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Digital Currency, Monetary Policy and Economic Growth in Nigeria

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Abstract
This study has investigated the structural effect of digital currency and monetary policy on Economic growth in Nigeria using Structural Vector Autoregressive (SVAR) Model for the period 2013Q1 to 2020Q4.The properties of the data were first checked to avoid spurious regression and misspecification of the model by using the ADF and PP unit-root tests. The findings demonstrate that all variables are integrated at the order of zero (I(0)) and that digital currency has no any significant impact on economic growth, while the monetary policy variables, namely money supply, monetary policy rate, do have shock effect on economic growth in Nigeria, with a shock to money supply having a much more significant and positive impact on economic growth, while the response of economic growth to one unit standard deviation shock to monetary policy rate is negative and insignificant. This implies that monetary policy rate does not have much impact on economic growth in Nigeria. The findings recommend that the use monetary policy rate should be reduced by the monetary authorities, so as to encourage investors invest more in the economy to propel growth. Also the Nigerian monetary authorities expedite action towards the much needed monetary control which can be achieved via efficient money supply regulatory monetary measures.

Keywords: Digital Currency, Economic Growth, Monetary Policy
JEL Classification Codes: E01, E52

1. Introduction

E-commerce has been a contentious issue around the world since the 1970s, as more number of internet users engages in online business. The rapid expansion of the electronic commerce industry makes it

unlikely that conventional cash payments will be able to keep up. In order to compete with the current fiat currency, emerging digital currencies have been progressively gaining favor among the general population.To support efficient e-commerce, digital currency has been developed for use with personal computers from the 1990s. It doesn't need complicated legal authorizations, but it facilitates online trading and has gradually acquired commercial acceptability (Sloan, 2000; Plassaras, 2013). With the development in e-commerce orchestrated by huge number of players in economic operations, digital currency has been acknowledged as an acceptable payment platform.

The available literature categorizes digital currency into various types of complex technology and method, depending on the development of financial market. For instance, the International Monetary Fund [IMF], (2008) made a distinction between software-based and hardware-based digital currency based on differences in the terminals now in use. Hardware-based digital money often takes the form of plastic cards provided by commercial banks and is typically used for prepaid digital currency, whereas software-based digital currency is primarily utilized for online remote payments Jiang (2010) made a similar distinction between digital currencies in the form of cash held in commercial bank accounts. Griffith (2014) further classified digital currency based on online and offline electronic payment systems.

Smart cards are a common type of digital currency that financial institutions often issue and utilize for in-person transactions. Some of these include internet banking using a commercial bank's network and debit and credit cards. According to IMF (2008), without the need for explicit government laws, non-financial institutions can issue digital currency, potentially leading to the creation of a new type of money. In order to achieve peer-to-peer online transactions, the second type of digital money produced by non-financial organizations on the internet platform is more sophisticated and does not involve commercial banks as a middleman (Ali, Barrdear, Clews & Southgate, 2014; Fung, Molico & Stuber, 2014).

In Nigeria, the Central Bank of Nigeria (CBN) put into effect the cashless policy on January 1, 2012, in Lagos as a trial project, and set the each day cash transactions in excess of the counter for people and corporate entities at 150,000 and 1,000,000 Naira, correspondingly. But, these values were eventually augmented to five hundred thousand naira (N500, 000) for individuals and business organizations, respectively, and three million naira (N3, 000,000). There is a fee for any Over-The-Counter (OTC) cash transactions that are made by both private individuals and corporate entities and exceed the aforementioned amount. Although as of January 1, 2013, the policy was extended to

additional federation states. The policy's main objective is to convert the nation from a cash-based to a cashless one. As a result, it is designed to create an effective payment scheme built on electronic-based transactions. In keeping with Nigeria's vision 20:20 20 goal of being one of the top 20 economies in the world by 2020, electronic-based transactions aim to further the development and modernization of the country's payment system (CBN, 2011). Thus, the policy's main objectives were to reduce the costs of processing cash, increase access to digital payment channels, and enable more payment system transparency for a more effective monetary policy. It goes without saying that an effective and contemporary payment system is essential for promoting growth and progress. Additionally, the policy tries to increase how well monetary policy controls inflation and other macroeconomic indicators in the economy. Therefore the paper seeks to investigate the structural effect of digital currency and monetary policy on economic growth in Nigeria by using quarterly data from 2013Q1 to 2020Q4.

