Macroeconomics Determinant of Liquidity in Emerging Markets: Case Study of Nigeria

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Abstract - This research empirically studies the macroeconomic determinants of liquidity in emerging market. In carrying out this study, the following variables (liquidity ratio, interest and GDP) were identified to study the liquidity and their inter-relationship on Nigeria financial banks. The variables were obtained from finical report of the bank and the Central Bank of Nigeria (CBN) statistical bulletin over the period of 25 years (1989-2013) using time series data specification to carry out its estimation. This study employed Ordinary Least Square (OLS), Johansson Co-efficient, Error correlation models (ECM) and Granger Causality to test for the short – run, long – run and existence of relationship and cost effect respectively. The evidence obtained from the study showed the existence of OLS, Johansson Co-efficient, Error correlation models (ECM) and Granger Causality between economic growth in the long run as well as long run. This suggests that macroeconomic determinants of liquidity have impact on economic growth in Nigeria.

Indexed Terms -- Determinant, emerging markets liquidity, macroeconomics.

I. 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. 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. (Agbada & Osuji, 2013).

For more than two decades, emerging markets (EMs) have generated some of the most exciting investment opportunities globally. As economies in Asia, Latin America and Eastern Europe began to grow at rates that far outpaced more developed countries, new economic reforms and trade liberalization opened the door to Western investment. Meanwhile, increasing urbanization and a burgeoning middle class gave rise to a new generation of consumers with strong demand for consumer goods and infrastructure development to support their new lifestyles. (BlackRock Investment Institute, 2011).

Emerging markets, of course, come in many sizes and forms. There are limited similarities between the financial structures and investment return drivers of a highly developed economy and financial system such as, say, South Korea and those of the frontier markets of Africa and Central Asia. China and India together comprise three times the population of the entire advanced world. Emerging markets now represent 86% of the world's population, 75% of the world's land mass and resources and account for 50% of world GDP at purchasing power parity (PPP), yet account for just 12% of the global equity market capitalization on a float-adjusted basis.

However, some of the poorest countries are also some of the fastest-growing globally. Overall, emerging growth is significantly faster than in the developed world, but there are significant variations—ranging from Qatar, with forecasted GDP growth of 20% this year, to the Czech Republic, with forecasted growth of just over 2%. There are huge differences between Russia and Brazil, which benefit from rising commodity prices and importers such as Turkey and India, which struggle with rising prices. So again, we have to be careful with generalizations: Korea and Liquidity is one of the criteria all investors should take into consideration. One factor is state ownership, which reduces the size of the free float and also affects standards of governance.

In general, the largest markets have traditionally been the most liquid—South Korea, China, Brazil and Taiwan—while Colombia and Philippines have been relatively illiquid. Frontier markets have been even more illiquid, so investors should consider focusing on the largest companies in those markets, or they could consider a longer holding period. A related issue is the volatility of share prices—emerging markets remain significantly more volatile than developed markets, particularly in times of stress.

II. STATEMENT OF THE PROBLEM

In the 1990s, international bond issues by developing countries have surged dramatically and become one of the fastest growing devices of external development financing. Also, their terms have improved due to increased institutional investors' interest in emerging market securities and better economic prospects in a number of developing countries (the Economist, 2012). However, little is known about the macroeconomics determinants of liquidity in emerging markets and thus yield spreads of new emerging market bond issues. Building on the theoretical framework of recent research, this study performs an empirical analysis for the macroeconomics determinants of liquidity in emerging markets.

III. OBJECTIVE OF THE STUDY

The objective of study is to study the macroeconomics determinant of liquidity in emerging markets. There are also various other concepts of liquidity which are closely related to one another. Other specific objective includes:

- To study the liquidity and their inter-relationships on Nigeria financial banks.
- To investigate the interest rate on liquidity ratio in Nigeria.
- To examined the impact of regulatory and macroeconomic factors on overall GDP.

- Research Hypotheses

The following hypotheses shall be formulate in course of this research study

Ho1: Interest rate does not influence liquidity conditions in Nigeria commercial banks.

Ho2: There is no significance effect of liquidity on net position of commercial banks in the Central Bank's liquidity adjustment facility (LAF).

