INFLUENCE OF CURRENCY IN CIRCULATION ON ECONOMIC PERFORMANCE IN NIGERIA

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ABSTRACT

Studies on currency in circulation have attracted the attention of economists in developing countries. This study examined the role of currency in circulation (CIC) in promoting economic performance, based on annual data for the period 1960-2009; and using Vector Auto-regression Model (VARM) and VAR Granger Causality Test. The study revealed contrary to expectations that, the coefficient of currency in circulation when lagged by one period is positive but statistically insignificant at 5%. The statistically insignificant relationship that exists between monetary instruments such as exchange rate, inflation rate, normal interest rate, high power money, currency in circulation, demand deposit and normal GDP sheds more light on how ineffective monetary policies adopted by the Central Bank of Nigeria (CBN) for promoting economic growth. These findings suggest that the cashless economy being proposed by the CBN will have a significant impact on the performance of Nigeria's economy. Government should thus provide adequate infrastructure and enabling legal frameworks that will help the informal sector of the economy to embrace the cashless payment system, so as not to erode the contribution of the informal sector to GDP in Nigeria. The study also recommends that the CBN should increase the deposit rate which will to serve as incentive and enforce existing financial regulations that protect depositors.
Keywords: currency in circulation, GDP, modern QTM, vector auto regression model

INTRODUCTION

Nigeria still operates a cash-based economy. Majority of retail and other commercial payments are made in cash. A recent survey by the Central Bank of Nigeria (CBN) shows that cash-related transactions accounted for 99 per cent of customer activity in Nigerian banks today. Thus, the need to examine the impact of currency in circulation (CIC) on economic performance is essential. CIC denotes the amount of money in notes and coins held by economic agent outside the banking sector. CIC and demand deposits are components of narrow money, any movement in these variables are of interest to monetary economists. CIC dynamics are frequently seen as measure for monetization or demonetization of the economy.

Two major indicators of the importance of CIC in every economy are share of CIC in money supply and ratio of CIC to GDP (Stavreski, 1998). CIC is universally accepted as money so they are part of the money stock. Demand deposits are also universally accepted to fit all the requirements of being called money. Hence, they also form part of the stock of

money in an economy. Problems arise with respect to liquid monetary assets which fulfill the store-of-value function but not the medium- of-exchange function (e.g., time deposits) and also things that serve the medium-of-exchange function but not the store-of-value function (e.g., credit cards).

In developing countries where narrow definition of money is adopted, the presumption is that only CIC and demand deposits of commercial banks perform the function of money. This narrow definition of money puts money as CIC plus demand deposits of commercial banks, the proportion in which these two elements contribute to money stock will depend upon the extent to which the financial system is developed and bank related financial instruments, especially cheques, credit/debit cards etc., are acceptable for payment of goods and services. Where the society's financial system is well developed and there is widespread acceptance of electronic payment system, demand deposit component of the money supply will be very high and the use of currency will be limited.

A very good example is Sweden, where, public buses do not accept cash and tickets are prepaid or purchased electronically. Bills and coins now accounts for just 3% of Sweden's economy (Simon Tomlinson, 2012). Such economy tends towards a cashless society where CIC is dispensed with and the narrow definition of money will be demand deposit alone. On the other hand where people do not have faith in the electronic payment system, demand for cash will be higher as most transactions will be on cash basis. In theory, the main purpose of CIC is to provide for cash transactions within the economy. Its development reflects both economic activity and changes in price levels. The broadest indicator of economic activity is gross domestic product. In current prices, this indicator includes information on price developments as well. In terms of pace of growth, there is no first glance of clear relationship between currency in circulation and economic performance.

As a result, increasing consideration is now being dedicated to the important of electronic payment system to economic performance. It has been applauded that improving the electronic payment system by reducing the amount of CIC will ensure rapid growth in the economy. Even though, there have been a lot of empirical studies on the relationship between money supply/demand and economic performance in Nigeria, not too many studies focus on the economic growth impact of CIC. This is the motivation behind this disquisition. This study is important because it broadens understanding of monetary policy issues and will also serve as a guide for policy makers in developing countries. The study focuses on providing numerical evidence on the link between CIC and Nigeria's economic performance. Specifically, the study attempts to determine the influence of exchange rate on gross domestic product; the influence of inflation rate on gross domestic product; the influence of interest rate on gross domestic product; and the influence of currency in circulation on gross domestic product.