2. Literature Review

2.1 Theoretical Literature

The backbone of this research is the Theory of Consumption Value (TCV) developed by Maslow in 1943. The Theory of Consumption Value outlines how consumers make decisions when deciding which products or services to purchase (Sheth, Newman & Gross (1991)). It offers a theoretical framework for the application of payment technology. Payments now involve more than just exchanging cash; they also involve how consumers behave when making payment decisions and how they view different technologies. Theory explained the behaviour of consumer in making payment either in cash or in e-payment. This is depending on the satisfaction of consumer toward choosing the best payment method. The following 4 consumption values will be discussed in relation to the use of payment technology:

Functional value: This is based on the economic utility theory and links the effectiveness, cost, quality, and dependability of a good or service to the variables that could influence the consumer's economic sanity (Humphrey, 2010).

Social value: This refers to the perception that consumers have of highly visible goods, services, or things. In this case, a product or service is chosen more for its perceived social image or symbolic value than for how well it performs functionally. A stack of bills or payments made with an ATM card are two examples.

Emotional value: In this case, the product's capacity to elicit feelings (good or negative) with use is what influences the consumers' decisions. The emotional value associated with beauty and artistic items,

such as manicures, pedicures, massages, paintings, etc., is an illustration of this; these products' values are typically connected to how the consumer felt. The feeling that might be evoked in relation to payments is the so-called "pain of paying," which is connected to the openness of the payment procedure (Soman, 2001).

Conditional value: This refers to goods or services whose worth is contingent upon an environment, such as a place or time. It responds to the statement "it depends." This means that factors like the time of day or the place (on the street, inside a store, or online) might have an impact on how you decide to pay (at the end of the month when salaries are paid or mid-month).

2.2 Empirical Literature

A plethora of the literature on digital currency focuses on the digital currency and monetary policy as well as the demand for digital currency since 1996. Tanaka (1996), for instance, predicted that central banks would lose control over monetary aggregates and the foreign exchange rate, which may have an impact on the money supply and possibly trigger a financial crisis. While, Ely (1996) asserted that since digital currency shares the same fundamental characteristics as fiat currency, there are no monetary policy consequences.

By emphasizing how digital currency complements fiat currency, Berentsen (1997) highlighted the importance of this kind of money. Additionally, the extensive use of digital currency in the future, according to Ali and Southgate (2014), will increase the risks to the stability of the current monetary system. The difficulty of measuring the monetary aggregate using digital currency was also demonstrated by Al-Laham, Al-Tarawneh and Abdallat (2009) which would hinder the capability of central banks to enact monetary policy by altering the money supply. According to Ali and Southgate (2014), given the underlying effects, the potential hazards of digital currency cannot be overlooked in the long run. Huang and Chen (2006) particularly said that digital currency can alter the money supply and that it will raise concerns about the central bank of China's participation in influencing monetary policy.

Lei (2013) also established that the introduction of digital currency would lead to a more competitive market for the creation of money than there is at the moment, endangering the fiat currency issued by China's central bank. In contrast, Freedman (2000) argued that despite digital currency's increasing relevance, the role of the central bank cannot be wholly superseded by it. Fung et al. (2014) provided evidence to support this position, showing that while it is unlikely that digital

currency will completely replace traditional fiat money, changes to monetary policy should be taken into account.

A few studies have examined how digital currency or cashless policies affect the economy. For instance, Adu (2016) evaluated the effects of the cashless policy on the Nigerian economy, taking into account the manual and electronic payment options available there, the effects of the policy (both positive and negative), and the advantages for stakeholders and the economy. The study ended up with recommendations to the government on how to lessen the negative consequences of the program and essential modifications to its implementation. The cashless policy in Nigeria and its socioeconomic effects on the country's small enterprises were researched by Elechi and Rufus (2016). They believed that the cashless policy would have a detrimental impact on small businesses and could result in their failure if the essential precautions were not taken and the stakeholders persisted. An evaluation of the cashless policy on the Nigerian financial system was conducted by Taiwo, Oluwafemi Afieroho, and Agwu (2014).The report concluded that the present shift to a cashless economy poses several problems and that there is little evidence to support its implementation.

