CASHLESS BANKING IN NIGERIA: CHALLENGES, BENEFITS AND POLICY IMPLICATIONS

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Abstract

This study examines the implications of cashless banking, with a view to exposing the possible challenges and prospects it poses to the Nigerian economy whilst employing aggregated approach. Analytically, this study employs descriptive statistical to highlights/overview the effectiveness of the cash-less policy of the CBN in Nigeria. This study was informed by the rising doubts as regards the effectiveness of various economic policies in achieving developmental goals of Nigeria. Moreover, the recent evolution of electronic money poses interesting questions of policy makers all over the world. This study also seeks to evaluate policies of the Central Bank of Nigeria as well as proffer valuable recommendations on the execution of cashless banking in Nigeria. The study presented significant recommendations: availability of sufficient and well-functioning infrastructural facilities (notably electricity), harmonization of fiscal and monetary policy, regular assessment of the performance of cashless banking channels (individually and collectively), consideration of the present state and structure of the economy, redesign of monetary policy framework and greater efforts towards economic growth whilst managing inflation. In inclusion, the shift towards a cashless Nigeria seems to be beneficial though it comes with high level of concerns over security and management of cost savings resulting from its implementation.

Keywords: Cashless Banking, Nigeria, Policy Implications

1.0 Introduction

The recent evolution of technology for financial transactions poses interesting questions for policy makers and financial institutions regarding the suitability of current institutional arrangements and availability of instruments to guarantee financial stability, efficiency and effectiveness of monetary policy. Over the course of history, different forms of payment systems have been in existence. Initially, 'trade by barter' was common. However, the problems of barter such as the double coincidence of wants necessitated the introduction of various forms of money. Nevertheless, pundits have been predicting the complete demise of study instruments and the emergence of potentially superior substitute for cash or monetary exchanges, that is, 'cashless society'.

Since Nigeria's Independence in 1960, there have been different governments, constitutional reforms, change in economic policies and banking reforms, mainly directed at enhancing social welfare and achieving developmental goals but there has been no substantial positive change in Nigeria's Human Development Indicators. This also calls to question the effectiveness of the cash-less policy of the Central Bank of Nigeria (CBN)

At the end of the 1980s, the use of cash for purchasing consumption goods in the US has constantly declined (Humphrey, 2004). Hence, most LDCs (Less Developed Countries) like Nigeria are on the transition from a pure cash economy to a 'cash-less' one for developmental purposes. Little wonder why the Central Bank of Nigeria recently introduced a 'cashless' policy.

According to CBN, the new cash policy was introduced for a number of key reasons, including, To drive development and modernization of our payment system in line with Nigeria's vision 2020 goal of being amongst the top 20 economies by the year 2020. An efficient and modern payment system is positively correlated with economic development, and is a key enabler for economic growth. To reduce the cost of banking services (including cost of credit) and drive financial inclusion by providing more efficient transaction options and greater reach and to improve the effectiveness of monetary policy in managing inflation and driving economic growth.

In addition, the cash policy aims to curb some of the negative consequences associated with the high usage of physical cash in the economy, including: high cost of cash: high risk of using cash, high subsidy, informal economy and inefficiency & corruption (CBN, Website, 2011)

Against this backdrop, the study seeks or aims to analyze the positive and negative policy implications of cash-less banking for the Nigerian economy, with a view to exposing the possible benefits and challenges poses on economy. Given this introduction, the study is subsequently divided into nine major sections. Section 2 focuses on both theoretical and empirical review of literature. Section 3 focused on the descriptive analysis of cash system and CBN policies in Nigeria, while the rationales for cashless banking in Nigeria are presented in section 4. Section 5 and 6 highlights the expected benefits and the challenges facing the cashless policy in Nigeria and section 7 discusses the policy implications of cashless banking in Nigeria. Recommendations and conclusions are presented in sections 8 and 9 respectively.

2.0 Brief review of literature

In examining the implications of cash-less system, it is necessary to review how conventional money has evolved over time. Money performs a number of roles in economic activity; it is a unit of account, store of value, medium of exchange and means of deferred payment. Also, money has evolved over the centuries to minimize the friction of transaction costs that are involved in mediating exchange. In fact, the process can be observed from the development of the very first monetary products. For instance, conducting economic transactions in barter economies involved high transaction costs as considerable time and effort was required in finding suitable partner.