LITERATURE REVIEW
Conceptual Review
Exchange Rate: In finance, exchange rate is the rate at which one currency is exchanged for another. It is also regarded as the value of one country's currency in relation to that of another. Exchange rates are determined in the foreign exchange market, which is open to a

wide range of of buyers and sellers, and where currency trading is continuous. In the retail currency exchange market, different buying and selling rates will be quoted by money dealers. Most trades are to or from the local currency. The buying rate is the rate at which money dealers buy foreign currency, and the selling rate is the rate at which they sell that currency. The quoted rates incorporate an allowance for dealers' margin (profit) in trading, or else the margin may be recovered in the form of a commission or in some other way. Different rates may also be quoted for cash documentarily or electronically. The higher rate on documentary transactions has been justified as compensating for the additional time and cost of clearing documents. On the other hand, cash is available for resale immediately, but brings security, storage, and transportation costs, and the cost of tying up capital in a stock of banknotes (bills).

Interest Rate: Interest rate is the amount of interest due per period, as a proportion of amount lent, deposited or borrowed. The total interest on an amount lent or borrowed depends on the principal sum, the interest rate, the compounding frequency, and the length of time over which it is lent, deposited or borrowed. It is defined as the proportion of an amount loaned which a lender charges as interest to the borrower, normally expressed as an annual percentage. It is the rate a bank or other lender charges to lend its money, or the rate a bank pays its savers for keeping money in an account.

Inflation Rate: Inflation is a sustained increase in the general price level of goods and services in an economy over a period of time. When the general price level rises, each unit of currency buys fewer goods and services; consequently, inflation reflects a reduction in the purchasing power per unit of money – a loss of real value in the medium of exchange and unit of account within the economy. The measure of inflation is the inflation rate, the annualized percentage change in a general price index, usually the consumer price index, over time.

Currency in Circulation: Currency in circulation is a currency that is physically used to conduct transactions between consumers and businesses rather than stored in a bank, financial institution or central bank. Currency in circulation is part of the overall money supply, with a larger portion of the overall supply being stored in checking and savings accounts. Studies from both developed and developing economy shows that CIC depends on several factors, among which, interest rate stands out prominently. Cabrero *et al.* (2002) states that the amount of notes in circulation when it comes to liquidity management of the Euro system confirmed how important interest rate is in determining the value CIC.

Empirical Review
Nenovsky and Hristov (2000) hypothesized the development of real sector (growth in GDP) as a major determinant of CIC. Nominal increase in peoples' income is expected to bring about increase in CIC. The research discovered that one of the reasons of demand for money by economic agents' is their willingness to save or hoard cash. They identify two types of hoarding, one has to do with official economy and the second was linked with underground economy. Stavreski (1998) also reported that cash is held for the purpose of servicing economic transactions in underground economy; and stated that cash is the best form of payment when economic agents want to hide part of their economic activities so as to evade or reduce tax. It is also opined that cash payment provides high level of anonymity, which makes it the most attractive form of financing unlawful activities.

The underdeveloped nature of the banking system and the inadequate development of the electronic payment tools such as credit cards, debit cards and ATM cards have also been mentioned as one of the reasons some economies are still cash-based (Cassino *et al*., 1997; Stavreski, 1998). Automated means of payment like smart cards and stored value cards are made to substitute minor cash transactions, and therefore, are expected to decrease CIC. It is however, anticipated that within the next few years the growing trend of CIC in various developing economy will stabilize, and ultimately drop as smart cards become extensively used. On the use of ATMs, however, the representation is quite uncertain. One would tempt to think that extensive use of ATMs will result into a decrease in demand for currency, because it makes moving with cash becomes unnecessary.

Though, other schools of thought maintains that the invention of ATMs have made cash more available in the economy, to the extent that transactions that were previously done via cheques can now be done through cash. Also, the cost of carrying out many bank transactions, i.e., the bank transaction charges may create an incentive for customers to make small payment by cash to avoid these charges, and probably have also encouraged customers to make fewer but larger cash withdrawals (Cassino *et al*., 1997). These tendencies would increase CIC. Hence, it is not clear whether the total demand for cash will increase or reduce with modern technological innovations. Literature recognizes CIC is an important element in the conduct of monetary policy. This fact may be of particular relevance to the case of Nigeria where fiscal policy may not be readily manipulated by policy makers. For example government expenditures are closely linked to oil revenues and the related large government spending commitments which usually leave little room for maneuvers (Ahmed, 2013).

Monetary authorities in Nigeria and even experts at the World Bank and International Monetary Fund (IMF) jointly and severally agree that the basic macroeconomic problems of Nigeria are associated with high level of CIC and unrealistic exchange rate. When the naira is over-valued, export is discouraged as it becomes more expensive and on the other hand, import is encouraged by cheapening it. Over-valued naira tends to be a source of undermining effective resource utilization. It encourages capital flight and also leads to cheapening import thereby resulting in Nigeria being import dependent. The implication has been high unemployment, inflation, declining productivity and unstable exchange rate. It is therefore difficult to predict foreign exchange market as demand plan is unstable (Edwards, 2005).

