financial contagion for interbank lending markets. The study findings indicated that banks face potential losses each time their counterparties are under distress and therefore may not be able to discharge their obligations. In other instance, solvency restriction may compel banks to recover lost funding by selling their illiquid assets,

resulting in effective losses in the presence of fire sales due to the complex structure of the network of interbank exposures. Hongduo, Ying, Weilong and Chen (2017) studied systemic risk in China's interbank lending market. The empirical results showed that through the interbank lending distribution matrix, the liquidity or bankruptcy of a bank triggers a series of losses and other bank liquidity issues of bankruptcies to establish an interbank bankruptcy or liquidity chain network. The results of the above studies showed that the liquidity crisis of one bank or a subsector through multiplier effect has a significant impact on the banks and related institutions within that sector or subsector. This is in line with the findings of Bonner & Eijffinger (2010); Iyer, Peydro, da-Rocha-Lopes, and Schoar (2014). These losses reverberate among banks and eventually became amplified with its negative consequences for the whole financial system.

2.4 Gaps and hypotheses development

First, from the above subsections, the inter banks liquidity shock has been fully established but have not been tested in Nigeria financial system. Second, most previous studies on TSA in Nigeria concentrated on the relationship between the policy and its benefits in public sector (Okechukwu, & Chukwurah, 2015; Ekubiat & Ime, 2016; Udoma, 2015; Adebisi & Okike, 2016; Isa, 2016; Odewole, 2016; Oguntodu, Alalade, Adekunle, & Adegie, 2016; Udo & Esara, 2016; Utsu, Muhammed, & Obukeni, 2016; Yusuf, 2016; Fatile & Adejuwon, 2017). Third, to the best this researcher's knowledge, no study was carried on the evaluation of the relationship between TSA and failure of financial institutions in Nigeria. Therefore, the relationship between the variables in Nigeria was inconclusive. Based on the emanating gaps, two (2) hypotheses and their rationale were developed to enable the researcher explore the effect of TSA on the failure of financial institutions in Nigeria. The following null hypotheses were formulated.

H01: DMBs' liquidity problem does not significantly affect other financial institutions

Bank liquidity problems starts when a bank faces too many current liabilities becoming due without enough cash or near assets to satisfy those liabilities. Previous studies have stated that TSA policy due to the huge cash withdrawn within a short time, negatively affected the cash holding of most deposit money banks (DMBs). This resulted in liquidity crisis - acute shortage (CBN, 2015; Kanu, 2016; Onuorah, 2016; Okpala et al., 2017)). It is perceived that the commercial banks illiquidity may affect the proper functioning of other financial institutions due to the inter-financial institution activities as well as the reduction of cash in circulation. Though, this researchers discovered that sufficient studies have not been carved out on the relationship between the variables and proper conclusion was not researched. Hence it was hypothesized that DMBs' liquidity problem does not significantly affect other financial institutions. This was measured by the bivariate linear equation 1:

Equation 1.

$$DMBs = \beta_0 + \beta_1 (OFIs) + \varepsilon_1$$

A priori expectation = OFIs > 0

Where: DMBs = Deposit Money Banks and OFIs = Other financial institutions

H02: TSA do not have significant impact on the failure of financial institutions

TSA propelled DMBs liquidity crisis (Onuorah, 2016; Okpala, Okpala et al., 2017). It was established that liquidity problem of DMBs might induced mutually reinforcement on the other financial institutions liquidity crisis (Hongduo, et al., 2017). Through the multiplier effects (i) it might be difficult for a firm in need of cash to obtain possible trading partners who can borrow or buy assets in the financial market, (ii) asset holders may also be forced to sell their assets at a price below the long term fundamental price, (iii) borrowers might face higher loan costs and high collateral requirements compared to periods of ample liquidity, and (iv) unsecure debt would nearly be impossible to obtain (Olagunju, Adeyanju, & Olabode, 2011). Cimini and Serri (2016) noted that liquidity shocks represent core means of financial contagion for interbank lending markets. Inadequate liquidity may force banks to face possible losses particularly when their counterparties are under distress and thus unable to perform their obligations. Solvency constraints may also force banks to recover lost funding by selling their illiquid assets. This would result in effective losses in the presence of funding shortcomings that are widespread over the market known as “fire sales”.

