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A PANEL DATA ANALYSIS OF THE IMPACT OF INFORMALITY ON THE LIQUIDITY OF DEPOSIT MONEY BANKS IN NIGERIA

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ABSTRACT: *One of the major components of the overall Nigerian economy is the informal sector. Transactions in this sector are conducted mainly in cash to avoid official detection, and this is capable of starving the banking system of the deposits needed to improve its liquidity. This study empirically examined the impact of informality on the liquidity of the banking system in Nigeria. The results indicate that informality impacts negatively on the liquidity of deposit money banks in Nigeria. Specifically, we found that a unit increase in the size of the informal sector results in 7.44% deterioration in the liquidity of deposit money banks. Based on these findings, the study recommends that deposit money banks in Nigeria should pursue policies and products that will assist them to capture the huge economic activities taking place in the informal sector, while the government (through the Central Bank of Nigeria, CBN) should also reconsider its policies that are capable of driving economic units underground. The study concludes that deposit money banks in Nigeria must work together with the CBN to achieve an all inclusive banking system, thereby reducing the negative impact of informality on the liquidity of deposit money banks in Nigeria.*

KEY WORDS: Informality; Bank Liquidity; Panel Analysis; CBN; Nigeria

INTRODUCTION

Globally, the adequacy of liquidity plays very crucial roles in the successful functioning of all business firms. However, the issue of liquidity, though important to other businesses, is most paramount to banking institutions. Here, bank liquidity may be defined as the ability of banks to meet maturing obligations without incurring unacceptable losses. Liquidity shortage, no matter how small, can cause great damage to a bank's operations. Liquidity crisis, if not properly managed, can instantly destroy those good customer relationships built over the years. Managing liquidity is therefore a core daily process requiring bank managers to monitor and project cash flows to ensure that adequate liquidity is maintained at all times. Functionally, deposit money banks are financial institutions or intermediaries that mobilize deposits from the public and create deposit money by granting loans, advances and overdrafts to their customers and in the process earn profits on their investors' funds. This definition emphasizes the consensus in theoretical literature that profitability and liquidity constitute the most prominent issues in corporate finance literature (Agbada & Osuji, 2013).

Generally, banks strive to strike a balance between profitability and liquidity (Niresh, 2012). The provision of sufficient liquidity to customers at all times is an essential feature of banking. To achieve this goal, banks ensure that sufficient provision of cash and other near cash securities are made available to meet withdrawal obligations and new loan demand by customers in need of liquidity. For this reason, banks in Nigeria are statutorily required to comply with the Cash Reserve Requirement (CRR) policy of the Central Bank of Nigeria (CBN) as a means of effectively managing the liquidity positions of banks. As a matter of fact, the first strategy to liquidity management in Nigeria is compliance with this statutory reserve requirement and liquidity ratios as stipulated by the CBN. Other strategic measures recently employed by the CBN to improve banking system liquidity and stability and a steady flow of credit to the real sector of the economy include the provision of guarantee on interbank transactions, the reduction of the Standing Deposit Facility (SDF) rate from 2.0 to 1.0 per cent, the approval of a N500.00 billion intervention fund (N200 billion for refinancing and restructuring of DMBs' facilities to manufacturing enterprises) and the setting up of the Asset Management Corporation of Nigeria (AMCON) (Agbada & Osuji, 2013).

Deposit money banks have been globally acknowledged for their unique role as an engine of growth and development in any economy. Their intermediation role can be said to be a catalyst for economic growth and development as investment funds are mobilized from the surplus units in the economy and made available to the deficit units (Adegbaju & Olokoyo, 2008; Kolapo, Ayeni & Oke, 2012; Mohammed, 2012). Generally, deposit money banks provide an array of financial services to their customers through which deposits are mobilized from the banking public while credits granted for investment purposes. It can therefore be said that the effective and efficient performance of the banking industry is an important foundation for the financial stability of any nation. The extent to which banks extend credit to the public for productive activities accelerates the pace of a nation's economic growth as well as the long-term sustainability of the banking industry (Kolapo, Ayeni & Oke, 2012; Mohammed, 2012). Summarily put, the banking institution occupies a vital position in the stability of the nation's economy. It plays essential roles on fund mobilization, credit allocation, payment and settlement system as well as monetary policy implementation (Mohammed, 2012). In performing these functions, it must be emphasized that banks in turn promote their own performance and health. In other words, deposit money banks usually mobilize savings and extend loans and advances to their numerous customers bearing in mind, the three principles guiding their operations, which are profitability, liquidity and safety (Okoye & Eze, 2013).