Igamo and Falianty (2018) used monthly data from Indonesia to analyze the impact of electronic money from 2007 to 2017 on the effectiveness of the payment system and narrow money demand function. They discovered that using private consumption expenditures as a gauge of efficiency, electronic money increases them. However, the results indicated that electronic money reduced the use of narrow money (M1). While Belke and Beretta (2020) examined the delicate balance between preserving financial stability and modernizing monetary systems through the use of digital currencies (either independently or through the central bank itself). Their research demonstrates that there are significant hazards associated with the implementation of central bank digital currency, which should by no means be viewed as a perfect replacement for current currency.

Furthermore, central bank-issued crypto currencies may be vulnerable to its disadvantages without reaping any commensurately significant benefits. Additionally, Ozili (2022) examined the advantages and disadvantages of Nigeria's Central Bank Digital Currency (CBDC). According to his research, the CBDC offers Nigeria prospects for improved monetary policy transmission, convenience, effective payments, and more financial inclusion. Digital illiteracy, an increase in the likelihood of cyber attacks, data theft, and the shifting role of banks in a fully developed CBDC economy are some of the dangers that have been identified.

From the aforementioned empirical literature looked into the impact of digital currency on monetary policy as well as the demand for digital currency since 1996 and none of the paper centered the impact of digital currency and monetary policy on economic growth in Nigeria. Therefore, this paper seeks to investigate the impact of digital currency and monetary policy on economic growth in Nigeria from 2013Q1 to 2020Q4.

3. Methodology

3.1 Model Specification

The model of this study can be written as:

$$GDP = f(DIC, MS, MPR, EXCR, INF) \quad (1)$$

Where;

GDP = Real Gross Domestic Product at constant price 2010 base year proxy for economic growth
MS = Money Supply
MPR = Monetary Policy Rate
EXCR = Official Exchange Rate
INF = Inflation Rate
F = Function

The linear econometric form of the model is given as:

$$GDP_t = \delta_0 + \delta_1 GDP_{t-1} + \delta_2 MS_t + \delta_3 MPR_t + \delta_4 EXCR_t + \delta_5 INF_t + \mathcal{E}_t \quad (2)$$

This study used secondary data sourced from CBN (2020) and Statistical Database from 2013Q1 to 2020Q4.The data include economic growth proxy by real Gross Domestic Product (GDP), digital currency (DIC) proxy by mobile pay, money supply (MS) proxy by M_2 and monetary policy rate (MPR), Exchange Rate (EXCR) as well as Inflation Rate (INF). The data of real GDP, DIC, and MS were converted in to logarithm in order to reduce it disparity with other variables. It is clear that the introduction of digital currency by the CBN is aimed at improving the effectiveness of monetary policy in managing inflation and other macroeconomic variables in the economy

The paper used Structural Vector Autoregressive (SVAR) model in analyzing the contemporaneous relationship among the variables under consideration. The main focus of the SVAR framework is on how changes to one endogenous variable affect the other endogenous variables that are part of the model. To put it another way, a structural VAR analysis focuses on the direction of immediate dependencies / interactions between / among contemporaneous variables. The model is specified as:

$$AX_t = C + A_1 X_{t-1} + \ldots + A_p X_{t-p} + Be_t \quad (3)$$

Using the lag operator, the above equation becomes thus:

$$AX_t = C + A(L)X_{t-1} + Be_t \quad (4)$$

Where C is a n x1 vector of constants/intercepts, A is a n x n matrix representing the variables' current interrelationships, and A(L) is a matrix polynomial in the lag operator with lag length p. However, it is noteworthy that the estimation of the SVAR model cannot be carried out in its structural form given by equation (4) above because the structural errors and the explanatory variables would be correlated, hence a simultaneity problem arises. Therefore, to avoid this problem the structural VAR would be estimated using the Ordinary Least Squares (OLS) method in its reduced form (Enders, 2010). Hence, the reduced form of the VAR is expressed as:

$$x_t = c + \Gamma_1 x_{t-1} + u_t \quad (5)$$

where $\Gamma_i = A^{-1}A_i$, $c = A^{-1}C$, and $u_t = A^{-1}Be_t$ = the reduced form / composite shocks, e_t is the vector that denotes the structural shocks, and u_t*is*a vector of composite shocks to be recovered from the structural shocks. In the econometric literature, the structural shocks of an SVAR model are usually recovered from the composite shocks through identification (Enders, 2010; Asteriou & Hall, 2011).