The year-on-year growth of CIC in Nigeria has been characterized by relatively high volatility due to the transformation process in the economy; the transformation from military to democratic rule. The banking crises of the 1990s to 2004, as well as the refund of protected deposits held with failed banks between 2004 and 2006. This period eroded depositor's confidence in the banking sector and CIC grew while demand deposit declined. Between 2000 and 2009, demand deposit increased, although CIC increased as well, but not as much as the growth observed in demand deposit which indicated the level of confidence restored in the banking sector as a result of the commercial banks' recapitalization to a minimum of =N= 25 billion and the introduction of democratic governance. Growth in GDP which was the measure of economic performance was more than double during this period compared to the growth during the banking crisis era (1990–1999) see Table 1.

The growth in gross domestic product (GGDP), currency in circulation (GCIC), demand deposit (GDD) were =N= 776,331.21, =N= 1,163,403.94 and =N= 4,279,867.95 (all in millions) respectively during the period 2000 to 2010 indicating improvement in the Nigerian economy and financial sector contribution to GDP. The growth in demand deposit was higher than growth in CIC which shows the level of development in the electronic payment system.

Table 1: Decade analysis of growth in GDP, currency in circulation and demand deposit

YEAR	GGDP	GCIC	GDD	Remark
1960 - 1969	3,224.50	272.234	191.284	Independent Era
1970 - 1979	29,946.99	2,702.40	3,999.70	Oil Boom Era
1980 - 1989	236,728.58	10,721.40	16,507.20	
1990 - 1999	312,182.48	208,560.09	206,621.81	Banking Crises Era
2000 - 2009	776,331.21	1,163,403.94	4,279,867.95	Democracy Era

Source: Author's Computation (All figures in Millions of Naira).
Key:
GGDP: Growth in Gross Domestic Product
GCIC: Growth in Currency in Circulation
GDD: Growth in Demand Deposit.

There is no single clear-cut explanation of the recent increase in CIC, but several factors that may have contributed are worth noting. For one thing, economizing on the use of cash may have possibly changed within present institutional patterns. If so, any given increase in economic activity now or in the near future may require a somewhat larger rise in CIC than formerly. A second factor is the increased amount of vault cash currently being held by banks. This increase may, in turn, have several causes: a rising demand for currency on the part of the general public and hence a need for the banks to maintain larger working balances, an attempt by the banks to lay in additional supplies of currency in the face of current currency shortage and possibly continuing adjustment to the change in the minimum reserve requirement which permit banks to count vault cash as part of their legal reserves.

The marked increase in the number of youths between the age bracket 15-19, many of whose income are earn in cash which never find their way into the banking system because majority of them work in the informal sectors of the economy, and spend quite a bit of money but few of whom have checking accounts. Secondly, the proportion of youngsters in the 15–19 age groups in the total population raised from 17.40 per cent in 1998 to 20.57 per cent in 2010. Another explanation to the continuous increase in CIC is the introduction of democracy. Nigeria democracy has been described as one of the most expensive in the world. Since the installation of democratic government in 1999, CIC has doubled. Growth in CIC was just =N27,552.70 million in 1998 which was the highest since 1960, during the year 2000 CIC has grown by =N101,935.19 million from just a little bit above =N36,000.00 million in the previous year. The data also shows that during the election years Nigeria recorded the highest growth in CIC except for the year 2003 which had a marginal growth of =N39,101.50 million.

This was accounted for by the power of incumbency used by President Olusegun Obasenjo because the transition was done within the ruling party, People's Democratic Party (PDP) so the need to spend a lot of money on campaign for election did not arise. In the year 2007 the growth in CIC was =N181,520.27 million which dropped to =N 24,674.77 million in 2008. The highest growth in CIC was during the general election year 2011 which was =N256,286.56 million this is more than seven times currency in circulation in the year 1999.