- Macroeconomic liquidity

Macroeconomic liquidity relates to monetary conditions. The key indicators of macroeconomic liquidity in terms of price are the policy interest rates and the term structure of interest rates (Longworth, 2007). The range of quantitative measures of macroeconomic liquidity varies from the day-to-day liquidity provided by the central bank at one end of the spectrum to the broadest measure of monetary and liquidity aggregates at the other. In Nigeria, the key indicators of macroeconomic liquidity are LAF on a day-to-day basis and monetary and credit aggregates over the medium-term.

Many central banks also measure macroeconomic liquidity by formulating various 'liquidity' aggregates in addition to the monetary aggregates. While the instruments issued by the banking system are included in 'money', instruments that are close substitutes of money but are issued by the on - banking financial institutions are also included in liquidity aggregates (Desai, Meghnad, 2007).Liquidity aggregates in Nigeria include the liabilities of post office savings banks, select financial institutions and non-bank financial companies (NBFCs). (Drehmann and Nikolaou, 2009).

In view of their 'moneyness' or 'liquidity', these instruments compete with bank deposits. The relative share of non-money liquid instruments in the aggregate measures of liquidity has declined. Thus, the share of NM3 (viz., the broadest measure of new monetary aggregates) to L3 (viz., the broadest measure of liquidity aggregates) increased to 98.0 per cent as at end-March 2012 from 95.3 per cent as at end-March 1999. The reasons range from the greater liquidity of bank deposits vis-a-vis postal deposits, conversion of the larger all Nigeria financial institutions (AIFIs) into banks and increased prudential regulation and supervision of NBFCs reducing regulatory arbitrage vis-a-vis the banking

sector. Besides, there is a considerable lag in the availability of the data. Hence, these liquidity aggregates do not enjoy policy relevance.

Reserve money – also known as central bank money, base money or high powered money – plays a crucial role in the determination of monetary aggregates.4 Reserve money has two major components – currency in circulation and reserves (Gokarn, 2011). Currency in circulation comprises currency with the public and cash in hand with banks. The public's demand for currency is determined by a number of factors such as real income, price level, the opportunity cost of holding currency (i.e., the interest rate on interest-bearing assets) and the availability of alternative instruments of transactions, e.g., credit/debit cards, ATMs, cheque payments. The demand for reserves by banks depends on the requirements for the maintenance of CRR and to meet payment obligations. The Reserve Bank is the banker to the banks and is the sole supplier of liquidity (or reserves) to these banks. A part of the reserves is supplied while performing central banking functions other than monetary policy operations and constitute the autonomous drivers of liquidity. These functions include government cash management, meeting currency demand of the public and foreign exchange management. Currency with the public is another autonomous driver of liquidity.

- Market liquidity

Market liquidity refers to how readily one can buy or sell a financial asset at short notice, at low cost and large quantity, without causing a significant movement in its price. Market liquidity is measured in terms such as the bid-ask spread, the volume and frequency of transactions per unit of time, the turnover ratio and the price impact of a trade. A liquid market is necessary for effective monetary policy transmission.

- Balance sheet liquidity

Balance sheet liquidity refers broadly to the cash-like assets on the balance sheet of a firm or a household.7 In the event of a run on banks or faced with asset liability mismatch, balance sheet liquidity provides an assurance of easy conversion of banking assets into cash to help maintain depositors' confidence. (Goodhart, 2007)

- Funding liquidity

Funding liquidity may be defined as the ability of banks to settle obligations with immediacy (Drehmann and Nikolaou, 2009). The Basel Committee on Banking Supervision defines funding liquidity as the ability of banks to meet their liabilities, unwind or settle their positions as they come due.

The common element in these various concepts of liquidity is that liquidity is the ability to obtain cash – either by turning assets into cash at short notice or by having access to credit, including from central banks. Commercial Banks' Lending Behavior in Nigeria Banks' performance in Nigeria over the last decade remained unimpressive. The profit before tax (PBT) of the banks fluctuated, especially between 2002 and 2005, and has declined progressively since 2008. For instance, the profit before tax which was 80.8% in 2000 fell dramatically and recorded a loss of 13.95%. Although PBT peaked at 287.62% in 2007, it nose-dived to 49.14% in 2008 (Obamuyi, 2012).