Based on that, to evaluate the persistence of digital currency, monetary policy shocks on economic growth in Nigeria, this study adopted the SVAR model in CBN (2014), but with a different approach of the identification scheme. The model estimated using five variables namely, digital currency (DIC) money supply (*MS*), Monetary Policy Rate (MPR), , Exchange Rate (*EXCR*), Inflation Rate (INF) and indicator of Economic Growth (GDP) respectively:

$$Ay_t = C_0 + C(L)y_{t-i} + Z\varepsilon_t \quad (6)$$

where A is an invertible $(k \times k)$ matrix describing the contemporaneous relationship among the variables; y_t is a $(k \times 1)$vector of endogenous variables; $C_0$is a $(k \times 1)$ vector of constants; C is a $(k \times k)$ matrix of coefficients of lagged endogenous variables; Z is a $(k \times k)$ matrix whose non-zero off-diagonal elements allow for direct effects of some shocks on more than one endogenous variable in the system; and ε_t is an uncorrelated vector of error terms (white-noise structural disturbances).The structural shocks as identified according to Keynesian preposition on the short run restriction against the long run preposition of the classical economists as in the long run all people died

$$\begin{bmatrix} e_t^{\Delta DIC} \\ e_t^{INF} \\ e_t^{\Delta MPR} \\ e_t^{\Delta MS} \\ e_t^{\Delta GDP} \end{bmatrix} = \begin{bmatrix} \mathbf{1} & 0 & 0 & 0 & 0 \\ \alpha_{21} & \mathbf{1} & 0 & 0 & 0 \\ \alpha_{31} & \alpha_{32} & \mathbf{1} & 0 & 0 \\ \alpha_{41} & \alpha_{42}\alpha_{43} & & \mathbf{1} & 0 \\ \alpha_{51} & \alpha_{52}\alpha_{53} & & \alpha_{54}\mathbf{1} & \end{bmatrix} \begin{pmatrix} \mu_t^1 \\ \mu_t^1 \\ \mu_t^1 \\ \mu_t^1 \\ \mu_t^1 \end{pmatrix} \quad (7)$$

Equation (7) is the SVAR model used in the study.

4. Results and Discussion

4.1 Unit Root Tests

In order to avoid misspecification of the model, the time series properties of the data were evaluated using a variety of techniques to examine the stationarity or lack thereof of the variables. In this study, two different unit root tests were employed in order to have robust results. These are Augmented Dickey Fuller (ADF), Phillips-Perron (PP). The null hypothesis for each unit root test used in this study is that the variable in question has a unit root, as opposed to the alternative that it does not. The unit root tests are shown in Table 1.

Table 1: Unit Root Tests

	ADF unit root(at level)		Remark	PP unit root(at Level)		Remark
Variables	T statistic	Probability		T statistic	Probability	
LGDP	-15.20132	0.0001*	1(0)	-7.456467	0.0000*	1(0)
LRDIC	-4.579678	0.0041*	1(0)	-4.779312	0.0032*	1(0)
LRMS	-5.154505	0.0031*	1(0)	-5.155905	0.0013*	1(0)
MPR	-5.746887	0.0000*	1(0)	-4.97593	0.0017*	1(0)
INF	-5.178010	0.0012*	1(0)	-4.450166	0.0013*	1(0)

Note: * shows statistical at 1% level of significant
Source: Researchers' computation 2022

The findings in Table 1 demonstrate that all the variables are stationary at level, indicating that they are all 1(0) processes.

4.2 Johansen Co-integration Test

Since the series were stationary at level the next is to examine the co-integration relationship among the variables. Therefore the Johansen co-integration tests were reported in table 2. Based on the

results in table 2, both trace test and maximum eigenvalue test showed absent of co-integration among the variables under study.