In Nigeria, Imala (2005) stated that the main objectives of the banking system are to ensure price stability and facilitate rapid economic development through their intermediation role of mobilizing savings and inculcating banking habit at the household and micro enterprise levels. Unfortunately, these objectives have remained largely unattained as a result of some deficiencies in the country's banking system. Some of these deficiencies include: low capital base, a large number of small banks with relatively few branches, the dominance of a few banks, poor rating of a number of banks, weak corporate governance evidence by inaccurate reporting and non compliance with regulatory requirements, eroded shareholders fund caused by operating losses,

over dependence on public sector deposits, foreign exchange trading and the neglect of small and medium scale private savers, and insolvency as evidenced by negative capital adequacy ratios of some banks. In view of these defects, Imala (2005) asserted that the Nigeria banking sector plays marginal role in the development of the real sector.

From the foregoing, it can be seen that the savings mobilization efforts and liquidity of deposit money banks in Nigeria can be seriously hampered by the presence of a huge informal sector. This is due to the fact that most informal sector transactions are conducted in cash to avoid official detection (Oduh et. al, 2008; Buehn & Schneider, 2008). Unfortunately, recent empirical evidences point to a growing informal sector in Nigeria (Ogbuabor & Malaolu, 2013; Ariyo & Bekoe, 2012; Oduh et al, 2008). The objective of this study is to empirically examine the impact of the informal sector on the liquidity of deposit money banks in Nigeria. This became necessary in order to provide evidence based policies that will enhance the stability and soundness of the banking sector and the overall economy in Nigeria.

This study is of great significance in view of the assertion by Soludo (2004) that many banks in Nigeria appear to have abandoned their essential intermediation role of mobilizing savings and inculcating banking habit at the household and micro enterprise levels. Worse still, the indifference of banks towards small savers and informal sector operators, particularly at the grass-roots level, has not only compounded the problems of low domestic savings and high bank lending rates in the country, it has also reduced access to relatively cheap and stable funds that could provide a reliable source of credit to the productive sectors at affordable rates of interest. Imala (2005) also commented that the current structure of the banking system has promoted tendencies towards a rather sticky behaviour of deposit rates, particularly at the retail level, such that, while banks' lending rates remain high and positive in real terms, most deposit rates, especially those on savings, are low and negative. In addition, savings mobilization at the grass-roots level has been discouraged by the unrealistic requirements, by many banks, for opening accounts with them. This study is therefore a major step towards promoting a solid and stable financial sector that is essential for a well functioning national economy in Nigeria.

THEORETICAL LITERATURE (THEORIES OF INFORMALITY)

In this study, we shall adopt the definition of the informal sector as provided by Smith (1994). He conceptualized informal activities as those economic activities that are market-based production of goods and services, whether legal or illegal, that escape detection in the official estimates of GDP. There are four main theories of informality in the literature. These include: modernization, dependency, structuralism and neo-liberalism theories (Yusuff, 2011).

Modernization Theory: The main proponent of the modernization theory is Rostow (1960). He characterized informality in the less developed countries largely as a “social problem” internal to and caused by the backward socio-economic systems of individual countries. According to him, the policy prescription was for these countries to acquire “modern” values, “modern” legal institutions and political systems, and “modern” capitalist economies. In most cases, the

"modern" was understood as being synonymous with western values, institutions, and market economies. In essence, the issue of informality is not rooted in capitalist exploitation and extraction (as argued successively by neo-Marxist and dependency theorists), rather these countries had not yet been sufficiently incorporated into the modern world or the international economy. Thus, it is only a matter of time and these countries would "take-off" and "catch-up" with the developed countries. Proponents of modernization theory saw the informal sector as a remnant of traditional, pre-capitalist modes of production and subsistence strategies common to isolated rural communities such that informal sector economic units were trapped outside the modern economy because they lacked proper education, skills, and value orientations. The main weakness of the modernization theory is that the informal sector is neither seen as an important component of the overall economy that can engender economic growth, nor as a reservoir of entrepreneurial training and talent. It is seen as a problem to be solved and not a development strategy to be harnessed and promoted.