This implies that the opportunities for banks in Nigeria to make profits are gradually reducing. The declining profits could have been caused by the global economic crises, the festering crises in the banking sector and the fact that some of the criteria usually employed to measure the performance of the banks have been compromised by the Central Bank of Nigeria (Obamuyi, 2011). As Olokoyo (2011) argues, the current trend in Nigerian banking and finance sector suggests that the days of cheap profits are now over and only banks with well conceptualized lending and credit administration policies and procedures can survive the emerging competition.

The implication of all the statements above is that banking habits have been seriously threatened thereby discouraging savings culture and hence reducing the amount of funds that can be mobilized by banks. By extension, the profitability of the banks, regarded as a key measure of financial performance for any company, has been negatively affected. The foregoing confirms the worry of Sharma and Mani (2012) that the performance of banks has become a major concern for economic planners and policy makers due to the fact that the gains of the real sector

of the economy depend on how efficiently the banks are performing the function of financial intermediation. As Saona (2011) argues, an efficient financial system improves banks' profitability by increasing the amount of funds available for investment, while enhancing the quality of services provided for the customers.

Thus, important role of banks arises because, by facilitating the use of external finance, they assist in reconciling the financial interest of the deficit economic units, which invest more than they save, with those of the surplus economic units, which save more than they invest (Ojo, 2010), thereby generating reasonable income in the process. Although the monetary authorities have taken some measures (such as banks' consolidation, review of prudential guidelines and bail-out strategy) to stabilize the financial system and build confidence in the banking system, it is still germane to know what factors affect banks profitability in order to influence policy making in the banking sector in Nigeria. Thus, the study investigates the effects of capital, size, expenses management and economic condition on banks' profitability in Nigeria.

Emerging Markets And their Policymaking Process
The distinguishing volatility of emerging markets has been documented, for example, by Aguiar and Gopinath (2004) and the policy approaches to managing volatility have been discussed by Aizenman and Pinto (2004). The volatility arises from many sources, including natural disasters, external price shocks, and domestic policy instability. The key issue in assessing emerging market volatility is whether it results from uncontrollable factors or is the consequence of the policy framework within which countries operate. The distinction between these two sources of volatility is not straightforward since even shocks on account of natural disasters can be mitigated if prevention and disaster management measures are in place. Kaminsky, Reinhart, and Vegh (2004) document that rather than acting as a stabilizing force, as in most advanced economies, emerging governments' policies are "procyclical," i.e., they reinforce economic booms and aggravate recessions. However, of crucial importance is perceived arbitrariness in policymaking, which undermines investor confidence and hurts long-term

investment in productive assets. Policy instability is seen to hurt growth severely (see, for example, Fatás and Mihov 2003 and Mody and Schindler 2004).

Constraints on policymaking that reduce actual or perceived arbitrariness can, consequently, help. That leads to the second defining characteristic of emerging markets: their transitional features. Emerging markets are in transition in several senses. They are almost always transitioning in important demographic characteristics, such as fertility rates, life expectancy, and educational status. Typically also, they are transitioning in the nature and depth of their economic and political institutions. Finally, and of special relevance, is the transition to greater interaction with international capital markets. The transitions are often long drawn and, at times, disruptive.

Ranciere, Tornell, and Westerman (2003) argue that in attempting to force the transitions, countries may sometimes adopt policies that raise the rate of progress but, at the same time, increase the risks of crises.

The combination of high volatility and the transitional features of emerging economies generate a real challenge in policymaking. In conventional terminology, that challenge is the appropriate balance between commitment and flexibility, or between rules and discretion. To show good faith in policy initiatives, commitment is desirable and hence mechanisms that ensure such commitment will be valued by investors and will, ultimately, facilitate economic progress. A sustained commitment demonstrates the willingness to stay the course despite the many ongoing transitions. That commitment is a pledge that despite the volatility to which the country is subject, policymakers will not respond in a manner that aggravates or amplifies the volatility— rather, to the extent possible, volatility will be dampened through policy actions.

IV. LITERATURE REVIEW

Over the last twenty years much focus has been on the impact of financial development i.e. capital market, banking industry growth on economic development. The literature review in the previous

section and the voluminous number of empirical investigation show that such a focus has been intense amongst the academicians throughout the world. However empirical question addressing the issue of the determinants of stock market development has been considerably low. In understanding the conceptual foundation of financial theory for stock market growth (Calderon-Rossell, 1990; Calderon-Rossell, 1991) developed a comprehensive partial equilibrium model using 42 countries dataset form 1980 to 1987.