Table 2: Co-integration Test

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.454473	116.1316	117.7082	0.0832
At most 1	0.436894	87.4048	88.80380	0.0941
At most 2	0.557717	61.07971	63.87610	0.1213
At most 3	0.333941	40.91616	42.91525	0.1138
At most 4	0.262512	22.76737	25.87211	0.1161
At most 5	0.265594	9.260785	12.51798	0.1649

Trace test indicates no cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.454473	44.72683	44.49720	0.0921
At most 1	0.436894	37.32506	38.33101	0.0953
At most 2	0.357717	30.16355	32.11832	0.1294
At most 3	0.333941	23.14878	24.82321	0.1126
At most 4	0.292512	13.50659	19.38704	0.2889
At most 5	0.265594	9.260785	12.51798	0.1649

Max-eigenvalue test indicates no cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
Source: Researchers' computation 2022

The results of the unit root test in table 1 and cointegration test in table 2 validate the use of standard (unrestricted) VAR because all the variables are stationary at level no cointegration. This implies that, there

is no long run relationship among the variables which paved way to use the standard VAR model rather than Vector Error Correction model. In order to prevent specification error, the unrestricted VAR selects the optimal lag length in accordance with the information provided by the lag order selection criteria. Table 3 presents the VAR lag order selection criteria and the results reveal that all the criteria selected lag two (2) as shown in table 3.

Table 3: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-419.0605	NA	3458346.	29.24555	29.48129	29.31938
1	-365.3783	85.15101	493060.9	27.26747	28.68191	27.71046
2	-292.1400	90.91648*	20967.77*	23.94069*	26.53384*	24.75283*

Source: Researchers' computation 2022

4.1 Structural VAR Model Estimation

Since the VAR passed all the statistical diagnostic tests, our main concern is to estimate Structural VAR model in order to achieve our objective. Hence, we have estimated the SVAR model based on short run identification proposed by Bernanke (1986) and Amisano and Giannini (1997) and from there we generated the Impulse Responses and SVAR Forecast Error Variance Decomposition. The result of SVAR model is reported in table 4.

Table 4: Structural VAR Estimate

Model: e = Phi*Fu where E[uu']=I

C(1)	0	0	0	0	0
C(2)	C(7)	0	0	0	0
C(3)	C(8)	C(12)	0	0	0
C(4)	C(9)	C(13)	C(16)	0	0
C(5)	C(10)	C(14)	C(17)	C(19)	0
C(6)	C(11)	C(15)	C(18)	C(20)	C(21)

	Coefficient	Std. Error	z-Statistic	Prob.
C(1)	0.067073	0.008659	7.745739	0.0000
C(2)	1.659134	0.267974	6.191405	0.0000
C(3)	0.329646	0.057642	5.718862	0.0000
C(4)	0.939596	0.192800	4.873418	0.0000
C(5)	96.29060	19.39253	4.965346	0.0000
C(6)	1.218461	0.713668	1.707321	0.0878

C(7)	0.881936	0.113858	7.745907	0.0000
C(8)	0.175087	0.031629	5.535730	0.0000
C(9)	-0.053135	0.149698	-0.354951	0.7226
C(10)	47.74113	13.54747	3.523989	0.0004
C(11)	0.782682	0.688740	1.136398	0.2558
C(12)	0.121172	0.015643	7.745892	0.0000
C(13)	0.348137	0.142627	2.440884	0.0147
C(14)	61.50947	9.082374	6.772400	0.0000
C(15)	3.254874	0.536271	6.069462	0.0000
C(16)	0.741401	0.095715	7.745955	0.0000
C(17)	21.88258	3.383829	6.466810	0.0000
C(18)	1.475006	0.273406	5.394930	0.0000
C(19)	10.20218	1.317096	7.745963	0.0000
C(20)	0.977382	0.150229	6.505960	0.0000
C(21)	0.446567	0.057652	7.745966	0.0000

Log likelihood 0.825894

Estimated S matrix:

0.019845	-0.038057	-0.011915	0.000455	0.002212	0.004898
-0.139015	0.010235	-0.122064	0.052131	0.091228	0.002233
-0.004155	-0.020165	0.007601	0.007690	-0.014502	-0.001640
0.300028	0.003915	-0.228554	0.425466	0.082268	-0.189940
-1.241757	-4.934501	6.222877	7.337657	3.146263	-3.921925
-0.007588	-0.079574	0.098609	0.233782	0.040277	0.075235

Estimated F matrix:

0.067073	0.000000	0.000000	0.000000	0.000000	0.000000
1.659134	0.881936	0.000000	0.000000	0.000000	0.000000
0.329646	0.175087	0.121172	0.000000	0.000000	0.000000
0.939596	-0.053135	0.348137	0.741401	0.000000	0.000000
96.29060	47.74113	61.50947	21.88258	10.20218	0.000000
1.218461	0.782682	3.254874	1.475006	0.977382	0.446567

Source: Researchers' computation 2022

Since we estimated the Structural VAR model and the most important is to generate the impulse response to Structural VAR innovation and SVAR Forecast Error Variance Decomposition. The SVAR Impulse Responses is presented in figure 1.