Subsequently, another facet in the evolution of money was the need for fungibility and divisibility. Hence, the advent of study money (notes and coins) made the process less costly by allowing people specialize in production based on their strengths and by enabling the monetary authorities to mint coins in convenient denominations, thereby creating divisibility (Baddeley, 2004).

However, there has been drift towards electronic money, which is quite difficult to define because it blends technological and economic characteristics (Basel Committee, 1998; BIS, 1996). According to ECB (1998), electronic money is broadly defined as an electronic store of monetary value on a technical device that may be widely used for making payments to undertakings other than the issuer without necessarily involving bank accounts in the transactions, but acting as a prepaid bearer instrument.

Analogous to this definition is that of cashless economy wherein there exist no notes and coins issued by central banks but by private financial institutions (Costa and De Grauwe, 2001).

Several scholars have attempted to analyze the cashless system or e-banking. However, it becomes clear that few studies present a comprehensive evaluation of cash-less banking implications in developing countries. Most ignore its economic benefits of the equation while some do incomplete examination of its negative implications. This is often due to unreliable panel data for monetary and macroeconomic indicators. Although, this study focuses on Nigeria, it is difficult to translate cashless studies from one country to another. Even payments instruments that look similar across countries on the surface may be different due to historical and legal variations (Daniel et al, 2004).

On theoretical side, early studies in this regard attempted to explain the root cause of price indeterminacy, some of which are Fisher (1896) and Patinkin (1965). It established the following basic result: for any given real demand for money, there are infinitely many combinations of money stock and price levels that will do the job of bringing about money market equilibrium. In other words, economic agents do not care whether additional money desires are realized by increases in money stock or declines in price level.

Also, Humphrey and Berger (1990) present one of the earliest attempts to comprehensively estimate the private and social costs for nine separate payment instruments-cash, cheques, credit cards, money orders, point of sale (POS), Automated Clearing House Transfers (ACH), ATM bill payments, travelers' cheques and wire transfers. They find that from a social cost perspective, cash is the cheapest payment instrument, followed by ACH, POS and ATM bill payment. From a private perspective, cheques emerge as the cheapest payment method followed by cash, ACH and POS bill payments. However, the influence of government intervention was prematurely considered as there was no calculation of net benefits of such payments instruments (Daniel et al, 2004). In recent times, there is a consensus that central banks have the capacity to control the price level. One of the approaches is through controlling money supply (advocated by monetarists) and has led many central banks to implement money-supply-targeting procedures (Claudia, 2001). Another approach is the Taylor-principle, which is, adjusting short-term interest rate in response to movements in expected inflation and state of economic activity, as shown in Taylor (1993), Clarida et al (1997) and Woodford (2003).

Looking at empirical issues, however, in a cashless economy, money demand equation can be derived without influencing output and inflation (Gali, 2008). In this case, money plays the role of a unit of account and the amount of real money balances follows residually after output, inflation and interest rate have been determined.

In examining the cost implications of cashless banking instruments, Gresvik and Owre (2002) studied how much it costs Norwegian banks to process various payment instruments. It finds that payment cards used for cash withdrawals at ATMs cost considerably more since the transactions involve cash replenishment, maintenance and security costs. In addition, the cost of using cheques for cash withdrawals was found to be three times more expensive than cash withdrawals at ATMs.

Cross country studies such as Humphrey et al (1996) analyzed patterns in the use of cash and other e-payment instruments in 14 developed countries, including the US. Whilst treating payment instruments as if they were traditional goods, the authors construct measures of the cost (analogous to prices) of various payment methods in order to study whether differences in cashless instrument usage across countries can be explained by differences in the relative prices of such instruments. The result showed that such price differences failed to determine the usage of e-banking instruments. In other words, the "convenience" of using a particular instrument—a factor that is not measured --- may outweigh the price differences that users face (Carrow and Staten, 2000).