Corruption has also played a role in the continuous increase in CIC. The cost of governance has been very high due to corrupt government officials in various sectors of the economy; payment of bribe has become the order of the day. Bribes are paid in cash which never find their way into the banking sector. Corrupt politicians and government officials have turned their houses into banks, in fact the stock of money in their various home is more than the amount of cash held in the vault of some commercial banks.
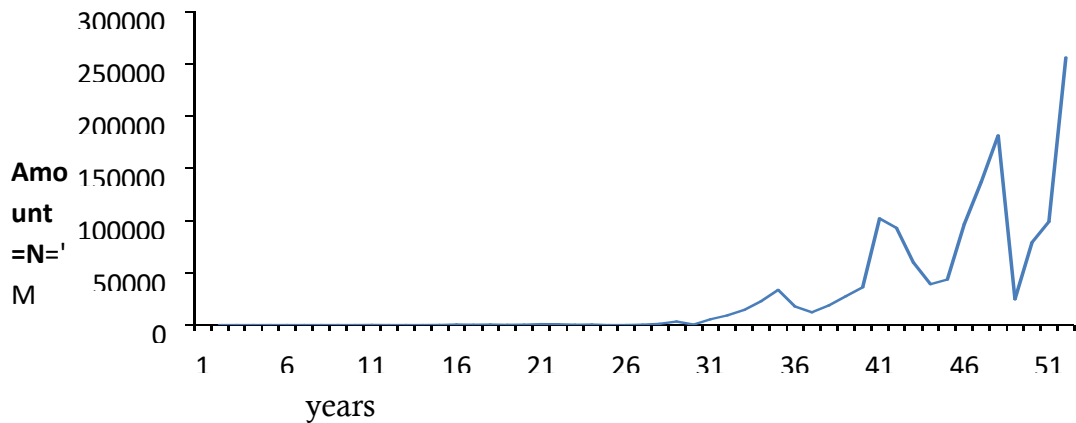

Fig. 1: Graph Showing Growth in Currency in Circulation (1960 to 2011)
Source: Author's Computation (All figures in Millions of Naira)

METHODOLOGY

High level of CIC in Nigeria has been attributed to inefficiency of CBN's monetary policy; the underdeveloped nature of Nigeria's banking system and failure of the economy to develop the informal sector. The model estimated in this study follows modern quantity theory of money (QTM) (Milton Friedman, 1960) that includes traditional variables, such as real interest rates, money stock, velocity of money, gross national product, money supply, inflation etc. Drawing from the works of Emerson (2006) and Akhtaruzzaman (2008), the quantity theory of money identity is written as:

$$P_t + y_t = m_t + v_t \qquad (1)$$

Where;
P_t is the price level, y_t is real output,
m_t is money stock, and
v_t is the velocity of money.

From the exchange equation (1) above, we would notice that $p_t + y_t$ equals total expenditure and equals the gross national product using expenditure approach to national income estimation. The equation could therefore be re-written as follows:

$$GNP_t/GDP_t \equiv m_t + v_t \qquad (2)$$
$$mt = cict + ddt + tdt + sdt (3)$$
$$mt = cict \qquad (3)$$

Where;

cic_t is the amount of CIC at a point in time,

dd_t is the demand deposit,

td_t is time deposit in local currency,

sd_t is savings deposit.

In equation (3) all independent variables are held constant except cic_t which is the focus of this research.

$$GDPt = cict + vt \qquad (4)$$

The modern quantity theory of money does not assume that the velocity of money is constant. Hence, this study assumes that financial and institutional structures have developed over the years and specifies the velocity of money as a function of the nominal interest rate (nir), inflation (inf), demand deposit (dd), ratio of CIC to demand deposit (ctd). The ratio of CIC to demand deposits is the measure of electronic payment system development in an economy; a low ratio indicates that the economy is tending toward a cashless society. It has been established that improvement in electronic payment system promotes economics performance (Simon & Newstead, 2012; Mark Zardi, Virenda, Singh, Justin. & Irving, 2013).

$$Vt = \beta 0 + \beta 1 ddt + \beta 2 nirt + \beta 3 inft + \beta 4 ctdt + \beta 5 hpmt + \beta 6 exrt + u\,t \qquad (5)$$

Where

hpm is high power money, β_0, β_1, β_2, β_3, β_4, β_5, β_6 are coefficients and μ_t is a stochastic error term.

$$GDP_t = (\beta_0 + \beta_1 dd_t + \beta_2 nir_t + \beta_3 inf_t + \beta_4 ctd_t + \beta_5 hpm_t + \beta_6 exr_t + u_t) + (cic_t) \qquad (6)$$
$$hpmt = cict + rest \qquad (7)$$

where;

res_t is the reserve held by central bank at a point in time. Combining (iv) and (vi), taking into consideration like terms.

$$GDP_t = \beta_0 + \beta_1 dd_t + \beta_2 nir_t + \beta_3 inf_t + \beta_4 hpm_t + \beta_5 exr_t + \beta_6 ctd_t + \beta_7 cic_t + u_t \qquad (8)$$

Using vector autoregression model by lagging all the variable by one year

$$GDPt = \beta 0 + \beta 1 GDPt\text{-}1 + \beta 2 ddt\text{-}1 + \beta 3 nirt\text{-}1 + \beta 4 inft\text{-}1 + \beta 5 hpmt\text{-}1 + \beta 6 exrt\text{-}1 + \beta 7 ctdt\text{-}1 + \beta 8 cict\text{-}1 + ut \qquad (9)$$

This research delivers empirical evidence on the link between CIC and economic performance using Vector Auto regression methodology. The study is different from the work of Emerson (2006) and Akhtaruzzaman (2008) because they only accounted for the relationship between financial development and velocity of money, this study relates currency in circulation and velocity of money to economic performance with the intention

of knowing the impact of lagging those variables on growth of GDP in Nigeria. The study also differs from other known studies in Nigeria in a number of ways. Vector Auto-regression methodology was use so as to establish the impact of CIC in the previous year on current year GDP.

