



## Savings Mobilization Efforts of the Nigerian Money Market and Economic Growth

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**Abstract:** *Economic growth is a function of some productive efforts among which savings mobilizations are vital. This study examined the saving mobilization efforts of the Nigerian money market and the effects on economic growth during the years 2001 – 2022. Vested with the objectives to investigate the effect of banking density, savings rates and money supply on economic growth. The study relied on time series data sourced from the publication of the Central Bank of Nigeria. Gross Domestic Product Growth Rate (GDPGR) was adopted as the dependent variable, while Banking Density (BD), Savings Rates (SR) and Money Supply (MS) were the independent variables. Augmented Dickey Fuller (ADF) unit root test was employed, to test the stationarity. The Auto Regressive Distributive Lag (ADRL) was used to ascertain the relationship between the variables alongside the Vector Error Correction Model (VCM). Post estimation diagnostic tools used include; Breuch-Godfrey serial correlation LM test and the CUSUM test for stability. From the ARDL,  $\beta$ -coefficient and the associated probabilities were adopted to determine the extent and direction of relationship on economic growth. Data were tested at 5% level of significance, it was discovered that banking density and savings rates affected economic growth positively but with insignificant effects, while money supply affected economic growth negatively with insignificant effect.*

**Keywords:** Banking Density, Economic Growth, Money Market and Savings Mobilization Efforts

### I. Introduction

Economic growth at all stages and levels of sophistication has long been known to be dependent on some combinations of sustainable productive efforts made by economic agents among which savings mobilization is considered paramount. This has been evidently corroborated by common notion that countries with higher rates of savings have had a faster economic growth than those with lower saving rates Singh (2009), Rabaj and Mexhuani (2021). Evidence from theoretical views and empirical findings substantiate the merits of savings mobilization with the claim that capital accumulation creates greater opportunities for production and the productivity of a country by providing some additional income streams for more economic activities. It was along these thoughts that Ang (2011), reviewed that in the United Nations Conference on Trade and Development "Development and Globalization: Facts and Figures"2 (2004) it was emphasized that the main factor in increasing in-country capital is the increase of savings and that, in that regard, developing countries should prioritize programs that promote domestic savings, in order for capital to be invested towards the most productive practices. Also Rarman and Uddin (2005) explained that savings has emerged as the central issue in developing countries at least for two reasons. First, foreign aid inflow to the developing economies has declined during recent years. Second, saving positively affects growth and development, hence the more significant the saving rate, the higher the growth rate a country can attain

Empirical evidence from developing economies show some negative outcomes as related to savings mobilization and economic growth as it is widely recognized that developing

countries often lack appropriate financial systems, one that efficiently pools the savings of diverse households to make them available to borrowers.

(Ang (2011) said, to worsen the unattractive trend global savings over the last decade have largely been channeled to advanced countries rather than the developing world, where finance is most needed for achieving development goals. The case with Nigeria is spectacular, having undergone many economic and banking reforms in recent times, made by the Federal government through the monetary authorities, which ranges from bank consolidation to the recent aborted Naira redesign of 2023, which were all aimed at improving savings mobilization toward increased investment and economic growth. Odionye et al (2016) observed that in Nigeria, the rate of aggregate investment is often higher than that of domestic savings due to the presence of foreign investment flows in the economy. These flows, according to them are not part of the domestic savings but an investment from foreign savings which in no little measure contributes to the growth of the domestic economy.

On this note, this study seeks to explore the Nigerian money market savings mobilization efforts specifically and empirically determine their effect on economic growth.

### **1.1 Statement of the Problem**

Taking a departure from the old debates on finance and growth nexus that related to the fundamentalists point of view and the Keynes model (1936), there exists, in recent years a plethora of studies by different authors on the savings-growth relationship which shows an indication that there has not been a conclusive agreement on the debates as to whether it is savings that leads to economic growth or whether it is the growth in economy that causes the change in the rates of savings Barajas et al (2016), Rabaj and Mexhuani (2021). It has also been noted that there exists a divergence in the perceptions and empirical findings among writers from different economic environments (developed, developing, and underdeveloped economies) over matters relating to the role of savings on economic growth (Odionye et al 2016). Obviously, the duration of the age long debate has created a wide research gap such that need to be filled through ardent efforts, that demand taking some microscopic looks at the savings mobilization efforts of the financial market subsectors from various economies, whether such has any bearing with economic growth.