In another study comparing costs across nations, De Grauwe et al (2000) examined the costs of cash and payment cards in Iceland and Belgium. These countries were selected because they provide a clear contrast as Iceland has one of the lowest rate of cash usage while

Belgium is at the other extreme. For the cash payment system in Iceland, the study estimate the cash production and distribution costs incurred by Central Bank and the subtract the revenues obtained through interest foregone on cash in circulation whereas, for the card-based system, they examine the card companies, commercial and savings banks, cardholders and merchants.

From a social perspective, it was concluded that a card-based system is considerably more efficient than a cash-based system for two reasons. First, diseconomies of scale in cash supply rises as cards displace cash, while economies of scale improve for cards. Secondly, the displacement relegates cash to smaller transactions because smaller transactions must cover the fixed costs of the cash system.

Recent empirical studies such as Kriwoluzky and Stoltenberg (2010) attempted to estimate the cashless and monetary economy in US by employing Bayesian estimation techniques. The data set, which was split into two parts, ranged from first quarter 1964 to third quarter 2009, as done in Lubik and Schorheide (2004); Clarida et al (2000). Whilst treating GDP deflator, output per capita and real wages as observable, its findings suggest that interest rate policy was passive in the monetary but active in the cashless economy. According to Gali and Gambetti (2009), volatilities in output and inflation declined due to observed loss in the predictive power of money in a monetary economy. A similar conclusion was also reached by Stock and Watson (2002) , Kim and Nelson (1999).

In assessing the role of central bank in a cashless society, Claudia and De Grauwe (2001) stressed that central banks gradually lose their monopoly position in the provision of liquidity combined with its subsequent small size which makes it hard to control the short-term interest rates. On the contrary, Marco and Bandiera (2004) argue that increased usage of cashless banking instruments strengthens monetary policy effectiveness and that the current level of e-money usage does not pose a threat to the stability of the financial system. However, it does conclude that central banks can lose control over monetary policy if the government does not run a responsible fiscal policy.

3.0 Descriptive analysis of cash system and cbn policies in nigeria

3.1. Analysis of Cash System

Nigeria can be regarded as a cash-based economy because majority of retail and commercial payments are made in cash. According to a recent CBN survey, cash-related transactions account for 99 percent of customer activity in Nigerian banks today. In addition, it discovered that cash transactions above N150,000 was largest in terms of value (N1469billion) and second smallest in terms of number or volume (10 percent).

For the purpose of achieving the aforementioned objectives of the study, this research study employs descriptive analysis with the aid of graphs, tables, charts and trend analysis of cash system in Nigeria. The study improves on previous literature by explicitly stating both the potential positive and negative consequences for policy makers in Nigeria. The data employed in this study was from secondary sources and the major results are three-fold. Firstly, the Nigerian economy is highly dependent on cash usage and monetary policies of the CBN over the years have proven to be relatively effective. Secondly, the base money of Nigeria has been

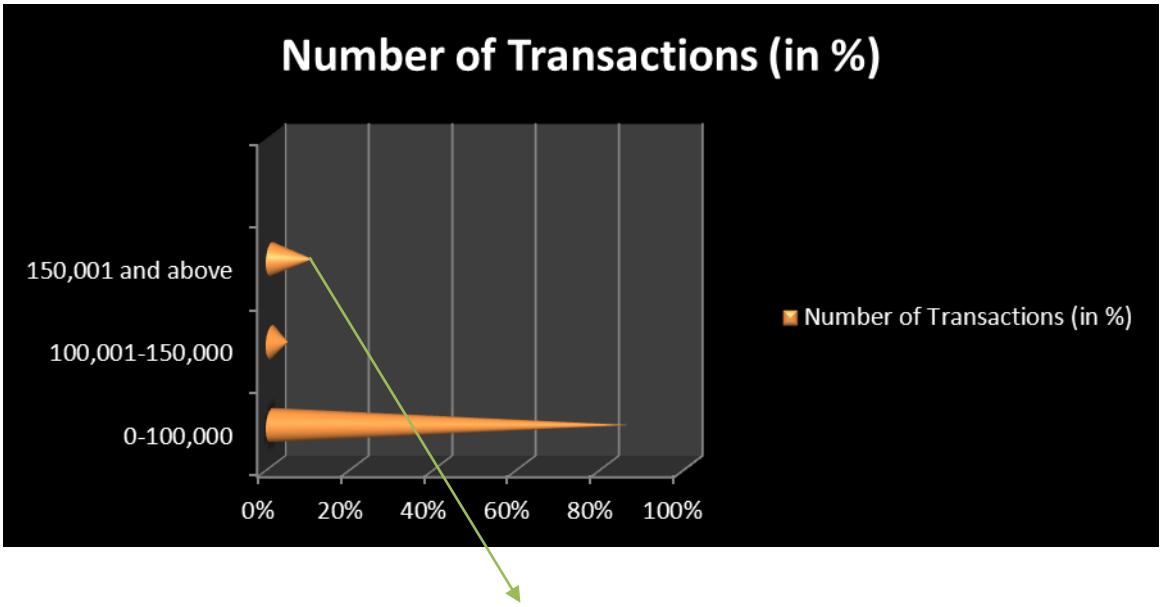
highly volatile. Thirdly, the cashless policy has possible implication of cost savings in the financial sector but does not necessarily imply real sector growth.