Dependency Theory: It was the pioneering works of ILO (1972) and Hart (1973) that crystallized the phenomenon of unregulated economic activity into the term "informal sector". Hart's contribution had such a broad and original impact because he focused on the complex, organized, and dynamic income generating activities of informal enterprises. In effect, he found that informal activities were not a mere extension of traditional subsistence strategies and that participants in these unregulated activities were not universally condemned to poverty and marginality. However, other scholars working within the dependency tradition had characterized informal workers as universally poor and emphasized the sector's supposed marginal position vis-à-vis the modern capitalist sector (Portes & Schauffler, 1992). Furthermore, in terms of developing a systematic definition of what constituted the informal sector, proponents of the dependency theory (such as Tokman, 1978; PREALC, 1978), often described the many common characteristics of enterprises in the sector. These characteristics include: little capital, low technology and production, little profits, utilization of unpaid family labour, easy entry and exit, low efficiency and competition. Furthermore, the dependency approach saw the goal of informal activities as mere survival, not profit maximization. Informal firms were often characterized as taking advantage of their ability to avoid taxes and regulations and exploiting niche areas overlooked by larger and less flexible firms. The weakness of the dependency theory is that it sees the informal labour arrangement as taking place largely outside the exploitative formal relations of production. As such, the informal sector was viewed largely with suspicion as a mere transposition of the rural subsistence sector into the urban environment.

Structuralism: Structuralists insist that informality is not simply the result of excess labour supply, or over-regulation. Instead, the central element of the structuralists' theory is the insistence that informality is in essence an alternate form of labour utilization (and often exploitation) by capital. Put differently, Maloney (2004) stated that informal sector workers are not just there by some accident or flaw in capitalist development. Instead, these workers are actively "informalized" by capital under the logic of peripheral capitalist accumulation. A critical shortcoming of this theory is that while industrial subcontracting is a central feature of informal activities in Latin American cities, it is a comparatively insignificant feature of informal sector

activities in developing countries like Nigeria. The common feature in African informal sector is the 'subsistence' informal economy in which economic actors are fully occupied in informal means of income generation (Capecchi, 1989; Ishola, 2008).

Neo-liberalism Theory: Neo-liberalism is an ideology based on economic liberalism. The ideology favours economic policies that minimize the role of the state and maximize the private business sector. Neo-liberalism seeks to transfer control of the economy from public to the private sector under the belief that it will produce a more efficient government and improve the economic health of the nation. According to De Soto (1989), a key proponent of this ideology, the informal sector is a response to excessive state regulations and other unfavourable macroeconomic conditions. This theory subscribes to the notion that the informal sector comprises entrepreneurs who choose to operate informally in order to avoid the costs of formal registration and other unfavourable conditions in the business environment. Proponents of neo-liberalism believe that entrepreneurs would continue to produce informally so long as government procedures are cumbersome and costly, property rights remain deficient and accessibility to productive resources like finance and technology remain elusive. Under this ideology, those entrepreneurs who generate income for themselves and their families in the informal sector are regarded as the 'real revolutionaries', who heroically stand up to the tyranny of excessive state regulations; those informal workers are the real seeds of the free market (deregulatory) doctrine.

THE NIGERIAN INFORMAL SECTOR

Tanzi (1983) claimed that in a well-working market economy, without a public sector, there would be no underground activities. This is because the major causes of informal activities in many countries including Nigeria are largely traceable to imposition of taxes and import duties, the need to adopt regulatory and control measures in the domestic or external sector of an economy. For example, the impositions of quantitative restrictions on trade, the need to define and enforce territorial boundaries, bureaucratic corruption, etc are potential causes of informality. Also, the higher the marginal tax rates, the greater the cost of being honest and the more the incentive to evade or understate personal and corporate incomes. Furthermore, the fact that tariff on imports and import quotas create incentive to smuggle is well emphasized in literature. The fixing of over-valued exchange rate of a national currency supported by exchange control measures that rely on trade restrictions usually herald the emergence of a black market for foreign exchange as economic agents devise means of evading the controls. In general, the more regulated an economy is, the more will activities that are difficult to control emerge as people design and execute plans to side-track the regulations; and herein lies the origin of informal sector activities (Oresotu, 1996; Tanzi, 1983).