Unlike other known studies in Nigeria which try to measure the impact of money supply (M_1 and M_2) on economic development, this research uses CIC and its determinants. The study checked the combine effect of CIC and velocity of money on economic performance; and introduces a measure of effectiveness of electronic payment system using CIC to demand deposit ratio.

The study established the direction of causality between GDP, CIC and DD using Pairwise Granger Causality Test. Finally, as opposed to the Augmented Dickey-fuller unit root test, it uses the Elliott-Rothenberg-Stock Point-Optimal test type. Time series data for this study were obtained from various volumes of CBN Statistical Bulletin, Annual Reports and Statement of Accounts which covered the period 1960-2011.

Granger and Newbold (1974) demonstrated that if time series variables are non-stationary all regression results with these time series will differ from the conventional theory of regression with stationary series. That is, regression coefficients with non-stationary variables will be spurious and misleading. Thus, the Elliott-Rothenberg-Stock unit root test was used to ascertain the characteristics of the data in order to determine whether the variables have unit roots i.e., whether it is stationary and the order of integration. To improve the power of the unit root test, Elliot, Rothenberg and Stock (ERS) proposed a local to unity detrending of the time series. ERS developed a feasible point optimal test, "P-test", which takes serial correlation of the error term into account.

Afterward, the Johansen Cointegration technique was used to test for the existence of long-run relationship among variables in the equation. Essentially, it was used to check if the independent variables can predict the dependent variable both now (short-run) or in the future (long-run). Although long-run equilibrium relationship may occur among variables in the regression model, short-run equilibrium may not occur. Granger Causality test is conducted to assess the direction of causality among the variables. The Granger causality test states that a stationary variable x is said to granger-cause a stationary variable y only if y is predicted better by using the past changes of x, together with the past changes of y itself, rather than by using only the past changes of y. A bi-variate autoregressive standard Granger causality model is study presented below:

$$GDP = \sum \beta 1 CIC + \sum GDP + ult \qquad (11)$$

$$cict = \sum \quad \delta icict - 1 + \sum \quad \gamma jGDPt - 1 + \mu 2t \, (12)$$

Where it is assumed that the disturbances u_{1t} and μ_{2t} are uncorrelated, estimating the parameters in equation (x) using Vector Auto-regression method (VAR). In economics the dependence of a variable Y (the dependent variable) on another variable(s) X (the explanatory variable) is rarely instantaneous. Very often, Y responds to X with a lapse of time. Such a lapse of time is called a lag (Gujarati, 2007).

Monetary policy instruments like bank rate, open market operation (which has direct effect on CIC), legal reserve ratio (reserve requirement), moral suasion etc. does not have sudden effect on the performance of the economy. Example, creation of bank money through demand deposits takes some time due to the process involved, so the impact is not felt immediately. Hence, this justifies the use of vector autogression method in estimating the parameters.

EMPIRICAL RESULTS AND DISCUSSION

The Elliott-Rothenberg-Stock (ERS) Unit root tests suggest that all the variables were stationary at level both at 1%, 5% and 10% except for inflation rate which is not stationary at 10%. (See Table 2). This was obtained by comparing the observed values (in absolute terms) of the ERS tests with the critical values at 1%, 5%, and 10% (in absolute terms) of the ρ-statistics. Based on the analysis I accepted the null hypothesis which concludes that there is the presence of a unit root in the time series. The analysis of Johansen co-integrations rank which is presented in Table 3 indicates the presence of five integrating vectors at 5% level of significance. By implication, this infers that there is co-integration among the variables in the long-run which is a proof of long-run relationship among the variables in the model.