Table 1: Cash Transactions

[redacted]	[redacted]	[redacted]
0-N100,000	**86%**	**491**
N100,001-N150,000	**4%**	**115**
Above N150,000	**10%**	**1469**
TOTAL	**100%**	**2076**

Source: CBN Website, 2011

Figure 1: Cash Transactions



10% of the numbers of cash transactions are above ₦150,000 but account for 71% in the value of cash transactions.

Table 1 and Fig 1 above show that "only 10 per cent of banks' cash transactions are above N150, 000, but they make up 71 per cent of the value of cash transactions. About 90 per cent of Nigerians carry out transactions below N150, 000. If there is reduced cash in the system, banks would be able to compete favourably. There are so many alternative payment systems in Nigeria which are even more convenient and safe, but people are not using them.

With the improvement in communication in the country, there have been a lot of improvements in the payment system.

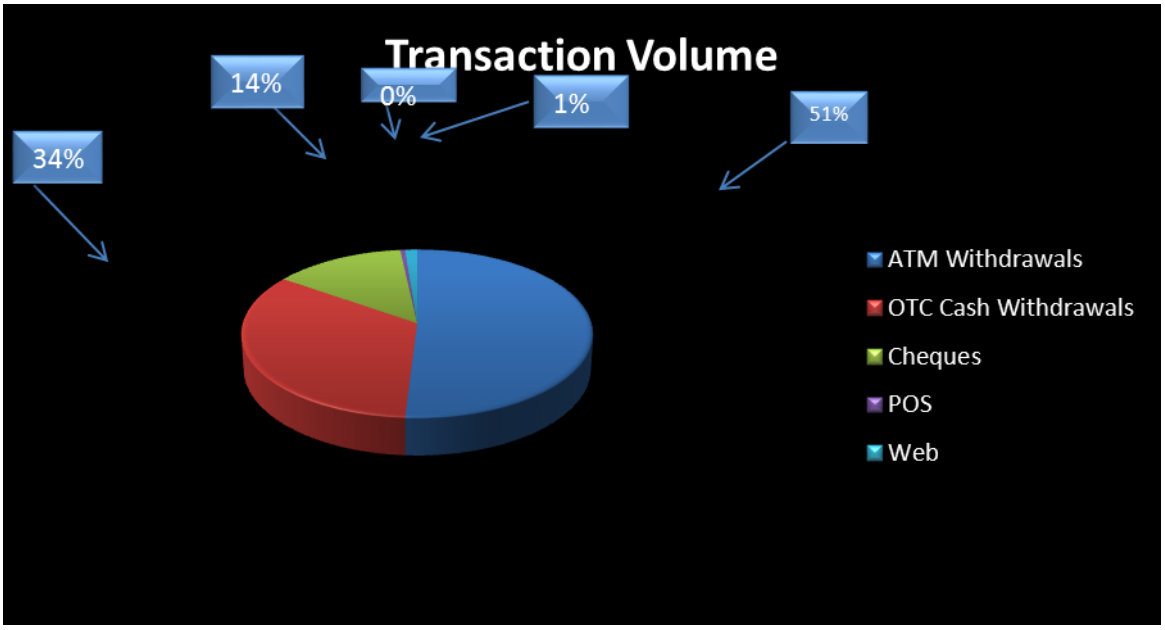
However, the above cash withdrawal/lodgment limit has been reviewed upwards (as noted in Table 1). Thus, it can be deduced that new limit of N500,000 for individual customers would possibly account for the largest in terms of value and smallest in terms of transaction volume. Another major finding of the survey can be simply illustrated in the table below:

Table 2: Cash Related Transactions

Channels of Payment	Transaction Volume	Percentage of Transaction
ATM Withdrawals	109,592,646	50.96%
Cash withdrawals (Over-The-Counter)	72,499,812	33.7%
POS (Point of Sale) Terminals	29,159,960	13.56%
Cheques	1,059,960	0.49%
WEB	2,703,516	1.26%

CBN Website, 2011

Figure 2



Nigeria is cash based economy with retail and commercial payments primarily made in cash. Cash related transactions represent over 99% of customer activity in Nigerian Banks today. A cursory look at Table 2 and Fig 2 indicates that, withdrawals through ATM channels accounts for the largest percentage, followed by OTC cash withdrawals. This implies that cashless banking instruments, particularly ATMs, are attracting high level of patronage and acceptability among Nigerians (CBN Website, 2011)

Similarly, about 85 to 90 percent of the total volume of transactions in Australia is cash-based, while a further 5 to 7.5 percent is done through electronic media, and the remainder is conducted via cheques and other study-based methods. Also, cash-based transactions are believed to account for 10 percent of total value of transactions in Australia each year (Walters, 1994). Notwithstanding, several developed and emerging economies have well-developed electronic payment systems. They include, but are not limited to the following: England, France, Germany, USA, Brazil, China, Taiwan, India and South Africa.

3.2 Overview of Central Bank of Nigeria Policies

In this sub-section, the study evaluates the performance of the CBN, particularly as regards its policy-making functions. The Central Bank of Nigeria was established on July 1st, 1959 with the general aim of regulating the banking industry. The role of banks in the mobilization of resources is considered important to the direction and pace of economic growth and development. There is, perhaps no other industry that is as regulated as the banking industry (Ajayi and Ojo, 2006).

Though many, the regulatory functions of the central bank are directed at the main objective of promoting and maintaining monetary and price stability in the economy. To perform this role, the CBN formulates policies aimed at controlling the amount of money in circulation and controls banks as well as other major financial players in the system. It controls the extent to which banks can grant credits and hence, the money supply in the economy. The CBN also performs traditional functions (issue of legal tender, act as banker and financial adviser to the government, serves as banker to other banks, lender of last resort, management of the country's accounts and debts) and developmental functions.

However, it is important to note the distinctions between the role of central banks in Nigeria and developed countries. Unlike the central banks in the developed world (e.g Federal Reserves of US and Bank of England), CBN faces many limitations such as the large size of the informal sector, which may have serious.

In many developing countries like Nigeria, cash is the main mode of payments and a large percentage of the populations are unbanked. The personal demerits of carrying cash on the growth of financial deepening are enormous. Also in Nigeria and most developing countries, there exist short run changes in the volume of money which reflect the fiscal action of the government thereby causing the central banks to have little or no control over the money volume. This is rarely the case in developed countries.

In the developed world, the money and capital markets are well developed in its depth and breath. However, this is not the case in Nigeria.

For all central banks, it is becoming increasingly clear that the maintenance of monetary stability is central to economic policy. Hence, the major task of central banks is to sustain a non-inflationary environment. However, several inferences emerge from existing studies, such as IMF (1996), that there exist a negative relationship between inflation and economic growth.