In Nigeria, Akerele (2005) reported that before and years after independence, the Nigerian economy was predominantly rural and agrarian. Cash crops such as palm produce, ground nut, and cocoa as well as minerals such as tin ore, columbite, and zinc were major foreign exchange earners. These activities were carried out by individuals and small-holder enterprises. It is

obvious that these activities were mainly performed by informal sector operators. Olowu and Okotoni (1996) provided more insights on the Nigerian informal sector. According to them, the Nigerian informal sector has two major components: the economic and financial segment; and, the administrative/political segment. The economic and financial segment comprises the large members of highly competitive but poorly capitalized small-scale operators and the financial institutions needed to sustain their businesses. It manifests itself in the economic activities designed and managed by the people of a given community aimed at providing goods and services that are required by the generality of the people. Through these activities, a mass of goods and services are produced both in the agricultural and non-agricultural sectors. Operators in this sector do not have access to large capital (available in the formal sector) or legal protection and often exist on the fringes of the law. They rely on informal structures and contacts with the formal system to survive. Nevertheless, they employ a large proportion of the productive labour force (especially women) and rely on indigenous technology and innovations.

Members of a particular trade organize themselves into association, union, or guild. Such associations are designed to cater for the interest of members while non members are not allowed to practice in that community. Rules and regulations are made to guide the associations, sanctions are used to deal with erring members, and periodic (weekly or monthly) levies are collected to maintain the associations and provide credits to members, often on a rotating basis. Other sources of informal finance include gifts and loans from family members, friends, specialized savings and credit associations such as esusu, adashi, bam in different parts of the country. Essentially, these associations protect the economic interests of members, protect members from harassment from any quarter, and speak with one voice on behalf of their members (Olowu & Okotoni, 1996).

The Nigerian informal economy covers a wide range of activities. These include several small-scale and unregistered sole-proprietor businesses, and in some instances, joint-partnership businesses which can be found in both rural and urban settlements across the country. In this informal economy, tax evasion is very rampant as income is unmeasured and unrecorded. In fact, their activities are not fully reflected in the national accounts, and thus, unrecorded by the state. The nature of the economic activities engaged in varies considerably from one locality to another. For example, in the rural areas, farming activities and allied occupations such as hunting, fishing, blacksmithing, weaving, basket and pot making, as well as leather works are more prevalent. However, in urban centres like Lagos, Enugu, Abuja, Kano, Ibadan, and Jos, the informal economic activities include trading, small-scale manufacturing and repairing industries, such as carpentry, upholstery, furniture making, woodworks, metalworks, bakery, tailoring, bricklaying, and printing. Those in the area of repairing occupations include, among others, the automobile mechanics, electricians, clock and watch repairers and cobblers (Olowu & Okotoni, 1996).

THE EVOLUTION OF THE NIGERIAN BANKING SECTOR

According to Osamor, Akinlabi & Osamor (2013), banking operation began in Nigeria in 1892 under the control of the expatriates and by 1945, some Nigerians had established their own banks. The first era of consolidation ever recorded in Nigeria banking industry was between 1959 and 1969. This was occasioned by bank failures during 1953-1959 due to liquidity challenges faced by the banks. There was no well-organized financial system with enough financial instruments to invest in. Hence, banks merely invested in real assets which could not be easily realized to cash without loss of value in times of need. This prompted the Federal Government then, backed by the World Bank Report to institute the Loynes Commission in September 1958. The outcome was the promulgation of the Ordinance of 1958, which established the Central Bank of Nigeria (CBN). The year 1959 was remarkable in the Nigeria Banking history not only because of the establishment of Central Bank Nigerian (CBN) but also because of the Treasury Bill Ordinance that was enacted which led to the issuance of the first treasury bills in April, 1960.

The period (1959–1969) marked the establishment of formal money, capital markets and portfolio management in Nigeria. In addition, the Company Acts of 1968 were established. This period could be said to be the genesis of serious banking regulation in Nigeria. With the CBN in operation, the minimum paid-up capital was set at ₦400,000 (USD$480,000) in 1958. By January 2001, banking sector was fully deregulated with the adoption of universal banking system in Nigeria which merged merchant bank operations with commercial banks system preparatory to the consolidation programme in 2004. In the 1990s, proliferation of banks which also resulted in the failure of many of them, led to another recapitalization exercise that saw bank’s capital being increased to ₦500million (USD$5.88 million) and subsequently to ₦2billion (US$0.0166billion) in 2004 with the institution of a 13-point reform agenda aimed at addressing the fragile nature of the banking system, stopping the boom and burst cycle that characterized the sector and evolving a banking system that not only could serve the Nigeria economy, but also the regional economy. The agenda by the monetary authorities is also to consolidate the Nigeria banks and make them capable of playing in the international financial system.