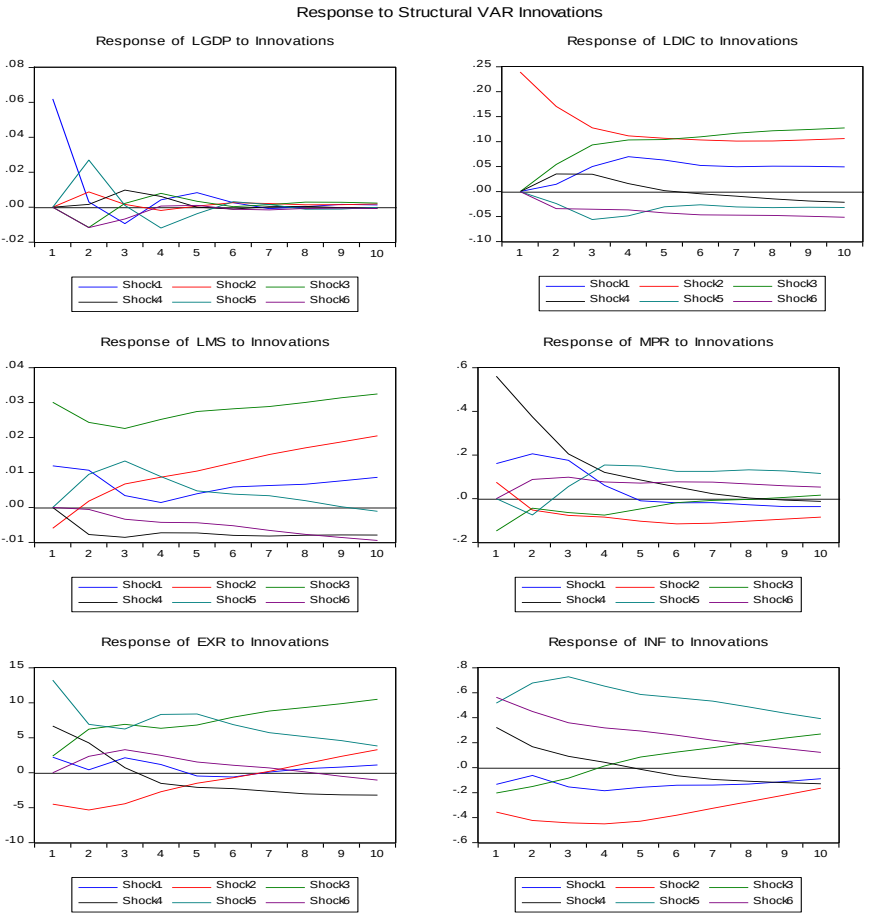

Figure 1: SVAR Impulse Responses
Source: Researchers' computation 2022

Figure 1 shows the results of the SVAR Impulse Responses and our objective is to look into the response of LGDP due to a 1 unit shock to other variables. The response of LGDP to itself and other variables in figure 2 shows that, one unit shock to itself accounted for a positive response at point of estimate and a 1 unit shock to LMS and MPR accounted for a positive response of LGDP at point of estimate. While a unit shock to LDIC and INF accounted for a negative response of LGDP at point of estimate. The impulse response functions show how an endogenous shock affects the other variables in the SVAR; while, the variance decomposition offers details on the relative contribution of each random innovation to the variation in the SVAR.. Table 7 presents the SVAR Forecast Error Variance Decomposition with specific focuses on

Proportions of forecast error in LGDP accounted by the variables under study.