The case with savings mobilization efforts by the money markets among developing economies, with specific reference to Nigeria, has called for investigations, where the economic environment is beclouded with many negative issues relating to mismanagement, fraud and policy inconsistency. The combination of these negative issues may hinder the efficiency of every economic development effort including savings mobilization. In Nigeria, the prevalence of bank fraud, bank theft, increasing inflation, low level of minimum wage, and incessant deduction by Deposit Money Banks (Oyenuga et.al 2020) from credit balances of savers alongside the insolvency of the majority of microfinance banks and the recent withdrawal of their practising/operating license are among the negating issues that call for empirical investigations into whether saving mobilization efforts of the financial sector have any effect on economic growth.

This study is to this end, saddled with the responsibility to empirically investigate the effect of the savings mobilization efforts of the Money market on Nigerian economic growth.

### **1.2 Objectives of the Study**

The main objective of this study is to investigate the effect of money market saving mobilization efforts on the Nigerian economic growth. The specific objectives are;

1. to examine the effect of banking density on the Nigerian economic growth
2. to investigate the effect of savings rate on the Nigerian economic growth
3. to examine the effect of money supply on the Nigerian economic growth

### 1.3 Statement of Hypotheses

The following null hypotheses were formulated to be tested:

HO1: Banking density does not have any significant effect on Nigerian economic growth

HO2; Savings rates do not have any significant effect on Nigerian economic growth

HO3: Money supply does not have any significant effect on Nigerian economic growth

### 1.4 Scope of the Study

The study used annual time series data that covered a period of 22 years, spanning between the years 2001 to 2022. It is a country-specific study limited in geographical scope to Nigeria and only considered the Nigerian money market activities that are directed towards saving mobilization

## II. Review of Literature

### 2.1 Savings Mobilization Efforts

As indicated by the United States' Federal Reserve Bank (2005), Savings mobilization can be assessed by examining the effectiveness with which the financial system provides saving facilities and mobilizes financial resources from households and firms. The extent of financial savings could be ascertained by examining the level and trends in the ratio of broad money to GDP, this indicator may overstate the true picture if currency constitutes a high proportion of broad money. Other more specific indicators of access to savings facilities include the ratio of bank deposits to GDP and the proportion of the population with bank accounts. Information on the outreach of the financial system can help interpret developments in financial savings. Hence, indicators such as the total number of bank branches, the population per bank branch, and the distribution of branches and other outlets (Odediran and Udeaja 2010).

Banking density; banking density is one of the primary steps in savings mobilization, the measurement of bank density; adopt the number of commercial bank branches (CBBs) and the number of automated teller machines (ATMs) per 1,000 square kilometers. Bank density conceptually indicates the total number of bank branches, the population per bank branch, and the distribution of branches. On the other side, the absence of density is an indication of geographic areas with relatively little financial access – so-called “banking deserts”. According to Hegerty (2020), the concept of banking deserts appears to be uniquely American, it is often most evident in large central-city areas. Noticeably, wherever poverty is concentrated in an area, residents lack access to financial services; limited automobile access and reliance on underfunded public transportation might matter more than physical proximity to a bank branch. The case with bank density as defined per population is a relative term among developing economies since their commercial banks are usually business oriented and are only prominent at administrative centers, commercial centers and education centers.

Savings / Savings rate; savings is the mobilizing and channeling of deposits from households and firms to the productive sectors of the economy via savings mobilization efforts associated with financial intermediation and financial deepening which reflects the soundness of the financial sector and the ability with which credit are created with respect to lending and deposit rates (Olajide 2009). Savings rate is a function of the Monetary Policy Rate (MPR) which represents the benchmark interest rate at which Central banks lend money to commercial banks. Whereas lending rate is the rate at which banks lend money to their customers, savings rate is the rate at which banks pay in addition to the amount borrowers keep with the banks over a period of time. An economic effective savings and lending rates will in accordance to theories and empirical findings attract savers and investors to use the money market mechanism for fund mobilization. To corroborate the above assertion, Rummel (2015) said a well functioning financial institutions enhance overall economic

efficiency, create and expand liquidity, mobilized savings, promote capital accumulation, transfer resources from the traditional non-growth sector to the modern growth inducing sectors and encourage a competent entrepreneur respond development needs of the economy

As observed by Rabaj and Mexhuani (2021), a rise in aggregate savings would yield larger investment associated with higher GDP growth. The money market has to be effective intermediaries for mobilizing and channeling deposits to the productive sectors of the economy via savings mobilization efforts. Since independence in 1960, the money market in Nigeria has been playing this important role in development process of the nation. Money supply; money supply is one the activities of the central bank of a country who has the mandate to control the money supply through monetary and fiscal policies and bring about the desired economic objectives changes. The equilibrium amount in the market for money explains the money stock, as opposed to the money supply, which is a behavioral function specifying the amount that would be supplied at various interest rates and income levels. Nwankwo (2020) conceptualized money supply as the sum of all the currency and other liquid assets in a country's economy on the date measured, it comprises all cash in circulation and all bank deposits that the account holders can easily convert to cash. The generic contents of these monetary variables can be taken to be as follows:

$M1 = \text{Currency in the hands of the public} + \text{checkable deposits in commercial banks};$   
 $M2 = M1 + \text{savings deposits in commercial banks}.$  These generic components are molded to suit the context of different countries and their central banks. The variations in the components of M1 are accommodated by using terms such as M1, M1+, M1++, etc.

## 2.2 Money market;

money market is the term which embraces all institutions that handle the purchase and sale plus transfer of short term money and credit instruments. The money market securities are usually small risk due to loss, because they are issued by obligors of the highest credit ranking and they mature in one year. By providing liquidity for effective functioning of all the entities in an economy money market have gained the confidence of economic regulators and that of economic planners globally having become the pivot on which both the developed and developing economies run.

According to Eze and Nera (2017), money market in monetary and macroeconomics is the market in which the demand and supply of money interact, with equilibrium representing its clearance. Money market is the market for the purchases and sales of large volumes of short-term debt instrument such as commercial papers, treasury bills, purchase agreements, treasury certificates, development stocks and such other products that usually take place between financial institutions, companies and individuals which are viable economic tools for gendering sustainable economic growth.

## 2.3 Economic growth

Economic growth is the positive outcome from the process by which a nation's wealth increases overtime. The most widely used measures of economic growth are the rate of growth in a country's total output of goods and services evaluated by the Gross Domestic Product (GDP). Akarara and Eniekezimene (2018) view economic growth as a steady process by which the productive capital of the economy is increased over time to bring about a rising level of national income. Economic growth means an increase in the capacity of an economy to produce goods and services, compared from one period to another Etale and Ayunku (2017) noted that the need for a money market arises because receipts of economic units do not always coincide with their expenditures; thus, the money market functions by channeling short-term funds from the surplus units to the deficit units of the economy.

According to Ogbulu and Torbira (2012), Economic growth is a sustained rise in the output of goods, services and employment opportunities with the sole aim of improving the economic and financial welfare of the citizens. As reviewed by Owusu (20016), Gross Domestic Product (GDP) has been often adopted as an appropriate surrogate for economic growth. Economic growth as proxy by GDP is one of the primary indicators used to gauge the health of a country's economy. It represents the total value of all goods and services produced over a specific time period looking at the size of the economy. Usually, GDP is expressed as a comparison to the previous quarter or year. It is equal to the total expenditures for all final goods and services produced within the country in a stipulated period of time

## **2.4 Theoretical Framework**

### **a. Demand - Following Hypothesis**

The demand-following view of the development of the financial markets is merely a lagged response to economic growth (growth generates demand for financial products). This implies that any early efforts to develop financial markets might lead to a waste of resources which could be allocated to more useful purposes in the early stages of growth. As the economy advances, this triggers an increased demand for more financial services and thus leads to greater financial development. Some research work postulate that economic growth is a causal factor for financial development. According to them, as the real sector grows, the increasing demand for financial services stimulates the financial sector. It is argued that financial deepening is merely a by-product or an outcome of growth in the real side of the economy, a contention recently revived by Ireland (1994) and Demetriades and Hussein (1996). According to this alternative view, any evolution in financial markets is simply a passive response to a growing economy.

### **b. Supply - Leading Hypothesis**

The supply-leading hypothesis suggests that financial deepening spurs growth. The existence and development of the financial markets brings about a higher level of saving and investment and enhance the efficiency of capital accumulation. This hypothesis contends that well-functioning financial institutions can promote overall economic efficiency, create and expand liquidity, mobilize savings, enhance capital accumulation, transfer resources from traditional (non-growth) sectors to the more modern growth inducing sectors, and also promote a competent entrepreneur response in these modern sectors of the economy. The work of Dernirguc-Kunt& Levine (2008) in a theoretical review of the various analytical methods used in finance literature, found strong evidence that financial development is important for growth. To them, it is crucial to motivate policymakers to prioritize financial sector policies and devote attention to policy determinants of financial development as a mechanism for promoting growth.