However, there appears to be differences between the state of the banking industry in Nigeria vis-à-vis the vision of the government and the regulatory authority. This, in the main, was the reason for the policy of mandatory consolidation, which was not open to dialogue and its components also seemed cast in concrete. In terms of number of banks and minimum paid-up-capital, between 1952 and 1978, the banking sector recorded forty-five (45) banks with varying minimum paid-up capital for merchant and commercial banks. The number of banks increased to fifty-four (54) between 1979 and 1987, and further rose to one hundred and twelve (112) between 1988 and 1996 with substantial varying increases in the minimum capital. The number of banks dropped to one hundred and ten (110) with another increase in minimum paid-up capital and finally dropped to twenty-five (25) in 2005 with a big increase in minimum paid-up capital

from ₦2billion (USD$0.0166billion) in January 2004 to ₦25billion (USD$0.2billion) in July 2004 (Somoye, 2008). After the consolidation, the number of banks later reduced to twenty-three (23), due to the merger of some banks. These banks are saddled with the following functions among others: acceptance of deposits from customers, provision of credit facilities in form of loans and overdrafts, management of customer's portfolio of investment and provision of investment advice

THE CONCEPT OF BANK LIQUIDITY

Liquidity may be viewed as a measure of the relative amount of asset in cash or which can be quickly converted into cash without any loss in value available to meet short term liabilities, while liquid assets are composed of cash and bank balances, debtors and marketable securities; liquidity is the ability of a firm to meet all obligations without endangering its financial conditions (Olagunju, Adeyanju & Olabode, 2011). According to Agbada and Osuji (2013), bank liquidity simply means the ability of the bank to maintain sufficient funds to pay for its maturing obligations. It is the bank's ability to immediately meet cash, cheques, other withdrawals obligations and legitimate new loan demand while abiding by existing reserve requirements. Bhattacharyya and Sahoo (2011) argued that Liquidity management by Central banks typically refers to the framework, set of instruments, and the rules that the monetary authority follows in managing systemic liquidity, consistent with the ultimate goals of monetary policy. In this regard, central banks modulate liquidity conditions by varying both the level of short-term interest rates and influencing the supply of bank reserves in the interbank market. Effective liquidity management is a key factor that helps sustain bank profits and concurrently keeps the banking institution and the financial system generally from illiquidity and perhaps, insolvency. In order to maintain public confidence on the financial system of the country, banks are required to maintain adequate amount of cash and near cash assets such as securities to meet withdrawal obligations. It is paramount for the survival of the totality of the financial system of a country and the banks in particular whose core function of financial intermediation depend on the availability of adequate liquidity.

In Nigeria, the challenges of inefficient liquidity management in banks were brought to the fore during the liquidation and distress era of 1980s and 1990s, which lingered up to the re-capitalization era in 2005 in which banks were mandated to increase their capital base from N2 billion to N25 billion. The recapitalization exercise was expected to stabilize and resolve the liquidity challenges that were prevalent in the economy. However, barely five years after what was applauded and considered as a fortified repositioning of banks against liquidity shortage, the Central Bank of Nigeria (CBN) in 2009 came on a rescue mission to save five illiquid banks. The CBN injected N620b to save the affected five banks that were operating on negative shareholder's funds, while the Asset Management Corporation of Nigeria (AMCON) was set up to buy the bad debts of affected banks (Agbada & Osuji, 2013).