Table 2: Elliott-Rothenberg-Stock Unit root test (null hypothesis: has a unit root)

Series	P-Statistic	ERS Regression with Constant, Linear Trend			log (At) ~ I(X)
		1%	5%	10%	
LOGDGP	63.94646	4.221600	5.716800	6.770800	I(0)
LOGCIC	392.115	4.221600	5.716800	6.770800	I(0)
LOGDD	109.3322	4.221600	5.716800	6.770800	I(0)
LOGHPM	133.0044	4.221600	5.716800	6.770800	I(0)
CTD	23.13982	4.221600	5.716800	6.770800	I(0)
EXR	42.1434	4.221600	5.716800	6.770800	I(0)
INF	5.793305	4.221600	5.716800	6.770800	I(0)
NIR	10.87143	4.221600	5.716800	6.770800	I(0)

Source: Author's Computation.

Table 3: Cointegration test

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.984233	207.4934	56.70519	0.0000
At most 1 *	0.866990	100.8667	50.59985	0.0000
At most 2 *	0.757999	70.94064	44.49720	0.0000
At most 3 *	0.709690	61.84021	38.33101	0.0000
At most 4 *	0.553629	40.33025	32.11832	0.0040
At most 5	0.294631	17.45174	25.82321	0.4204

At most 6	0.238923	13.65101	19.38704	0.2784
At most 7	0.108732	5.755524	12.51798	0.4920

Max-eigenvalue test indicates 5 cointegratingeqn(s) at the 0.05 level.
* denotes rejection of the hypothesis at the 0.05 level.
**MacKinnon-Haug-Michelis (1999) p-values.
Source: Author's Computation.

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)   **Date:** 04/11/19**Time:** 02:53   **Sample (adjusted):** 1961 2008   **Included observations:** 47 after adjustments   **Trend assumption:** Linear deterministic trend (restricted)   **Series:** LOGGDP CTD EXR INF LOGCIC LOGDD LOGHPM NIR   **Lags interval (in first differences):** 1 to 1.

Table 4: Pair-wise granger causality test

Null Hypothesis:	Obs	F-Statistic	Probability
GDP does not Granger Cause CIC	51	1.91657	0.17264
CIC does not Granger Cause GDP		3.70421	0.06021
DD does not Granger Cause GDP	51	1.23020	0.27289
GDP does not Granger Cause DD		5.78712	0.02005

Source: Author's Estimation Using E-view 5.0.
Pairwise Granger Causality Tests   **Date:** 04/11/19 **Time:** 17:19   **Sample:** 1960 2009   **Lags:** 1.

We regard this result as a piece of empirical evidence supporting the monetarist claim that money matters in economic development. Nigerian economy, like many other developing economies, is a dual economy in the sense that traditional sector coexist with a modern sector. However, the traditional sector is the most dominant since almost 80 per cent of the population lives in this sector. However, the increase in money supply does not seem to affect the output of the traditional sector which contributes very little to GDP. This is due to the fact that the economic activity of this sector is exclusively determined by exogenous forces. This might be one reason the magnitude of causation that was found between CIC and normal GDP is minimal at least in the short run.

The direction of causality between demand deposit and GDP was unidirectional. The implication of this result is that economies with more demand deposit can boost their productive through improvement in the GDP. Increase in demand deposit will reduce the cost of handling cash and other associated risks which will lead to increase in financial sector contribution to GDP.

The foremost object of this study is to empirically determine the impact of CIC on economic performance in Nigeria between 1960 and 2009. The empirical analysis of equation (9) is presented in Table 5. The appraisal of the vector autoregresstion revealed that previous year normal GDP is positive and statistically significant at 5% between the year 1960 and 2009. A 1% increase in GDP when lagged by one year will lead to about 84.50% increase in current year normal GDP. This shows that GDP in the previous year is a major determinant of current year GDP, implying that economic performance in Nigeria depends on the performance of GDP in the previous years because current level of economic activities contributes only 15.50%.

This is not surprising because crude oil revenue contributed over 80% to Nigeria GDP, oil windfall revenue is not judiciously utilized in diversify the economy into a multicultural economy, due to unprecedented level of corruption in the country. Most government spending on developmental projects ends in private pockets. Furthermore, the projects embarked upon by successive governments are not targeted towards developing the economy but to score cheap political points. The continuous dependence on oil revenue accounted for the high level of volatility of Nigeria's economy to international oil price. The empirical analysis shows that previous year CIC has no significant impact on current year normal GDP in Nigeria, although it exhibit a positive relationship. The result shows that 1% increase in previous year CIC will bring about 11.56% growths in current year GDP. This finding agrees with the reports of Ogunmuyiwa and Ekone (2010) and Rastislav and Natalia (2007) that money supply is positively related to growth but the result is however insignificant in the case of GDP growth rates on the choice between contractionary and expansionary money supply.

The outcome of this study suggest that the implementation of cashless policy by the CBN should be done with the best of care so as not to reduce the contribution of the informal sector to GDP because high percentage of CIC is used for economic activities in the informal sector which drives growth in the local economy. Despite the rapid development of the payment card market, households prefer cash transactions to payments through POS terminals. The higher demand for cash holdings could have been supported in recent years largely by the monetary policy environment, with relatively low interest rates diminishing the attractiveness of deposit products.