Due to the complex structure of the network of interbank exposures, the losses made by one bank can be reverberated among banks and amplifies the distress. This has probable tragic consequences for the whole financial system. The interbank lending market during liquidity crisis would also hamper investments and insurance contracts might not function smoothly (Ernst-Ludwig, 2009; Heider & Hoerova, 2009). All these would limit market participation and decrease cash held by financial market participants (Hongduo, et al., 2017). Several mechanisms operating through asset market liquidity and funding liquidity can amplify the effects of DMBs negative shock to the economy and result in lack of liquidity and may eventually lead to the failure of financial institutions. Due to insufficient study in this direction, conclusion on the relationship between the variables was in doubt. Therefore, it was theorized that TSA has no significant impact on the failure financial institutions. This hypothesis was measured by the bivariate linear equation 2:

Equation 2.

$$TSA_{fgn} = \beta_0 + \beta_2 (FFI_{fs}) + \varepsilon_2$$

A priori expectation = FFIs > 0

Where: FFI = Failure of financial institutions and TSA= Treasury Single Account.

3. Methodology

The survey research design was used due to its low cost and easy information access. This design was used due to its ability to capture research questions raised in the study and deals with complex relationships between variables (Baridam 2001; Saunders, Lewis & Thornhill, 2010; Okpala, 2017). The population of the study consists of 99 financial institutions registered in Nigerian business directory. They are distributed as 32 commercial banks, 49 insurance companies and 18 investment banks. A sample of 30 companies consisting of 10 top: deposit money banks, insurance companies and investment banks in Nigeria with 450 management staff were purposely selected.

The sample criteria include (i) The deposit money banks were selected based on each bank's ranking among first 1000 banks in the world, total assets, profit before tax, and customers' deposit. (ii) The insurance companies were selected based on customers'

opinion and claims settlement integrity. (iii) The investment banks were selected based on active participation in capital market, fund raising and brokerage while the general population benchmarks include having head office or branch in Lagos for accessibility, each company must have existed for at least for ten (10) years. The participants include top and middle management levels only with minimum educational qualification of B.Sc. and five years' experience. Fifteen (15) copies of questionnaire were randomly administered to respondents of each organization.

Table 1. List of Top 10 Financial Institutions used as the population

S/N	Deposit Money Banks			Insurance companies			Investment Banks			Total QD	Total QR
	Bank	QD	QR	Insurance	QD	QR	Investment	QD	QR		
1	Zenith	15	13	AIICO	15	11	Stanbic IBTC Ast.	15	12	45	36
2	GTB	15	14	Custodian	15	13	Zenith Capital	15	5	45	32
3	First	15	12	Con. Hallmark	15	10	Chapel Hill	15	7	45	29
4	Access	15	13	Lead way	15	13	Vetiva Capital	15	12	45	38
5	UBA	15	10	IGI	15	12	Meristem Securities	15	12	45	34
6	Fidelity	15	11	Niger	15	8	Greenwich Trust	15	11	45	30
7	Ecobank Nig.	15	12	Mutual Ass.	15	13	WSTC Financial	15	13	45	38
8	Skye Bank	15	9	NICON	15	10	BGL Securities	15	12	45	31
9	First CMB	15	10	Oasis	15	12	Capital Bancorp	15	7	45	29
10	Diamond	15	15	Crusader	15	7	FBN Capital	15	6	45	28
Total		150	119		150	109		150	97	450	325

Source: Researcher field Work (2018)