El-Wassal (2005) investigating data set from 40 emerging markets between 1980 and 2000 has identified that economic growth, financial liberalization policies and foreign portfolio investments were the leading factors for the growth of stock markets in these emerging economies. Narjess and Olfa (2007) studied a panel of 61 countries by addressing the endogeneity between privatization and stock market development. Their findings suggest that initial legal environment is a significant contemporary determinant of stock market development while privatization is not.

By examining the dynamics of privatization in interaction with the legal environment, the study concluded that privatization has a two-year-lagged effect on stock market development in emerging markets, and a one year-lagged effect in developed countries. Bortolotti, De-Jong, Nicodano and Schindele (2002) using a sample of 19 OECD countries for 1985-2000 period found that privatization has had a significant impact on stock market liquidity, a measure for stock market development. Finally, Yartey (2008) using a panel data of 42 emerging economies for the period 1990 to 2004 has argued that income level, gross domestic investment, banking sector development, private capital flows and stock market liquidity are important determinants of stock market development in emerging market.

Referenced in an article on www.proshareng.com, dated July 20,2005, Professor Ademola Ariyo a specialist of Economics at the university of Ibadan in his research sponsored by Magnum Trust Bank Plc said that in spite of the existence and activities of relevant intermediation institutions and financial sector regulatory agencies, excess liquidity is and

has become macroeconomic bottleneck for Nigeria as a country. Excess liquidity is the margin by which the aggregate liquidity in the economy exceeds the optimum level. He suggested that, there exist a desire level of liquidity that would ensure that macroeconomic stability is maintained in the economy and that quantum of liquidity can be referred to as the optimal level of liquid and the persistence of excesses liquidity suggests the inadequate of the current liquidity management process and strategy. He further suggests that externally driven, oil sector dominates public revenue and the ensuring fiscal operation of government does the major source of excess liquidity in Nigeria and that an incisive reflection suggests that the limited capacity of the country to absorb this huge resources flows from the oil and gas sector to equivocally the overriding cause of the problem. Even though, the government which is adjudged the major cause of excess liquidity is the greatest benefactor while the private sector, is the worst victim, the causes of excess liquidity he stated that while fiscal operations of government is the overriding cause of the liquidity problem in the country, banking system credit to the public sector is another major cause.

The public revenue profile is being driven externally and thereby does not reflect the state of affairs in the economy. The expenditure is also externally driven, being fuelled by high level of imports by private and public sector economic agents alike and underdeveloped nature of the capital market as a contributing factor to the persistence of excess liquidity in the economy.

Concepts of Liquidity: The Cobweb of Interactions
Even though the Liquidity Adjustment Facility (LAF) operations enable banks to extend credit based on demand at the margin, discretionary policy actions as well as autonomous factors drive the liquidity flows. Hence, money supply is found to be largely exogenous over the long run. The liquidity management operations of the Central Bank, however, may not always have the desired impact on money supply due to the changing behavior of the public and commercial banks, leading to episodes of endogeneity of money supply.

The term liquidity is used in a variety of ways. In this paper, however, 'liquidity' has been predominantly used in terms of the amount of money that the central bank makes available to banks on a daily basis (Borio, 1997 and Longworth, 2007). The central bank is a monopoly supplier of such liquidity, also called reserves. Reserves are bank deposits with the central bank. Banks need to maintain deposits with the central bank to meet the central bank prescribed reserve requirements or cash reserve ratio (CRR) as also to meet settlement obligations. The central bank bridges the gap between the demand and supply of reserves by way of various instruments, such as open market operations (OMOs) (including repos), provision of standing facilities and modulation of CRR. While instruments such as CRR and OMO are more suited to address durable or structural liquidity mismatches, overnight repo operations are designed to address frictional liquidity mismatches.

On a day-to-day basis, the amount of surplus/deficit at the overnight repo window is another – narrower – measure of liquidity position. In India, this narrower version of liquidity is measured in terms of the net position of commercial banks in the Reserve Bank's liquidity adjustment facility (LAF) (Borio, 2007). This concept of liquidity appears to have been expounded in the following stance of monetary policy viz., "Manage liquidity to ensure that it remains broadly in balance, with neither a large surplus diluting monetary transmission nor a large deficit choking off fund flows" (RBI, 2011). It is by injection/absorption of liquidity 'at the margin' through the LAF that the Reserve Bank bridges the gap between the demand and supply of liquidity on a day-to-day basis.