The results also showed that demand deposit has a negative and not significant effect on normal GDP when lagged by one year. This means that instead of promoting economic growth and development, determinations to mobilized demand deposit have not been beneficial to the economy. This indicates that demand deposit did not stay long enough in the banking system, thus may not go through the money creation process which helps in promoting economic growth. Banks create money through their lending activities and the higher the excess reserves in the possession of commercial banks, the higher the loans and deposits that could be created and therefore the higher the money supply. Phebian (2010), Ogunmuyiwa and Ekone, (2010) and Ahmed and Suliman (2011) in their studies found that increase in money supply also leads to improved economic performance.

Table 5: Vector autogression (wVAR)

	LOGGDP
LOGGDP(-1)	0.844953
	(0.07749)
	[10.9044]
C	39022.63
	(15242.9)
	[2.56005]
$LOGCIC_{t-1}$	0.115699
	(0.18073)
	[0.64017]
$LOGDD_{t-1}$	-0.002153
	(0.01785)
	[-0.12058]
$LOGCTD_{t-1}$	-25604.01
	(10657.3)
	[-2.40249]
$LOGHPM_{t-1}$	-0.024039
	(0.07506)
	[-0.32027]
EXR_{t-1}	346.0910
	(316.339)
	[1.09405]
INF_{t-1}	205.4257
	(298.984)
	[0.68708]

NIR$_{t-1}$	972.5165
	(1190.22)
	[0.81709]
R-squared	0.989782
Adj. R-squared	0.987836
Sum sq. resids	2.78E+10
S.E. equation	25713.16
F-statistic	508.5486
Log likelihood	-585.3076
Akaike AIC	23.30618
Schwarz SC	23.64709
Mean dependent	232440.0
S.D. dependent	233137.4

Source: Author's Computation

Vector Autoregression Estimates   **Date:** 06/11/19**Time:** 23:5   **Sample (adjusted):** 1961 2007
Included observations: 46 after Adjustments   Standard errors in ( ) & t-statistics in [ ]

The ratio of CIC to demand deposit (measure of electronic payment system development) lagged by one year shows that as the economy is moving from cash to cashless the impact is negative and it is significant at 5%. This is as a result of infrastructural bottlenecks (reliable internet facility, good and effective telecommunication system, electricity, reliable banking system, etc.) to power the electronic payment system. Central bank of Nigeria and other stakeholders needs to embark on public enlightenment programmes to increases people's confidence in the electronic payment system. The result reveals that high powered money (HPM) or monetary base in the previous year has negative relationship with normal GDP which is not significant at 5%. This implies that a larger proportion of HPM is in form of CIC, the credit creation ability of banks will be curtailed because such money will not be available in the financial system for credit creation.

Econometric analysis on normal interest rate when lagged by one year shows that between 1960 and 2009 normal interest rate exerts a positive but insignificant impact on normal GDP. This outcome conforms to the findings of Owoye and Onafowora (2007) and Ndekwu (1998) that high interest rate stimulates supply of savings but high cost of borrowing discourages investment and retards growth. This reason accounts for the continuous increase in broad money supply (M$_2$) over the years. It is discovered that all the monetary target variables exerts insignificant impact on normal GDP in Nigeria from 1960 to 2009 except CIC to demand deposit ratio. The relationship that exists between the monetary instruments and normal GDP sheds more light on how ineffective monetary policies adopted by the CBN for promoting economic growth in Nigeria. The combination of monetary variables like; exchange rate, Inflation, normal interest rate, high power money, exchange rate and CIC has not been effective for the purpose of promoting growth in GDP, as the vector autogression result shows that they are statistically insignificant.

CONCLUSION AND POLICY IMPLICATIONS

This study focused on examining the impact of CIC on economic performance in Nigeria using annual statistical data from the CBN between 1960 and 2009 within an empirical framework using vector autoregresstion model (VARM) and the direction of Granger Causality relationship between CIC, demand deposit and normal GDP. The results obtained reveals that the coefficient of CIC when lagged by one period is positive but statistically insignificant at 5% contrary to expectations. Previous year's normal GDP exhibited a positive and statistically significant relationship with current year's normal GDP. Contrary to theoretical expectation, the coefficient of demand deposit is negative and statistically insignificant; this is a serious deviation from economic theory which is an indication of weak financial institutions not being able to mobilize deposits from the informal sector to boost economic growth. There was statistically insignificant relationship among monetary variables such as exchange rate, Inflation, normal interest rate, high power money, and normal GDP within the period under review. The direction of causality run from CIC to normal GDP, Granger Causality test also indicates that demand deposit granger causes GDP. The implication of this result is that economies with more demand deposit can boost their productive through improvement in the GDP.