The structured instrument which was personally generated consists of section 'A' demographic data and section 'B to D' for inferential data. The questionnaire contains fifteen (15) items with five (5) point Likert scale response [1=strongly disagreed, 2=disagreed, 3=No Idea, 4=agreed and 5=strongly agreed]. The questionnaire distribution was independent of gender, Age, marital status, and ethnicity. The construct validity conducted exhibited values between .708 and .723 > .05 which confirmed its validity and that the variables could be used for further analysis. The reliability was assured through Cronbach's Alpha coefficient conducted. The (Rc) obtained for the constructs range between .677 and .698 > .05. This confirmed the internal consistency and reliability of the instrument for data collection. The probability is 0.05 that a true null hypothesis will be rejected.

4. Data Analysis, Results and Discussion.

450 copies of questionnaire were distributed to participants in the population. 325 valid responses were returned and analyzed, giving a response rate of 72%. The 125(28%) were either not returned or return invalid. Probability value was used to test the significance.

If $p < 0.05$ the relationship between the variables is significant and the decision is reject null hypothesis otherwise accepted where $p > 0.05$. The correlation coefficient (r^2) ranges from -1 to +1 signifying the strength of either negative or positive relationship between the variables (Okpala et al., 2017). The descriptive statistic results are as follows:

4.1 Descriptive Statistics

4.1.1 Objective 1

This was to measure the impact of DMBs' illiquidity on the liquidity of other financial institutions. Table 2 indicated that 217 respondents, constituting about 67%, have high opinion that cash withdrawn during TSA implementation provoked liquidity problem in Nigerian DMBs. 234 respondents, representing about 72%, have high opinion that TSA motivated bank depositors' run. Meanwhile, 236 participants, constituting 73%, have high opinion that the shortage of cash in circulation impelled liquidity crisis in other financial institutions. Furthermore, 245 participants, constituting 75%, have high opinion that due to liquidity problems, investments and insurance policies were barely undertaken. Lastly, 251 participants, constituting 77%, have high opinions that financial sector was entirely affected by the cash moped up from the circulation during TSA exercise. The grand mean score of 4.70 implies that on the average, respondents are of the high opinion that DMBs' illiquidity has negatively affected the other financial institutions liquidity. Research questions A3, A4 and A5 on the questionnaire were used to pin down objective 1. The result of the descriptive statistics enabled the achievement of the research objective 1 and this relationship was further tested in the Hypothesis 1 of the study.

Table 2. Analysis of Aggregate Respondents' Information on DMBs liquidity and liquidity of other financial institutions (Question A1 – A4 in the Questionnaire)

S/N	Items	Low (1)	(2)	Avg. (3)	High (4)	(5)	Mean Score	Std Dev	Mean Rank
A1	Cash withdrawn during TSA implementation provoked liquidity problem in Nigerian DMBs	20 (6.2)	32 (9.8)	56 (17.2)	79 (27.4)	138 (42.5)	4.62	0.93	4th
A2	TSA motivated bank depositors' run	17 (5.2)	32 (9.8)	42 (12.9)	64 (19.7)	170 (52.3)	4.82	1.31	2nd
A3	The shortage of cash in circulation impelled liquidity crisis in other financial institutions.	9 (2.8)	37 (11.4)	43 (13.2)	112 (34.5)	124 (38.2)	4.40	1.14	5th
A4	Due to liquidity problems, investments and insurance policies were barely undertaken.	8 (2.5)	26 (8)	46 (14.2)	89 (27.4)	156 (48)	4.79	1.35	3rd
A5	Financial sector was entirely affected by the cash moped up from the circulation during TSA exercise	6 (1.8)	21 (6.5)	47 (14.2)	69 (21.2)	182 (56)	4.86	1.45	1st
Grand Mean Score							4.70		

Source: Research Survey Data (2018)