Liquidity is a word that means 'slightly different things in different contexts' (Longworth, 2007). This Section, therefore, explains the various concepts of liquidity as available in the literature. It also explains the subtle differences among these concepts providing examples from the Nigerian experience. These are very closely related to one another in theory as also in practice.

Empirical Review

The empirical approach uses a standard setup for analyzing determinants of growth: fixed effects growth regressions using macroeconomic panel data averaged over consecutive five-year periods.

Empirical findings show that risk and operating inefficiencies (which signal market power) explain most of the variation in net interest margins across the region. Macroeconomic risk has only limited effects on net interest in the study. Using data from 2000 to 2007 for 29 Sub-Saharan African countries to analysis efficiency and profitability of communal banks, Kiyota (2009) suggests that the profit efficiency of Non-SSA foreign bank has a negative and statistically significant relationship with three variables such as the return on the average equity, equity to net loans and net loans to total assets during the pre-crisis period (2004–2007). Flamini and Schumacher (2009) assert that bank profitability is high in SSA compared to other regions. The picture holds true whether profitability is measured as returns on assets, returns on equity or net interest margin.

Study on cross –continent was undertaken by Demirguc – Kunt and Huizinga (2000) where the impact of financial development and structure on bank performance was examined, using bank level data of large number (80) of developed and developing countries. There is evidence that macroeconomic and regulatory conditions have pronounced impact on margins and profitability, shallow market consumer larger bank did not appear to exercise market power in order to achieve high profitability performance and both scale and technical efficiency appear to be dominant determinants of profitability.

Ketkar and Kethar (2004) investigate the impact of reforms and liberalization on individual bank efficiency and profitability using data Envelopment Analysis and bank specific data from 1997 to 2004. They report that the relative efficiency of banks by ownership does not critically depend upon whether deposits as treated as input (intermediation approach) or output (production approach).

They find that foreign banks are the most efficient followed by new private banks. In their study that covers 76 banks (95% of assets) of Chinese banks between 1999 and 2006, Heffernan and Fu (2008) document that bank listing exert a significant, positive influence on performance, foreign equity

investment did not except in the case of margins where it fell. Efficiency significantly improves performance but off balance sheet activities were insignificant. Real GDP growth rates and unemployment also register significant effect. There is no evidence that bank size influence performance but the type of bank did.

Afanasieff, Lhacer and Nakane (2002) make use of panel data techniques to uncover the main determines of the bank interest spreads in Brazil. Using monthly data for all Commercial Banks operating in Brazil during the period from February 1999 to November 2000, the final sample is unbalanced panel data with 142 Commercial Banks with total of 5,578 observations. The result show the relevance of macroeconomic variables over banks observation characteristic as the main determinants of bank interest spreads in Brazil. However, they also suggest that some yet unidentified factors still account for large portion of the spread behavior in the country.

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 co-integration 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.

However, the recent global financial crisis leading to global economic meltdown has added new fuel to question the validity of any literature that concludes that stock market development can fuel economic growth. For example Samy and Samir (2007) using estimation of a dynamic panel model with GMM estimators for 11 MENA countries argued that there is no significant relationship between banking and stock market development and growth. Thus, even though there are literatures supporting both camps, but the weigh is more tilted towards those who argue that stock market development has significant

positive contribution in economic growth. However, the instability of stock market put serious question about the perceived benefit of such economic growth. As mentioned earlier the development of an optimum capital market compatible with the size of the economy and its future need is more important than an unruly growth of the capital market.

V.   METHODOLOGY

• Research Design
The design of the study was a simple survey to enable researcher to adequately investigate the macroeconomic determinant of liquidity in emerging markets.

• Population of the Study
The data for this study include the value of GDP, CGDP, liquidity and interest rate ratio for 25 years from 1989 – 2013. The population of the study comprised the entire operators in the Nigeria financial institutions.

• Sample Size and Sampling Techniques
The study employed secondary data to model the impact of macroeconomics factors on the development of the emerging markets in Nigeria using commercial banks. Macroeconomic factors data included GDP, savings and investment, stock market liquidity and macroeconomic stability. The sample size for the study is the First Bank of Nigeria Plc.