This study considers the reviewed theories as very important and been closely relevant they jointly formed an anchor upon which the study rests. Nevertheless the tenets of the Supply-Leading hypothesis is considered most important being centered on interrelated evidences on financial deepening, saving mobilization, financial market development and economic growth

## **2.5 Empirical Review**

Rahman and Uddin (2005) investigated the role of saving in accelerating economic growth in Bangladesh and estimates a simultaneous equation related to this to assess the impact of various factors in determining savings and economic growth in Bangladesh with special emphasis on the impact of financial sector reforms initiated in the late 1980s. The findings reveal that the growth rate and real rate of interest have a positive impact on saving rate. Also the dummy variable (financial reform index) has a significant positive effect on saving rate



indicating that the financial sector reform has ultimately enhanced saving rate in Bangladesh. Population per branch of scheduled banks, on the other hand, is negatively related to saving rate suggesting that increased availability of branches of banks can stimulate the saving tendency of people. Ang (2011) identified the key factors behind Malaysia's remarkable savings performance. Drawing on the life cycle theory, the saving function is estimated by incorporating other relevant structural features and institutional settings of the Malaysian economy into the specification. Particular emphasis has been placed on the roles of financial factors in mobilizing funds in the private sector. The results suggest that financial deepening and increased banking density tend to encourage private savings. Development of insurance markets and liberalization of the financial system, however, tend to exert a dampening effect on private savings.

Anderson (1999) conducted a study to investigate the causal relationship between real output and savings for Sweden, UK and USA. The results indicated mutual long run relationship between variables only for Sweden and UK. The result also indicated short run bidirectional causality for USA and unidirectional causality from saving to output for UK. No significant evidence of short run causality was found for Sweden. He concluded that the causal chain linking savings and output might differ across the countries. He also suggested that causality in the long run might go in different directions than causality associated with short-term disturbances.

Sajid and Sarfraz (2008), employed co-integration and the vector error correction techniques using quarterly data for the period of 1973:1 to 2003:4, to investigate the causal relationship between savings and output in Pakistan. Their results suggest bi-directional or mutual long run relationship between savings and output level. However, there is unidirectional long run causality from public savings to output (GNP and GDP), and private savings to gross national product (GNP). The results also indicate that the speed of adjustment in case of savings is stronger than that of level of output. Implying that the overall long run results of the study favour the capital fundamentalist's point of view that savings precede the level of output in case of Pakistan. The short run mutual relationship exists between gross domestic product (GDP) and domestic savings. The results also indicate unidirectional short run causality from gross national product (GNP) to national and domestic savings; and from gross domestic product (GDP) to public savings. The short run causality runs only from national savings to gross domestic product (GDP). So the concluded that the overall short run results favour Keynesian point of view that savings depend upon level of output.

Saltz (1999) investigated the direction of causality between savings and growth rate of real GDP for 18 Latin American and newly industrialized countries for the period of 1960-1991. The results lent for greater support for the hypothesis that faster growth rate of real GDP caused higher growth rate of savings. Podrecca and Cormecci (1999) discovered growth to saving; implying that economic growth proceeds and granger causes saving. Thus, they reject the Solow's hypothesis that saving precedes economic growth, and accept the Keynesian theory that it is economic growth that leads to higher saving. The author recommends that government and policy makers should employ policies that would accelerate economic growth so as to increase saving.

Aluko and Ajayi (2017) examined the determinants of banking sector development in sub-Saharan African countries using a panel of 25 countries from 1997 to 2014. It utilizes the system Generalized Method of Moments (GMM) dynamic panel model estimator. Using a composite index of banking sector development, the estimation results show that population density and simultaneous openness to trade and capital promote banking sector development while financial liberalization hinders banking sector development. This study reveals that institutional quality, population density, and trade openness increases the depth of the banking sector. Also, it demonstrates that law, inflation, and religion promote the efficiency of the

banking sector while latitude, trade openness, income level, and ethnic diversity reduce banking sector efficiency. In addition, it shows that law and simultaneous openness to trade and capital enhances the stability of the banking sector while land area, financial liberalization, economic growth, and inflation adversely affect banking sector stability

Etali and Ayunku (2017) investigated if money markets spur economic growth in Nigeria? Using a granger causality approach, the study adopted money market instruments such as treasury bills (TBs), commercial papers (CPs) and bankers acceptances (BAs) as proxy for money market (independent variables), and gross domestic product (GDP) as proxy for economic growth (the dependent variable). Secondary time series data for the variables were collected from CBN Statistical Bulletin and the National Bureau of Statistics for the period 1989-2014. The study employed econometric techniques such as ADF, Unit Root Test, OLS, multiple regression and Granger Causality Test to analyzed the study data; strong evidence that TBs, and CPs had positive and significant influence on GDP, while BAs had positive but insignificant influence on GDP in Nigeria. The granger causality test result revealed no directional causality relationship between TBs and GDP, meaning that TBs does not granger cause GDP and vice-versa. There was also no directional causality relationship between CPs and GDP, BAs and GDP. However, there exists bi-directional relationship running from.