Table 5: SVAR Forecast Error Variance Decomposition

Forecast horizon	LGDP	LDIC	LMS	MPR	INF
1	0.76	0.00	0.21	0.00	0.03
2	0.55	0.00	0.41	0.01	0.02
3	0.68	0.00	0.29	0.01	0.03
4	0.62	0.00	0.34	0.01	0.03
5	0.68	0.00	0.28	0.01	0.03
6	0.64	0.00	0.32	0.01	0.03
7	0.68	0.00	0.28	0.01	0.03
8	0.65	0.00	0.30	0.01	0.03
9	0.68	0.00	0.28	0.01	0.03
10	0.66	0.00	0.29	0.01	0.03

Source: Researchers' computation 2022

The results of SVAR Forecast Error Variance Decomposition of LGDP in table 5 reveals that, in the first period economic growth (LGDP) accounts for 76% variation to itself, with money supply (LMS} accounting for 21%, with digital currency (LDIC) and monetary policy rate (MPR) contributing 0% each , while inflation (INF) accounts for only 3% of the variation of LGDP. In the subsequent period, money supply accounts for 41% to 28% variation of Economic growth, digital currency accounts for 0% throughout the periods, monetary policy rate accounts for only 1% throughout the period, and, inflation accounts for 3% throughout the period with exception of period 2 where it accounted for 2%.

4.3 Post-Estimation Statistical Diagnostic Tests

Since the VAR model was estimated at lag 2, the next is to look in to some statistical diagnostic tests which include stability test, serial correlation test, autocorrelations test and normality test to avoid unbiased estimation. Figure 1 shows the result of stability test and the VAR satisfies the stability condition since no root lies outside the unit circle as shown in figure 2.

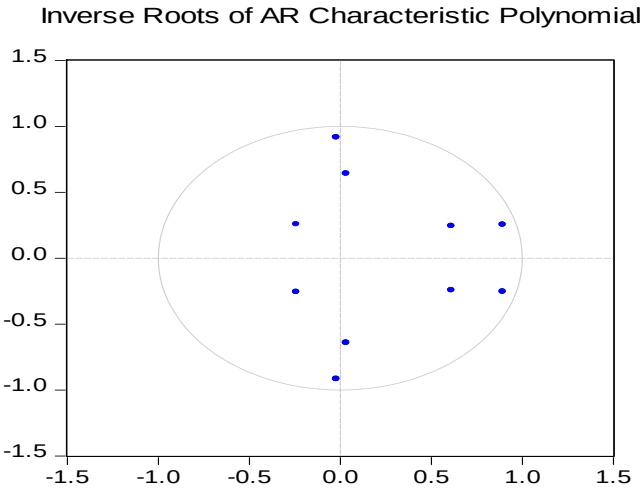

Figure 2: VAR stability Test
Source: Researchers' computation 2022

Table 6: Diagnostic Tests

VAR Residual Serial Correlation LM Tests					
LRE* stat	Df	Prob.	Rao F-stat	Df (25, 34.9)	Prob.
36.46715	25	0.0648	1.667302		0.0806
VAR Residual Portmanteau Tests for Autocorrelations					
Q-Stat	Prob.*	Adj Q-Stat	Prob.*	Df	
32.98982	0.0703	44.12004	0.1260	25	

Source: Researchers' computation 2022

Table 7: Normality Test

Jarque-Bera	Df	Prob.
0.482114	2	0.7858

Source: Researchers' computation 2022

The results of serial correlation and autocorrelations tests reported in table 6 revealed that the residuals of the model are not serially correlated at 5% level of significant as shown by the VAR Residual serial correlation LM tests and also the errors term are homoskedesticy which corroborates the fact that the VAR model used can be adjudged as statistically adequate. In addition the result of normality test in table 7 showed that the errors are normality distributed and this paved way to estimate the Structural VAR.

5. Conclusion and Recommendations

The major findings of this paper show that digital currency has no any significant shock effect on economic growth, while the monetary policy variables, namely money supply, monetary policy rate, did have shock effect on economic growth in Nigeria, with a shock to money supply having a much more significant and positive on economic growth, while the response of economic growth to one unit standard deviation shock to monetary policy rate is negative and insignificant. This implies that the shock of monetary policy rate does not have much significant effect on economic growth in Nigeria. This conclude that any shock on monetary policy have significant effect on economic growth in Nigeria.

Based on these results, the paper recommends that monetary policy rate be reduced by the monetary authorities of Nigeria, namely the C.B.N in order increase money supply and encourage investors to invest more in the economy to propel growth. Also the Nigerian monetary authorities expedite action towards the much needed monetary control which can be achieved via efficient money supply regulatory monetary measures.

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