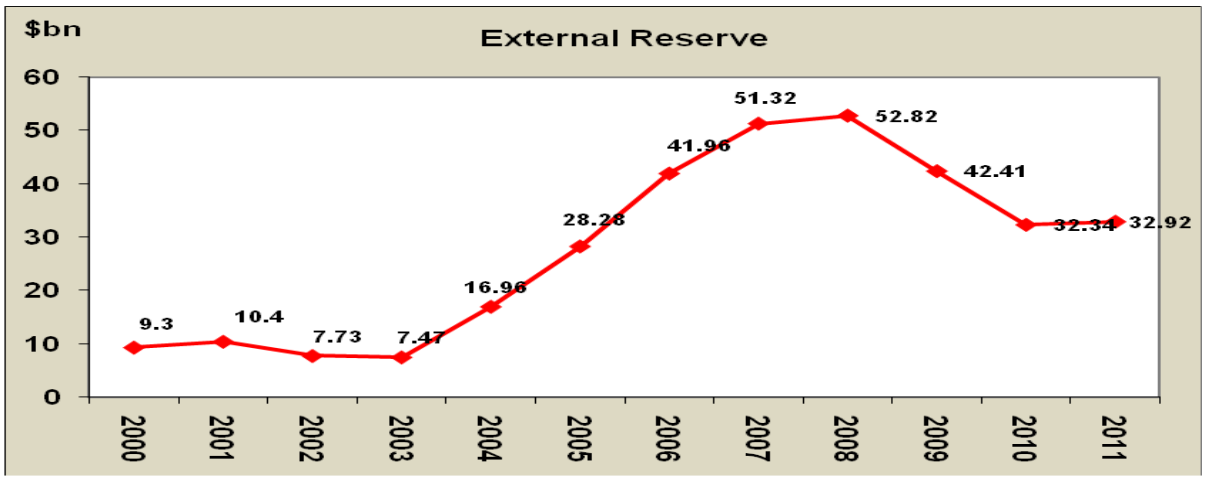
"Policies of Central Bank of Nigeria: How helpful have they been over time?" In answering the above question, this study evaluates the two major policy-making functions of the CBN as follows:

Exchange Rate Policy:

CBN is charged with the responsibility of for maintaining external reserves in order to safeguard the international value of the Naira. In this line, CBN is the custodian and manager of the country's gold and foreign exchange reserves. More so, it receives all foreign exchange earnings and in turn meets the foreign exchange requirements of all banks. To evaluate this policy-making role, this study examines the trend in Nigeria's foreign exchange reserves, as illustrated below in Fig 3.