Hegerty (2020) conducts an analysis of bank locations in Chicago, focusing on bank counts within one and two miles of each block-group centroids. He finds “banking deserts” in roughly nine percent of the city, and estimates that these areas contain roughly 0.4 banks per square mile. These block groups are shown to both be poorer and to have fewer white residents than the city as a whole, and particularly in comparison to neighborhoods with large shares of bank branches. But the “rule of thumb” implied in the paper most likely only applies to large cities, so further empirical work could find bank densities for other locations.

The study by Rabaj and Mexhuani (2021) on the correlation between savings and economic growth provides further insight on the case of Kosovo from both a qualitative and quantitative research methodology. The data used was from 2010 to 2017 and has been analyzed using the augmented Dickey-Fuller tests, Johansen cointegration tests, and Ganger causality test. The test of the unit root confirms stationarity, and the regression results showed that deposits have a significant positive impact on Kosovo’s economic growth, because savings stimulate investment, production, and employment and consequently generate greater sustainable economic growth. Furthermore, loans and remittances also help boost the economy of Kosovo through their direct impact on investment. The paper confirmed that countries whose national savings rate is high are not dependent on foreign direct investment; consequently, the risk arising from volatile foreign direct investment decreases significantly

### **III. Research Methods**

#### **3.1 Research Design**

This study adopts the ex-post facto design and relied on secondary data which were obtained from the Central Bank of Nigeria’s statistical Bulletin. The study is from 2000 to 2022. The dependent variable, which is economic growth, is measured by Gross Domestic Product Growth Rate (GDPGR). While the independent variables were banking density, savings rates, and money supply.

#### **3.2 Data Analysis Technique**

To determine the unit root, Augmented Dickey Fuller (ADF) unit root test was employed The Auto Regressive Distributed Lag (ARDL) bound testing methodology as developed by Pesaran and Shin (1999) which has been discovered and favored above the co- integration analysis established by Angle and Granger (1987) and Johansen and Juselius (1990) was used in order to

ascertain that there are no spurious results. Error Correction Model (VCM) was adopted to verify the span of relationship between the dependent variable and the exogenous variables. Post estimation diagnostic tools used include the Breusch-Godfrey Serial Correlation LM Test and the CUSUM test for stability of the model. Following Tokoyan and Adekeye (2021) and Rabaj and Mexhuani (2021), test f-statistics and  $\beta$ -Coefficients from the ADRL were adopted to determine the extent to which the independent variables effect on economic growth.

### 3.3 Model Specification

The model for this study was as used by Tokoyan and Adekeye (2021) and Rabaj and Mexhuani (2021), which was modified to accommodate savings mobilization variables in conformity with the study's objectives. The model therefore is stated as;

$$\text{GDPGR} = f(\text{BD}, \text{SR}, \text{MS}, \mu)$$

$$\text{GDPGR} = b_0 + b_1 \text{BD}_t + b_2 \text{SR}_t + b_3 \text{MS}_t + \mu$$

The Logarithm for econometric transformation is represented as;

$$\text{Log GDPGR} = b_0 + \text{Log } b_1 \text{BD}_t + b_2 \text{Log SR}_t + b_3 \text{Log MS}_t + \mu$$

Where;

$b_0, b_1, b_2, b_3$  = the parameters to be estimated

LogBD = logarithm of banking density

LogSR = logarithm of savings rates

LogMS = logarithm of money supply.

$\mu$  = error term/stochastic.

## IV. Results and Discussion

### 4.1 Descriptive statistics

**Table 1.** Descriptive statistics  
Category Statistics

| Variable | Count | Mean     | Std. Dev. | Std. Err.<br>of Mean |
|----------|-------|----------|-----------|----------------------|
| LNGDP    |       |          |           |                      |
| GR       | 22    | 1.415490 | 0.809772  | 0.172644             |
| LNBD     | 22    | 8.387250 | 0.353917  | 0.075455             |
| LNSR     | 22    | 3.185709 | 0.178939  | 0.038150             |
| LNMS     | 22    | 9.189568 | 1.116079  | 0.237949             |