4.1.2. Objective 2

This was to evaluate the effect of TSA on the failure of financial institutions. Table 3 showed that 277 respondents, constituting 85%, have high opinion that DMBs liquidity issues affected the inter-financial institutions transactions. 266 respondents, representing 82%, have high opinion that the cash shortage effected both money and capital market participants. Also 249 participants, constituting 77%, have a high opinion that Illiquidity of financial institutions led to staff downsizes. Furthermore, 268 respondents, constituting 82%, have a high opinion that liquidity crisis and retrenchment in financial institutions effected service delivery and financial performance. 259 respondents, constituting 80%, have high opinion that TSA through multiplier effect may lead to financial institutions failure. The grand mean score of 4.79 implies that on the average, respondents are of the high opinion that the implemented TSA exercise may lead to financial institutions failure. Research questions B4 and B5 on the questionnaire were used to track down objective 2. This result enabled the authors to achieve the research objective 2 and this relationship was further tested in the Hypothesis 2 of the study.

Table 3. Analysis of Aggregate Respondents' Information on TSA and failure of financial institutions (Question B1 – B4 in the Questionnaire)

	Items	Low (1)	Low (2)	Avg. (3)	High (4)	High (5)	Mean Score	Std Dev	Mean Rank
B1	DMBs liquidity issues affected the inter-financial institutions transactions.	3 (0.9)	11 (3.4)	34 (10.5)	105 (32.3)	172 (52.9)	4.84	1.09	1st
B2	The cash shortage effected both money and capital market participants	7 (0.6)	18 (5.5)	34 (10.6)	116 (35.7)	150 (46.2)	4.64	0.98	5th
B3	Illiquidity of financial institutions led to staff downsizes.	8 (2.5)	16 (4.9)	52 (16)	90 (27.7)	159 (48.9)	4.80	1.30	4th
B4	Liquidity crisis and retrenchment in financial institutions effected service delivery and financial performance	5 (1.5)	12 (3.7)	40 (12.3)	96 (29.5)	172 (52.9)	4.82	1.32	2nd
B5	TSA through multiplier effect may lead to financial institutions failure.	9 (2.8)	14 (4.3)	43 (13.2)	89 (27.4)	170 (52.3)	4.81	1.42	3rd
Grand Mean Score							4.79		

Source: Research Survey Data (2018)

4.2 Hypothesis test

The regression analysis results are interpreted as follows:

4.2.1 Hypothesis 1

The r- value in Table 4 is about .868 which indicated that DMBs has strong positive impact on OFIs in Nigeria. The R2 of .846 showed that DMBs is responsible for 85% variation in the OFIs liquidity problems in Nigeria. This was confirmed by the F-statistic of 89.31122. The effect of DMBs on OFIs in Nigeria is statistically significant as the p-value = .000 < .05. The significance of the model at .05 level was confirmed by the t-statistics of 51.09271. Therefore, the null hypothesis 1 is rejected and the alternative hypothesis not rejected. From the regression result, the simple linear equation can be

expressed as $DMBs = \alpha_1 + \alpha_2 OFIs$ and using the estimated figures, $DMBs = 46.00582 + 0.405421OFIs$. This equation implies that a change in DMBs would propel about 0.405 (41%) increases in OFIs. The above estimates also showed that there exists a positive relationship between DMBs and OFIs. This is indicated by $r = .405 > 0$. This result is consistent with a prior expectation.

Table 4. Regression Estimate

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	46.00582	0.072411	51.09271	0.00000
DBMs	0.405421	0.014708	21.29077	0.00000
R	0.867790			
R-squared	0.854389	Mean dependent var		4.994824
Adjusted R-squared	0.845780	S.D. dependent var		0.169328
S.E. of regression	0.052398	Akaike info criterion		-3.887123
Sum squared resid	0.015019	Schwarz criterion		-3.900242
Log likelihood	33.67872	Hannan-Quinn criter.		-3.866412
F-statistic	89.31122	Durbin-Watson stat		0.763332
Prob.(F-statistic)	0.000000			

Dependent Variable: OFIs; Method: Least Sq.; Date: 05/11/17; Observations: 325

Source: E-views output (2018)