The annual reports of this bank were collected from library of Nigeria stock exchange in Lagos. The financial structure and macroeconomics variables were retrieved from the Central Bank of Nigeria database.

• Model Specification
This study employed the following linear equation as used as shown below:
Liquidity (Y) = f(GDP, IR, LR) ------- (1)
The explicit form of equation (1) above is represented as follows:
Liquidity (Yt) =β0 + β1GDPt + β2IRt + β3LRt + μt --------- (2)

• Definition of variable
The study used regression analysis to determine the relationship between the variables of study. Studies by Yartey (2008) and Lazaridis and Trofornidis (2006) have used regression analysis while researching on relationship among variables. The regression model below was used determine the impact of each variable in the development of the liquidity.

Liquidity (Yt) =   β0 + β1GDPt + β2IRt + β3LRt + μt
Y = f(GDP, IR, LR) under the assumption that: β1, β2, > 0 while β3, < 0.

This model is analyzed using pooled and the fixed effects. According to Baltagi (2005) the fixed effects model is the appropriate model to apply if the focus is a specific commercial bank and our inference is restricted to the behavior of this certain bank.
Liquidity (Yt) =   β0 + β1GDPt + β2IRt + β3LRt + μt

Where:
GDP: Gross Domestic Product at current market price
IR: Interest Rate (Lending Rate)
LR: Liquidity Ratio
μ: Stochastic (Error term) controlling for unit-specific residual in the model
β0:   intercept of the regression line

The coefficients β1, β2, and β3 represent the constants to the respective independent variables and indicate the type of relationship between each of the independent variables and the dependent variable. With the model, the study was able to identify the values of the independent variables and predict the future values.

A – Prior Expectation
1)   The sign β1, β2, and β3 are expected to be positively correlated with bank lending and tend to move in the same direction with banks' loan and advances.
2)   The sign β1, β4, β5 and β6 are expected to be negative since they have indirect positive relationship with the liquidity and move in opposite direction.

- Data Source

The data of was collected from the financial publication of the (mainly from the financial statement) of First Bank Nigeria Plc. The industry data, which is commercial banks, were gathered from Central Bank of Nigeria (CBN) statistical bulletin and the banks major economic, financial and banking indicators. Other required secondary data were obtained from CBN Statistical Bulletin and Annual Reports and Statement of Accounts specifically between 1989 and 2013. Moreover, the data used in this study is limited to those available and accessible within official statistical limitation.

- Empirical Result

Analysis of the time series data employed in this study tend to exhibit either a determistic and/or stochastic time trend and are therefore non stationary at level; i.e., the variables in question have, means, variances and covariances that are not time invariant. Direct application of OLS or GLS to non-stationary data produces regressions that are misspecified or spurious in nature (Engle and Granger, 1987). I therefore, subjected the variables for a unit root test using an Augmented Dickey-Fuller test (ADF) (Dickey-Fuller, 1981) and Philip-Perron test (Philip-Perron, 1988). The results of this stationarity tests at level show that all the variables are no stationary at level. The study adopts econometric approach to test the degree of correlation between the variables by employing the multiple regression analysis of the Ordinary Lease Square (OLS) method E-View 7.0 package

- Descriptive Statistics

Before embarking on the details of empirical issues, its important to examine the data which was collected and used in analysis. Table 1 gives the summary of the descriptive statistics of the data used in this study. Most economic data is skewed (non-normal), possibly due to the fact that economic data has a clear floor but no definite ceiling. Also it could be the presence of outliers. It utilizes the mean based coefficients of skewness and kurtosis to check normality of variables used. Skewness is the tilt in the distribution and should be within the -2 and +2 range for normally distributed series. Kurtosis put simply is the peakedness of a distribution and should

be within -3 and +3 range when data is normally distributed. Normality test uses the null hypothesis of normality against the alternative hypothesis of non-normality.

Table 1 also gives the normality test of the data used in this study. The normality test shows that macroeconomic determinants of liquidity i.e. Interest Rate (Lending Rate), Liquidity Ratio and GDP are not normally distributed. This is likely to impair the normality of the residuals forming the long run relationship. This is likely to lead to non-normality of residual series.The coefficients of GDP and liquidity ratio further demonstrate that there is a positive functional relationship between commercial banks activates, interest rate (lending rate) and liquidity ratios.