|              | LNGDPGR   | LNBD      | LNSR     | LNMS      |
|--------------|-----------|-----------|----------|-----------|
| Mean         | 1.415490  | 8.387250  | 3.185709 | 9.189568  |
| Median       | 1.735651  | 8.579417  | 3.149764 | 9.473045  |
| Maximum      | 2.729159  | 8.667164  | 3.444895 | 10.60257  |
| Minimum      | -0.210721 | 7.693026  | 2.910174 | 7.146378  |
| Std. Dev.    | 0.809772  | 0.353917  | 0.178939 | 1.116079  |
| Skewness     | -0.653437 | -1.169555 | 0.033672 | -0.490879 |
| Kurtosis     | 2.275990  | 2.699297  | 1.719686 | 1.963890  |
| Jarque-Bera  | 2.046102  | 5.098367  | 1.506761 | 1.867592  |
| Probability  | 0.359496  | 0.078145  | 0.470772 | 0.393059  |
| Sum          | 31.14079  | 184.5195  | 70.08560 | 202.1705  |
| Sum Sq. Dev. | 13.77035  | 2.630402  | 0.672404 | 26.15826  |
| Observation  | 22        | 22        | 22       | 22        |

Source: Authour's computation



Table 1 shows the behavior of the statistical variables, indicating that data for money supply have the highest mean while savings rates have the lowest mean. The standard deviation ranges from 0.2 for savings rate to 1.1 for money supply and were significant to the mean. The Jarque-Bera, Skewness and Kurtosis show that data was normally distributed in that the probability of the associated Jarque-Bera were higher than 0.05 for all the exogenous variables and the value of the Kurtosis were within the range -1 to +1. As regards the Skewness, the data is negatively-skewed; an indication that the data is fairly concentrated on the negative side of the graph.

#### Test for Stationarity (Unit Root Test)

**Table 2.** Augmented Dickey-Fuller Test Result

| Variable | t-Statistic | Prob.* | Status |
|----------|-------------|--------|--------|
| LNRGDPGR | -3.8225     | 0.0102 | I(1)   |
| LNBD     | -5.3270     | 0.0005 | I(0)   |
| LNSR     | -5.3931     | 0.0003 | I(1)   |
| LNMS     | -6.1312     | 0.0022 | (1)    |

Source: Author's computation (2023)

Table 2, shows that baking density displays stationarity at level while savings rate and money supply were stationary only at first difference: I(0) means stationary at level and I(1) means stationary at first difference.

#### Hypothesis

H0: Variable has a unit root (Variable is non-stationary)

H1: Variable has no unit root (Variable is Stationary)

Since the variables are integrated at different order, hence, bounds test was used to measure the relationship that exists amongst the variables.

**Table 3.** Bounds Test for Co-integration Result

| Model       | ARDL(2, 0, 1, 0)  | Model       | ARDL(2,0, 1, 0)   |
|-------------|-------------------|-------------|-------------------|
| F-Statistic | 2.565864          | t-Statistic | -2.691602         |
| Signif.     | 5%                | Signif.     | 5%                |
| I(0)aa      | 3.23              | I(0)        | -2.86             |
| I(1)        | 4.35              | I(1)        | -3.78             |
|             | Estimate ECM Long |             | Estimate ECM Long |
| Decision    | Run Model         | Decision    | Run Model         |

Source: Authors Computation (2023)

#### Decision rule:

If the F or t-statistic value is less than the I (0) value, we do not reject the null hypothesis of no level relationship we then estimate Auto Regressive Distributed Lag (ARDL), but if the F or t-statistic value is greater than the I(0) value, we reject the null hypothesis of no level relationship and conclude that there exists a long run relationship then estimate Error Correction Model (ECM).

Result from Table 3 shows that there exists only a short-run relationship between the endogenous variable (Dependent Variable) RGDP and its exogenous variables LNBD, LNSR, and LNMS with F-statistic of 2.565864 which is less than I(0) value of 3.39 at 95% confidence interval.

## 4.2 Vector Autoregressive (VAR) Lag Order Selection

**Table 4.** VAR Lag Order Selection Result

Endogenous variables: LNGDPGR

Exogenous variables: C LNBD LNSR LNMS

Sample: 2001 2022

Included observations: 17

| Lag | LogL      | LR        | FPE       | AIC       | SC        | HQ        |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|
| 0   | -7.910615 | NA        | 0.239874  | 1.401249  | 1.597299  | 1.420737  |
| 1   | -3.597420 | 6.089216  | 0.163897  | 1.011461  | 1.256524  | 1.035821  |
| 2   | 0.511325  | 5.317200* | 0.115275* | 0.645726* | 0.939802* | 0.674958* |
| 3   | 0.512238  | 0.001074  | 0.132302  | 0.763266  | 1.106354  | 0.797370  |
| 4   | 0.569803  | 0.060950  | 0.152093  | 0.874141  | 1.266241  | 0.913116  |
| 5   | 0.578717  | 0.008390  | 0.177763  | 0.990739  | 1.431852  | 1.034587  |

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Table 4. unveils the VAR Lag Order Selection result, where the selected Lag (0) as the optimum lag for estimating the short-run relationship with the Akaike information criterion (AIC) which has a value of 5.804380. Therefore, the Autoregressive distributed lag short-run model will be estimated.