4.2.2 Hypothesis 2

The R-value in Table 5 is about .878 which indicated that TSA has strong positive impact on FFIs in Nigeria. The R^2 of .872 showed that DMBs is responsible for 87% variation in the FFIs in Nigeria. The F-statistic of 92.30421 supported the rate of the variation. The effect TSA on FFIs in Nigeria is statistically significant as the p -value = $.000 < .05$. The significance of the model at .05 level was confirmed by the t-statistics of 54.09372. The null hypothesis 1 is hereby rejected and the alternative hypothesis not rejected. The simple linear equation of the regression result can be expressed as $TSA = \alpha_1 + \alpha_2 OFIs$ and using the estimated figures, $DMBs = 48.18397 + 0.515423FFIs$. This equation entailed that a change in TSA would propel about 0.515 (52%) increases in FFIs. The above estimates also showed TSA has a positive and significant impact on FFIs. This is indicated by $r = .515 > 0$. This result is consistent with a prior expectation.

Table 5: Regression Estimate

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	48.18397	0.076053	54.09372	0.00000
TSA	0.515423	0.014700	22.30073	0.00000
R	0.878445			
R-squared	0.871970	Mean dependent var		5.784824
Adjusted R-squared	0.858920	S.D. dependent var		0.179324
S.E. of regression	0.051543	Akaike info criterion		-3.987763
Sum squared resid	0.016017	Schwarz criterion		-3.914342
Log likelihood	35.70578	Hannan-Quinn criter.		-3.913419
F-statistic	92.30421	Durbin-Watson stat		0.723252
Prob.(F-statistic)	0.000000			

Dependent Variable: FFIs; Method: Least Sq.; Date: 05/11/17

Source: E-views output (2018)

5. Summary, Conclusion and Recommendations.

5.1 Summary

The literature reviewed and the results of the analysis in the above subsection revealed some important findings summarized as follows: First, TSA policy implementation has enormous benefits credited to both private and public sectors of the economy as well as the citizens. Second, the huge amount of funds withdrawn from deposit money banks during the exercise reduced the amount of cash in circulation which impelled liquidity crises in some of the commercial banks. Third, DMBs' illiquidity through intercompany transactions and the multiplier effects, negatively affected the liquidity of other institutions in the financial sector. The liquidity shock in DMBs reinforced the sectorial shock which reduced shareholder and depositors investing in shares, bonds, and fixed deposits. It also negatively affected insurance policies undertakers as well as other properties acquisitions. Forth, while the TSA implementation was directly addressing the issue of leakages and tightening control to achieve proper financial framework in the public sector, it was also indirectly choking the financial institutions with liquidity and threat of failure.

The two questions raised were resolved as follows: What impact does huge cash withdrawal from DMBs has on other financial institutions? Hypothesis 1 of the study result showed that respondents' opinion indicated that though the TSA exercise, DMBs' illiquidity has negatively influenced the other financial institutions liquidity. How does TSA policy implementation inspire failure of financial institutions in Nigeria? Hypothesis 2, analysis result confirmed that the implemented TSA exercise would lead to the failure of financial institutions. The study proved that TSA exercise reduced the amount of cash in circulation, preventing investments, forced banks to downsize, limited the credit creation, and might consequently affect the real sector and proper functioning of the economy and the standard of living of the citizens. The study concluded that TSA policy implementation have significant impact on failure of financial institutions as shown by the regression results. Since there are insufficient studies in this direction, this study

contributed to the body of knowledge by providing empirical proof on the impact of TSA on the failure of financial institutions in Nigeria.

5.2 Recommendations

Therefore, the following recommendations were made:

5.2.1 The Bank

Banks should focus on their traditional roles of savings aggregation and financial intermediation in order to avert the threat of TSA exercise. This would avoid waiting for free and cheap government cash deposit. This could further strengthen and reposition the banking industry in Nigeria.