- Unit Root Test

To ensure a reliable result the stationarity of the chosen variables are usually examined. For the stationary test this research work used both Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests at both intercept with and without trend which is presented in Table 2.
From table two, it is apparent that ADF -4.783954 is greater than the critical values at 1%, 5% and 10% respectively. Therefore, the Null hypothesis will be rejected.

- OLS Result

From the result below, the coefficient of determination (R2) of 0.042748 shows that the variations in explanatory variable accounts for about 4% of the variation in the depended variable. The remaining unexplained 96% is attributed to the error term. Also, the F-value of 14.56163 shows that the overall model is satisfied at 5% and 1% significant level respectively, since the observed F-value is greater than critical values of 3.01 and 4.72 respectively. Therefore, the null hypotheses were therefore, rejected and accept the alternative.

The Durbin–Watson statistics value of 2.369 indicating the absence of autocorrelation therefore, this mean that the model can be used for policy formulation and recommendation.

The regression coefficients show that every 3% increase in lending rate and liquidity ratios for commercial banks will cause their liquidity to change by 0.69%, 0.35% and 0.77% respectively. These positive correlations disagree with the point that two of the variables - IR and LR tend to change in opposite directions with GDP in Nigeria. This indicates that high lending rate may not necessarily translate into poor living standard of the citizen in Nigeria. For the test of reliability, the t-values of 0.402461, -0.940751 and 0.285535 respectively are lower than the t-tabulated values at 1%, 5% and 10% significant levels.

- Co-Integration Test

A co-integration test was performed using Johansen's multivariate approach to find out the existence (or otherwise) of a long-run relationship among the variables (series). The choice of GDP, Interest Rate and liquidity rate were based on two reasons. First, according to Riezmann et al (1996) to determine the causality between economic growth and stock market price, market-capitalization are an important variable which must not be neglected to avoid biased results. For this reason to test the ELG theory in Nigeria, market-capitalization were taken into consideration. The Johansen cointegration test for (LnGDP), (LnIR) and (LnLR) are presented in Table 4.

Trace test indicates 2 cointegratingeqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values. From Table 4, the trace statistic, Max-eigenvalue and MacKinnon-Haug-Michelis (1999) p values, reveal that the null hypothesis of no cointegration and at most one co-integrating equation among the variables were rejected in favour of the alternative hypothesis at 5 per cent. This is because their values exceed the critical values (CV) at the 0.05 level. The econometric results show that their exist a long-run relationship between GDP, interest rate and liquidity ratio. The implication of these findings is that liquidity and economic growth are co-integrated that is they move together in the long run.

The error correction term ECM (-1) which has the expected negative sign is significant at 0.05 significance level with absolute value of -6.541137. This implies that there is convergence in the long run.

The coefficient indicates that the speed of adjustment from the short-run is to the long-run is high and about 65.4 percent error made in the previous are corrected in the current year. The coefficient of determination (R^2) is 0.57. This means that about 57% of the total systematic mean variation of the dependent variable is explained by other explanatory variables. The reaming 45% variations were explained by other elements not included in the model, but were taken care of by the error term, hence the regression model is a good fit.

At 5% significant level, the level regression passed the overall significant test (F-test), this is an indication that none of the estimated coefficient is equal to zero and that there is a linear relationship between the dependent variable and the explanatory variables.

- Granger Causality Test

To investigate whether any causal relationship exists between macroeconomics determinants and liquidity, the well-known Granger-Causality test is adopted. The approach adopted by Granger (1969) to the question of whether variable x causes variable y was to first find out how much of the current value of y can be explained by past values of y. The next step would be to see whether adding lagged values of x can improve the explanation. Then, y is said to be Granger-caused by x if x has a role to play in the prediction of y, or equivalently if the coefficients on the lagged x's are statistically significant. Thus the variable y can be predicted more efficiently using the information in the variable x. The objective of this section is to determine the direction of causality between stock price and GDP, and between interest rate and GDP in Nigeria for the period 1989 to 2013. The following equation is the basis for the Granger causality test:

The reported F-statistics are the Wald statistics for the joint hypothesis: $\beta 1 = \beta t = 0$

The first null hypothesis is that Liquidity Rate (LR) does not Granger cause GDP (Y). The second null hypothesis is that Interest Rate (IR) does not Granger cause GDP (Y). The Pair-wise Granger Causality test results are reported in Table 5.