Method: ARDL

Sample (adjusted): 2003 2022

Included observations: 20 after adjustments

Maximum dependent lags: 2 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors' (2 lags, automatic): LNBD LNSR LNMS

Number of models evaluated: 54

Selected Model: ARDL(2, 0, 1, 0)

| Variable           | Coefficient | Std. Error             | t-Statistic | Prob.*   |
|--------------------|-------------|------------------------|-------------|----------|
| LNGDPGR(-1)        | 0.690514    | 0.217595               | 3.173385    | 0.0073   |
| LNGDPGR(-2)        | -0.502979   | 0.297371               | -1.691421   | 0.1146   |
| LNBD               | 1.781272    | 1.734946               | 1.026702    | 0.3233   |
| LNSR               | 1.827866    | 1.073975               | 1.701964    | 0.1125   |
| LNSR(-1)           | -1.880658   | 0.934314               | -2.012875   | 0.0653   |
| LNMS               | -1.004412   | 0.681713               | -1.473365   | 0.1644   |
| C                  | -4.347038   | 12.03598               | -0.361170   | 0.7238   |
| R-squared          | 0.875477    | Mean dependent var     |             | 1.395697 |
| Adjusted R-squared | 0.818005    | S.D. dependent var     |             | 0.848657 |
| S.E. of regression | 0.362044    | Akaike info criterion  |             | 1.075116 |
| Sum squared resid  | 1.703987    | Schwarz criterion      |             | 1.423622 |
| Log likelihood     | -3.751156   | Hannan-Quinn criteria. |             | 1.143148 |

|                   |          |                    |          |
|-------------------|----------|--------------------|----------|
| F-statistic       | 15.23312 | Durbin-Watson stat | 1.878891 |
| Prob(F-statistic) | 0.000033 |                    |          |

Source: E-views 10 output

The table above shows the Autoregressive Distributive Lag short run estimates and reveals that banking density affected economic growth positively but the effect was insignificant, so also savings rates affected economic growth positively but the effect was insignificant. Money supply affected economic growth negatively but the effect was insignificant. On the aggregate, all the variables significantly accounted for a high proportion of variation in economic growth to the tune of about 87% (R-square= 0.875477). Given the residual effect of all the model's independent variables, the F-statistic value of 1523312 and the associated probability which is significantly positive (Prob.F-statistic = 0.000033), it is accepted that money market savings mobilization efforts jointly had a positive and significant effect on economic growth during the years 2021-2022.

#### 4.3 Post estimation Diagnostic Test for Serial Correlation

**Table 5.** Test for Serial Correlation

Breusch-Godfrey Serial Correlation LM Test:

|               |          |                     |        |
|---------------|----------|---------------------|--------|
| F-statistic   | 0.006654 | Prob. F(2,11)       | 0.9934 |
|               |          | Prob. Chi-Square(2) | 0.9880 |
| Obs*R-squared | 0.024167 |                     |        |