Prudence requires that the liquidity position of a bank should be ascertained, monitored and controlled daily. The liquidity of an entity requires that its ability to pay its debts when due and

the ability of its debtors to pay the amount they owe to the entity are of great importance. However, the liquidity or solvency of a firm is usually measured by liquidity ratios, which are a class of financial ratios used to determine a company's ability to honour its short-term debt obligations (Wood & Sangster, 2005; Agbada & Osuji, 2013; Loth, 2012). Commonly used liquidity ratios are the current ratio and the quick ratio (also known as the acid test ratio). The current ratio is used to test a firm's liquidity because it shows the proportion of the firm's current assets available to cover its current liability. The concept behind this ratio is to ascertain whether a company's short-term assets (such as cash, cash equivalents, marketable securities, receivables and inventory) are sufficient to pay its short-term liabilities (notes payable, current portion of term debt, payables, accrued expenses and taxes). The only difference between the current and acid test ratios is that inventory is omitted frosm the acid test ratio (Loth, 2012). In this study, we shall use the ratio of total loan-to-total deposit as a measure of the liquidity of the deposit money banks (Fadare, 2011).

REVIEW OF EMPIRICAL LITERATURE

Agbada and Osuji (2013) studied the efficacy of liquidity management and banking performance in Nigeria using survey research methodology. Data obtained were first presented in tables of percentages and pie charts and were empirically analyzed by Pearson product-moment correlation coefficient (r). Findings from the empirical analysis were quite robust and clearly indicate that there is significant relationship between efficient liquidity management and banking performance and that efficient liquidity management enhances the soundness of bank.

Aremu (2011) examined the liquidity series of Nigerian banks by applying multiple regression analysis using error correction mechanism and Johansen cointegration to time series data collected from three major banks. The results show that the proxies of liquidity series of two of the banks are significant. Uremadu (2012) examined the effect of bank capital structure and liquidity on profitability using Nigerian data for the period 1980-2006 and applying an OLS methodology. The study found a positive influence of cash reserve ratio, liquidity ratio and corporate income tax; and a negative influence of bank credits to the domestic economy, savings deposit rate, gross national savings (proxy for deposits with the central bank), balances with the central bank, inflation rate and foreign private investments, on banking system profits. It also found that liquidity ratio leads banks' profits in Nigeria, closely followed by balances with the central bank and then, gross national savings and foreign private investments,followed suit in that order. Olagunju, Adeyanju and Olabode (2011) examined liquidity management and commercial banks' profitability in Nigeria by analyzing both primary and secondary data. The results indicate that the profitability of commercial banks is significantly influenced by their liquidity and vice versa.

Fadare (2011) employed a linear least square model and time series data from 1980 to 2009 to examine the determinants of Banking Sector liquidity in Nigeria and assesses the extent to which the recent financial crises affected liquidity in deposit money banks in the country. The findings indicate that only liquidity ratio, monetary policy rate and lagged loan-to-deposit ratio are

significant for predicting Banking Sector liquidity; and that a decrease in monetary policy rates, liquidity ratios, volatility of output in relation to trend output, and the demand for cash, leads to an increase in current loan-to-deposit ratios; while a decrease in currency in circulation in proportion to Banking Sector deposits; and lagged loan-to-deposit ratios leads to a decline in current loan-to-deposit ratios. The result suggests that during periods of economic or financial crises, deposit money banks are significantly illiquid relative to benchmarks, and getting liquidity monetary policies right during these periods is crucial in ensuring the survival of the Banking Sector.

Kolapo, Ayeni and Oke (2012) carried out an empirical investigation into the quantitative effect of credit risk on the performance of commercial banks in Nigeria over the period of 11 years (2000-2010) using five commercial banking firms. Panel model analysis was used to estimate the determinants of the profit function. The results showed that the effect of credit risk on bank performance measured by the Return on Assets of banks is cross-sectional invariant. That is the effect is similar across banks in Nigeria, though the degree to which individual banks are affected is not captured by the method of analysis employed in the study.

Adegbaju and Olokoyo (2008) investigated the impact of previous recapitalization in the banking system on the performance of the banks in Nigeria with the aim of finding out if the recapitalization is of any benefit. The study employed secondary data obtained from NDIC annual reports. The results indicate that the mean of key profitability ratios such as the Yield on earning asset (YEA), Return on Equity (ROE) and Return on Asset (ROA) were significant meaning that there is statistical difference between the mean of the bank before 2001 recapitalization and after 2001 recapitalization.

Osamor, Akinlabi and Osamor (2013) examined the impact of globalization on performance of Nigerian commercial banks between 2005 and 2010, using panel data econometrics in a pooled regression, where time series and cross-sectional observations were combined and estimated. The results of econometric panel regression analysis confirmed that globalization, i.e. foreign private investment, foreign trade and exchange rate have positive effects on the profit after tax of banks.