The causality test results suggest bidirectional causation between the GDP and liquidity ratio and a unidirectional causality from interest rate to the GDP (MS→LGDP) and not vice versa.

VI. DISCUSSION

The study investigated the macroeconomic determinant of liquidity in emerging markets using time series data obtained from the central bank of Nigeria for the period of 1989 – 2013. It found the existence of a unidirectional causality from Interest rate and liquidity conditions in Nigeria commercial banks as well as the net position of commercial banks in the Central Bank's liquidity adjustment facility (LAF).

The reason for this development may be as a result of the various anomalies experienced within the Nigerian financial system in the recent times. This suggests that commercial banks remain dominant in the banking system in terms of their shares of total assets and deposit liabilities. The major component of total credits to the private sector are still on the increase in spite of the major constraints posted by the government regulations, institutional constraints and other macroeconomic determinants of liquidity.

The primary role of a stock market is to provide a market where financial instruments can be traded in a regulated environment without constraint. According to Glen et al. (1995) stock market is a vital part of any economic system in which ownership can be bought or sold. A stock exchange and its presence in an economic system can be justified by the following functions it performs- channels savings into investments. It converts investments into cash, thus supplying market liquidity and helps in evaluating and managing securities. This research project sought to investigate the determinants of the development of the Nairobi Stock Exchange.

The study adopted a descriptive approach. The focus of the study was the commercial banks since it was ideal market for carrying out this study based on availability, accessibility, and reliability of the data. Data for the last 25 years (1989 -2013) was used. The study employed secondary data to model the impact of macroeconomics determinant of liquidity in the emerging markets. Macroeconomic factors data included GDP, liquidity and interest rate. The regression results revealed that there is relationship between commercial activates and central bank liquidity, income per capita. However, regression analysis reported no relationship between commercial banks deposit and investment portfolio.

The implication of the explanatory variable has the highest impact and influence on the lending behaviour of commercial banks and a change in it will yield the highest change in liquidity. Therefore banks should strive hard to manage their deposits efficiently so that their objective of profitability can be achieved and the multiplier effects maintained to the maximum. This implies that generation of more deposits is tangent to the survival of Nigerian banks as a whole.

VII. CONCLUSION

Commercial banks remain dominant in the banking system in terms of their shares of total assets and deposit liabilities. The major component of total credits to the private sector are still on the increase in spite of the major constraints posted by the government regulations, institutional constraints and other macroeconomic determinants of liquidity.

However, both government and commercial banks should be mindful of the facts that the environments in which they operate are important factors in the bank performance and behavior. Where the environment is conducive and supportive, performance is enhanced and good lending behaviour guaranteed. But where the environment is unstable and harsh, the bank's performances suffer. Commercial banks should note that they need to do a lot in order to ensure good lending behaviour even where a good measure of emerging market is achieved.

It therefore follows that effort should be made by commercial banks to enforce the most easily realizable policies and good credit management in every situation. Based on the findings in this study, the following suggestions are recommended:
Commercial banks should develop credit procedures, policies and analytical capabilities and these efforts

should be expanded into full credit management including origination, approval, monitoring and problem management tailored to the needs of each bank.

Commercial banks should strategize on how to attract and retain more deposits so as to further improve on their lending performance.

There should be closer consultation and cooperation between commercial banks and the regulatory authorities so that the effect of regulatory measure on commercial banks will be taken into account at the stage of policy formulation.

The cost associated with lending to priority sectors as a national goal, should be borne by the society as a whole through the government budget instead of burdening the commercial banks with such cost. This is necessary because the commercial banks cannot afford to overprice or under price their loans for efficient lending performance.

Nigerian commercial banks should ensure good planning which encompasses budgeting, reviews and incentives.

They should formulate critical, realistic and comprehensive strategic and financial plans. This will help them be better positioned to enjoy the positive effects of macroeconomic factors such as change in gross domestic product and foreign exchange in a volatile environment such as Nigeria economy.
It is essential for commercial banks to build system and skills in liquidity management, assets and liability management and foreign exchange management.

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