5.2.2 Government

The consequence of its economic policy should be evaluated before implementation. It was obvious thorough consideration was not given to TSA policy exercise modality as the short timeframe for implementation would have been avoided. The short execution timing enabled TSA to address leakages and financial management on one side while producing liquidity problems on another on side thereby achieving economic sub-optimization. This is against the principles of goal-congruence.

Government should be proactive. Plans of intervention should be put in place by CBN (as in the case of Eastern Caribbean Central Bank and ABI bank Limited in 2011). This will help Nigerian financial institutions to avoid failing. CBN intervention or sterilization policy to help bailout and have optimal cash level in circulation should be put in place. The study suggested that further research should be conducted to study the effect of TSA on employment, banks services delivery to replicate the results and determine the TSA impact on the general economy.

5.3 Limitation and suggestion for studies

The limitations of this study include using 30 top financial institutions with 450 staff out of 99 companies registered in Nigerian business directory as the sample size. This is regarded as small in relation to the total population. Also, the study focused on the financial sub-sector of Nigerian economy. Result may vary if the sample size was increased and other sectors of the economy affected by the treasury single accounts exercise are included in the study. Therefore further research should be conducted in this direction.

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Appendix

Survey Questionnaire

Section A: Demographic Profile

Kindly tick the response option that best describe your demographic information below:

1. Age: 20 - 30 yrs. [] 31-40yrs. [] 41-50yrs. [] 51-60yrs. [] 60 yrs. and above []
2. Years of work experience: 1-10yrs. [] 11-20yrs. [] 21- 30yrs. [] 31-40yrs. [] 50yrs. & above []
4. Present rank / Level: Middle Manager [] Top manager []
5. Length of service at present firms: 5 years [] 6 to 10 [] 11 to 20 [] 21 & above []
6. Department: Chief Executive Officers / GMs [] Head of Operations [] Heads of Corporate Finance [] Heads of investment Banking [] Heads of Credit and Marketing []
7. Organization category: Commercial banks [] Insurance companies [] Investment banks []
8. Highest current educational qualification obtained: WASC/GCE or Equivalent [] OND/NCE [] B.Sc/B.A/HND/Eqvt [] M.Sc. /MBA [] Ph.D./DBA [] others

9. Professional certification: ICAN / ANAN [] CIMA / ACCA [] CIIN [] CIBN [] others

Inferential Data – 15 Item, 5 Likert scale (B-D)

The following statements described each **Treasury single account** sub variable. Based on your perception, kindly rate each question on a scale from 1 to 5 by ticking “√”. Select only the most appropriate scale: where 1 = Very weak, 2= Weak, 3 = Average, 4 = Strong and 5 = Very strong.

Section B: Questions on the relationship between Deposit money banks and other financial institutions

S/N	Questions	1	2	3	4	5
B1	Federal government TSA is operational in Nigeria					
B2	DMBs complied with the FGN's TSA directives					
B3	Deadline set for TSA operations was met					
B4	Implementation of TSA has been successful					
B5	Cash withdrawn from DMBs reduced the cash in circulation					
B6	Inability of the illiquid banks to pay depositors on demand resulted in bank run					

Section C: Questions on the relationship between TSA and other financial institutions

S/N	Questions	1	2	3	4	5
C1	DMBs activities affects other financial institutions					
C2	Poor cash in circulation influenced insurance policy					
C3	Illiquidity of DBMs affected investment in shares and stocks					
C4	My firm's activities decline due to TSA					
C5	Financial institutions experienced poor turnovers and losses					

Section D: Failure of financial institutions

S/N	Questions	1	2	3	4	5
D1	The multiplier-effect of TSA propelled illiquidity in the sector					
D2	Financial institutions current assets value are greater than its current liability					
D3	Liquidity crunch effected the intercompany transactions					
D4	Profit of financial institutions declined considerably					

Source: Authors' Self-generated questionnaire (2018)