Beck, Cull and Jerome (2005) examined the effect of privatization on performance in a panel of Nigerian banks for the period 1990-2001. The results showed evidence of performance improvement in nine banks that were privatized, which is remarkable given the inhospitable environment for true financial intermediation. The results also suggest negative effects of the continuing minority government ownership on the performance of many Nigerian banks; and also showed aggregate indications of decreasing financial intermediation over the 1990s, banks that focused on investment in government bonds and non-lending activities enjoyed a relatively higher performance.

Olokoyo (2012) examined the effects of bank deregulation on bank performance in Nigeria. The study analyzed secondary data collected from CBN statistical bulletin by employing the Ordinary

Least Square (OLS) technique. This study found out that the deregulation of the banking sector has positive and significant effect on bank performance.
Barros and Caporale (2012) examined the Nigerian banking consolidation process using a dynamic panel for the period 2000-2010. The Arellano and Bond (1991) dynamic GMM approach was adopted to estimate a cost function taking into account the possible endogeneity of the covariates. The main finding is that the Nigerian banking sector has benefited from the consolidation process, and specifically that foreign ownership, mergers and acquisitions and bank size decrease costs.

METHODOLOGY

A total of twenty commercial banks operate presently in Nigeria, out of which five banks were selected for this study. The selected banks include First of Nigeria Bank Plc. (FBN), United Bank for Africa Plc. (UBA), Guaranty Trust Bank Plc. (GTB), Zenith International Bank Plc. (ZIB), and Access Bank Plc (ABP). The basis for the selection rests on the facts provided by Kolapo, Ayeni and Oke (2012) that these banks have been rated as the topmost five Nigerian banks by Fitch rating and Bankers' Magazine of July 2012, they account for over fifty percent of deposit liabilities in the Nigerian banking sector, they have made the list of the first 25 and 500 banks in Africa and the world respectively, their credit rating by Fitch, Standard and Poors, and Agusto and Co have moved from stability to positive as at January 2012, they all have a large customer base and participate actively on the Nigerian Stock Exchange (NSE). The study made use of data obtained from the audited financial reports of the banks for a period of thirteen years (2000- 2012), macroeconomic data obtained from the CBN Statistical Bulletin (2011) as well as informal sector data from Ogbuabor & Malaolu (2013).
STATA 11 econometric software was used to analyze the data, using Panel Data Regression model to capture both the cross sectional and time series data. A high coefficient of determination will indicate objectivity. The Panel data Regression analysis was chosen instead of simple or multiple regressions because it has the advantage of providing more informative data, more variability, less collinearity among variables, more degrees of freedom and efficiency (Gujarati & Porter, 2009). Besides, it is best suited to study 'dynamics of change and more complicated behavioural models, and has the capacity of enriching empirical analysis in ways that may not be possible for ordinary regression or multiple analysis (Akintoye, 2008). Our working hypothesis may be stated thus:
Ho: The informal sector does not impact on the liquidity of deposit money banks in Nigeria
H1: The informal sector impacts on the liquidity of deposit money banks in Nigeria

MODEL SPECIFICATION

Following Kolapo, Ayeni and Oke (2012), the model for this study can be implicitly stated as follows:

LDRAT = f(INFOR, GDPGR, TCGDP, M1DEP, PAT, ASQUA, CAPAD) ……………………………….... (1)

Where: LDRAT = loan to deposit ratio (proxy for bank liquidity);
INFOR = informality (measured as size of Nigeria's informal sector as % of GDP);
GDPGR = GDP growth rate:
TCGDP = total banking sector credit to GDP ratio;
M1DEP = ratio of M1 to total banking sector deposits
PAT = profit after tax
ASQUA = asset quality (measured as the ratio of total non-performing loans to total loans);
CAPAD = capital adequacy ratio

Following Kolapo, Ayeni and Oke (2012) and Gujarati and Porter (2009), the fixed effects within-group models of equations (1) and (2) can be econometrically and explicitly specified as follows:

$$\mathbf{LDRAT_{it} = \lambda_{0i} + \lambda_1 INFOR_{it} + \lambda_2 GDPGR_{it} + \lambda_3 TCGDP_{it} + \lambda_4 M1DEP_{it} + \lambda_5 CAPAD_{it} + \lambda_6 PAT_{it} + \lambda_7 ASQUA_{it} + \varepsilon_{it}} \quad \ldots\ldots \mathbf{(2)}$$