Source: E-views 10 Output

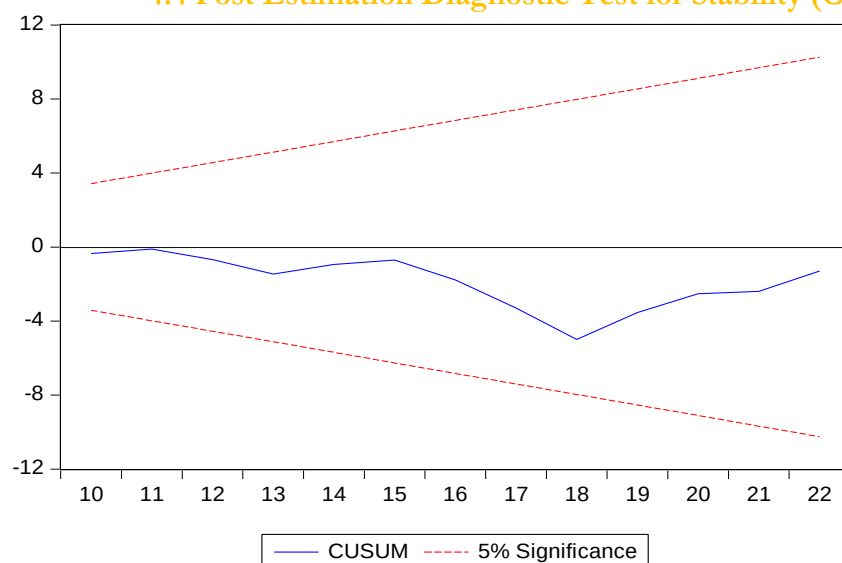
Hypothesis

H0: no serial correlation

H1: presence of serial correlation

The result from Table 4.7 shows that the null hypothesis cannot be rejected with a P-value of 0.1995 which is greater than a 0.05 level of significance at a 95% confidence interval for rejecting the null hypothesis, which implies that the ARDL is a good fit.

#### 4.4 Post Estimation Diagnostic Test for Stability (CUSUM Test)



**Figure 1.** CUSUM Test Result

**Figure 1.** Shows that the model is within the 5% level of significance, indicating that the model is stable.

#### 4.5 Discussion on findings

Evidences from Augmented Dickey-Fuller unit root tests shows that the study's explanatory variables were stationary only at first difference except banking density that was stationary at level. The Bounds test for co- integration revealed that there exist only a short run relationship between the endogenous variable and the exogenous variables. The findings prompted the use of the short run model of the Autoregressive Distributed Lag where the outcome shows the following;

Banking density shows a positive but insignificant effect on economic growth at the short run, the discovery is in line with the findings in Sajid and Sarafroz (2008), it is also not at variance with the findings of Ang (2011) who discovered that increase banking density tends to encourage savings mobilization in the Malaysian economy.

Savings rates show a positive but insignificant effect on economic growth during the period studied, this came in contradiction to the findings of Raham and Uddin (2005) but corroborates the findings of Agarawal (2001) and specifically that of Rabaj and Mexhuani (2021), who found that savings stimulates investments, production employments and consequently generate economic growth in the economy of Kosovo.

On money supply, the result displayed an insignificant negative effect of money supply on economic at the short run. Further on the aggregate, all the variables significantly accounted for a high proportion of variation in economic growth during the period to the tune of about 87% (R-square= 0.875477). Given this residual effect of all the model's independent variables, the F-statistic value of 1523312 and its associated probability which is significantly positive (Prob.F-statistic = 0.000033), the outcome of the analyses show that money market savings mobilization efforts jointly had a positive and significant effect on economic growth during the years 2021-2022.

#### 4.6 Summary of findings

Findings from this study are as follows;

The residual influence of banking density, savings rates and money supply has empirically shows that the savings mobilization efforts of the Nigerian money market bear a significantly positive effect on economic growth only at the short run during the year 2001-2022. The effect of the study's explanatory variables on economic growth during the period under study is itemized bellow:

1. Banking density displayed a positive but insignificant effect on economic growth only at the short run
2. Savings rates have a positive and insignificant effect on economic growth only at the short run.
3. Money supply demonstrated an insignificant negative effect on economic growth only at the short run

### V. Conclusion

The efficiency of savings mobilization tools and techniques of the money market remains an unavoidable essentiality for economic functioning in Nigeria as in other economies. Every economic system without a steady growth in savings accumulation may remain in protracted illiquidity and dearth of funds for investment and production purposes. Banking density has not been achieved in Nigeria with consideration of the population spread, and as against banking desert that is common in the rural areas which have the largest of her

population Savings rates fluctuations without certain bearing with economic realities usually impact negatively on the propensity of the citizen to put their money into savings which in turn hinder economic growth.

This study recommends major policy diversification as an urgent alternative to unproductive efforts in money market savings mobilization mechanism and strategies. Also the Government, Monetary Authorities, Economic Planners and all relevant stakeholders should work towards the following;

1. Entrenching high banking density as opposed to banking desert through the policies of rural banking, bank branch multiplication, agency banking and the provision of appropriate legal framework for curbing frauds and other financial malpractices
2. Savings rates should be aligned with economic realities, economies with very low savings rates and high lending rates tend to deter the citizen from putting their excess income into savings accounts thereby allowing investible funds to escape the mechanism of fund intermediation.
3. Money supply target of the apex bank should be made dynamic as occasioned by economic parameters and be made free of political interference and void of policy inconsistencies. For money supply to affect economic growth positively with significant effect at the short and long run in Nigeria, the present high level of financial corruption, money laundry, charting away of illegal funds from the banking system must be curbed

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