The study also shows that CIC_{t-1} have a complementary relationship with current year normal GDP but does not have any significant influence on normal GDP in Nigeria between 1960 and 2009. Based on the findings, the cashless economy being proposed and promoted by the monetary authorities will have a significant impact on the performance of Nigeria's economy. The government should provide adequate infrastructure and enabling legal frameworks that will help the informal sector of the economy to embrace the cashless payment system, so as not to erode the contribution of the informal sector to GDP in Nigeria. The study also revealed that demand deposit Granger causes economic growth; so government should encourage deposit by increasing the deposit rate and enact adequate laws that will protect depositors.

REFERENCES

Ahmed, E., & Suliman, Z. (2011). The long-run relationship between money supply, real GDP, and price level: Empirical evidence from Sudan. *Journal of Business Studies Quarterly, 2*(2), 68-67.

Ahmed, Y. A. (2013). An analytical study of the demand for money in Saudi Arabia. *International Journal of Economics and Finance, 5*(4), 32-38. http://dx.doi.org/10.5539/ijef.v5n4p31.

Akhtaruzzaman, M. D. (2008). Financial development and velocity of money in Bangladesh: A Vector Auto-Regression Analysis. *Working paper series 0806*, Policy Analysis Unit, Bangladesh Bank.

Arslan, U., & Celikoz, Y. (2011). The effect of the interest rate volatility on Turkish money demand. *International Business Research, 4*(4), 286-297. http://doi:10.5539/ibr.v4n4p286.

Banerjee, A., Dolado, J. J., Galbraith, J. W., & Hendry, D. F. (1993). Cointegration, error correction, and the Central Bank of Chile. *Working Papers, 184,* 1-28. Retrieved from http://www.bcentral.cl/Estudios/DTBC/doctrab.htm.

Central Bank of Nigeria (CBN) statistical bulletin various years. Retrieved from http://www.cenbank.org.

César, C., & Lin, L. (2002). The direction of causality between financial development and economic growth.

Dauda, R. O. (2013). Does Female Education Promote Economic Performance? Evidence from Nigeria. *International Journal of Economics and Finance, 5*(1), 201-209. http://dx.doi.org/10.5539/ijef.v5n1p201.

Emerson, J. (2006). The Quantity Theory of Money: Evidence from the United States. *Economics Bulletin, 5*(2), 1-6.

Fecha, V. J. (2004). Electronic Payments Help Drive Economic Growth. Retrieved from http://www.kalysis.com/content/article.php?sid=334.

Gujarati, D. N., & Sangeetha, G. (2007). *Time series econometrics: Basic econometrics.* 4th Edition. Tata McGraw-Hill Publishing Company Limited.

Gutmann, P. M. (1977). The subterranean economy. *Financial Analysts Journal*, *34*(1), 24-27.

Layi, A. (1991). Monetary economics. *Theory of Money Supply*, (Pp. 103-123). Innerways Publications.

Mark Z., Virenda, S., & Justin, I. (2013). The impact of electronic payments on economic growth.

Odior, E. S. (2012). Pure portfolio approach to money supply determination in Nigeria: A generalized method of moments approach. *Global Review of Economics,* 10-26.

Odior, E. S., & Fadiya, B. B. (2012). Cashless banking in Nigeria: Challenges, benefits and policy implications. *European Scientific Journal, 8*(12), 266-292.

Ogunmuyiwa, M., & Francis, E. (2010). Money supply-economic growth nexus in Nigeria. *Journal of Social Science*, *22*(3), 199-204.

Ojo, M . O. (1993). A review and appraisal of Nigeria's experience with financial sector reform. *CBN Research Department*, Occasional Paper 8.

Phebian N. O. (2010). The Quantity Theory of Money: Evidence from Nigeria. *Central Bank of Nigeria Economic and Financial Review, 48*(2), 95.

Rastislav, A., & Natália, V. (2007). Development of currency in circulation in Slovakia, a comparison with V4 countries and the euro area, and the banknote allocation key in the euro area. *BIATEC National Bank of Slovakia*, *15*(2), 1-9.

Shaw, E. S. (1973). *Financial deeping in economic development*. Oxford University Press.

Simon, N. (2011). Cashless payments underpin economic growth. *World Payments Report 2012*, produced by Capgemini. The Royal Bank of Scotland (RBS) and Efma. Retrieved from www.wpr12.com.

Simon, T. (2012). Sweden could be first country to go cashless as even churches are taking cards for offerings.