Where:
λ_i are the parameters, t = 1, 2, 3, …, 13 is the time period, i = 1, 2, …, 5 is the cross-sectional units and ε is the error term. Our a priori expectations are that λ_2, $\lambda_5 > 0$ while λ_1, λ_3, λ_4, λ_6, $\lambda_7 < 0$. Our choice of the fixed effects within-group model is based on the following observations by Gujarati and Porter (2009):

1. Fixed effects estimators are consistent where a long panel is involved and are preferred to random effects estimators;
2. If the individual error components εi and one or more regressors are correlated, then the random effects estimators are biased, whereas those obtained from fixed effects model are unbiased;
3. Even if it is assumed that the underlying model is pooled or random, the fixed effects estimators are always consistent.

EMPIRICAL RESULTS AND DISCUSSION

The parameter estimates from our regression results are shown in tables 1 below:

Table 1: Fixed-effects within-group regression results (LDRAT as dependent variable)

Variables	Coefficients	Standard Error	t-statistic	Probability
PAT	-.19083	.1373052	-1.39	0.170
ASQUA	.4191525	.3471135	1.21	0.233
CAPAD	.10658	.2159981	0.49	0.624
INFOR	-.0744681	.2345065	-0.32	0.752
M1DEP	-.0047639	.0049114	-0.97	0.336
TCGDP	.0278138	.0055006	5.06	0.000
GDPGR	.4019615	.4757427	0.84	0.402
CONSTANT	36.78247	17.68762	2.08	0.042

R^2 (within) = 0.4239; R^2 (overall) = 0.1428; No of observations = 65; Prob. (F) = 0.0000
Source: Author's computation using STATA 11

The results in Table 1 above indicate that total banking sector credit to GDP ratio (TCGDP) coefficients is statistically significant at both 5% and 1% levels of significance and explained about 14% of the overall variations in loan to deposit ratio (LDRAT), which is the proxy for bank liquidity. This shows that the volume of credit granted by deposit money banks in Nigeria is a key determinant of the liquidity of the banking system. The overall F-statistic is also significant and indicates the objectivity of our model. However, even though informality is not statistically significant, it has a negative coefficient of -0.0744681 which conforms to a priori expectation. This result shows that the informal sector impacts negatively on the liquidity of deposit money banks in Nigeria. Here, a unit increase in the size of the informal sector results in 7.44% deterioration in the liquidity of deposit money banks. Other repressor variables such as GDPGR, PAT, M1DEP, and CAPAD also conformed to our a priori expectations, whereas TCGDP and ASQUA did not conform. The negative coefficient of -0.0047639 for M1DEP indicates that high currency in circulation required for informal transactions impacts negatively on the liquidity of the banking system. Furthermore, the results indicate that whenever the banking system increases profitability by one unit, its liquidity worsens by 19.1%.

CONCLUSION AND RECOMMENDATIONS

The informal sector in Nigeria is one of the major components of the overall economy. This study has empirically examined the impact of informality on the liquidity of the banking system in Nigeria. The results indicate that if bank liquidity is measured by total loan to deposit ratio, then informality impacts negatively on the liquidity of deposit money banks in Nigeria. Other variables that impact negatively on bank liquidity are ratio of M1 to total banking sector deposits and profit after tax. However, GDP growth rate, asset quality and total credit to GDP ratio impact positively on bank liquidity.

Based on the findings above, we recommend that deposit money banks in Nigeria should pursue policies and products that will assist them to capture the huge economic activities taking place in the informal sector and thereby improve the liquidity of the banking system in Nigeria. The government, through the monetary authority (the Central Bank of Nigeria, CBN), should also review and improve on its policies that are capable of driving economic units underground. Electronic banking and other cashless measures can be used through well articulated policies, including public enlightenment campaigns and provision of adequate information and communication technology infrastructure that will encourage the banking public to embrace such policies. Clearly, deposit money banks in Nigeria must work together with the CBN to achieve an all inclusive banking system, thereby reducing the negative impact of informality on the liquidity of deposit money banks in Nigeria.

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