Figure3: External Reserve: 1-Year Horizon

Figure 4: External Reserves: 11-Years Horizon

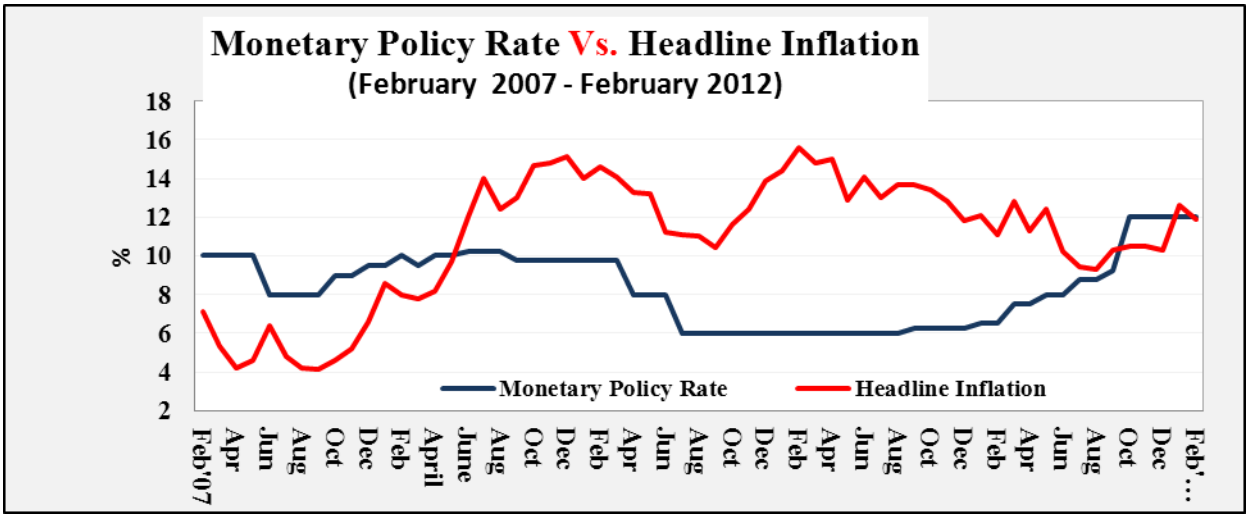


In Fig 4 above, it can be seen that Nigeria's external reserves recorded rising pattern particularly between year 2003 and 2008, before plunging till year 2010. However, it recorded an average increase between February 2011 and February 2012. Thus, CBN's role of external reserves maintenance has been quite commendable but no trickle-down effect has been felt.

Monetary Policy Function:

The effectiveness of any central bank in executing its functions is crucially dependent on its ability to promote price stability, whose achievement depends on effective formulation and implementation of monetary policy. Thus, the study examines the trend of monetary policy variables.

Figure 5: Monetary Policy versus Inflation Rate



From the Figure 5 above, it can be seen that MPR (Monetary Policy Rate) trend moved far away from that of inflation rate between August 2009 and August 2011. This implies that MPR could not control the rate of inflation effectively during that period, but was more effective between September 2011 and February 2012. In fact, CBN raised MPR six times in year 2011 for inflation-targeting purpose.

Nevertheless, there exist other monetary policy tools such as CRR (Cash Reserve Requirement), Liquidity Ratio, OMO (Open Market Operations), moral suasion and special directives for the purpose of liquidity management and price stability. As at the last MPC (Monetary Policy Communique) meeting (March 19 and 20th, 2012), the MPR, CRR and Liquidity Ratio was maintained at 12, 8 and 30 percent respectively.

Figure 6: Selected Money and Credit Statistics (M1)

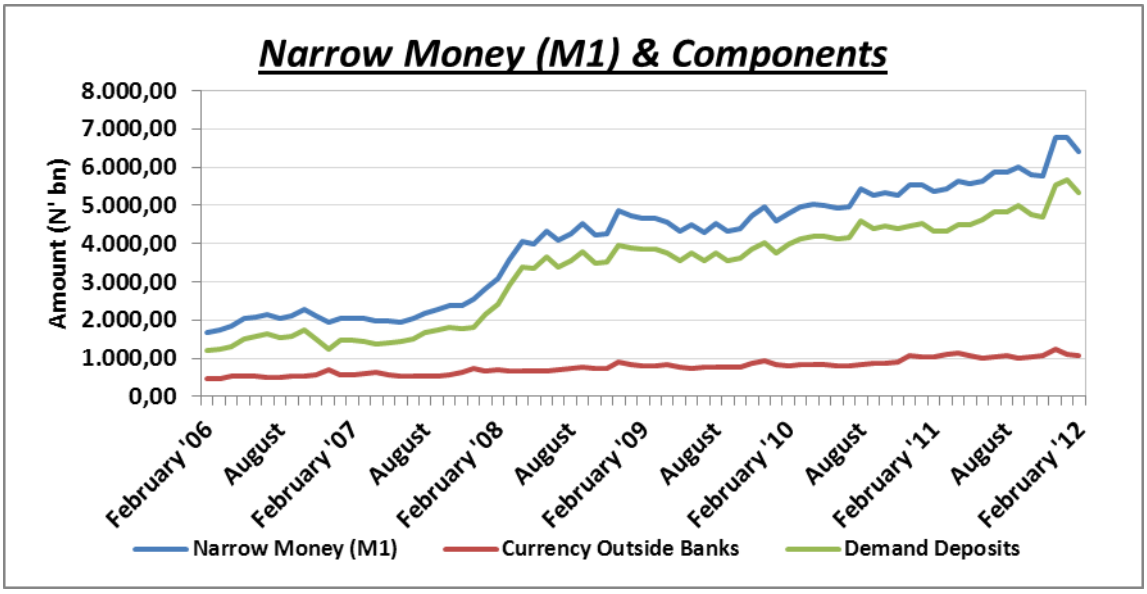


Figure 7: Selected Money and Credit Statistics (M2)

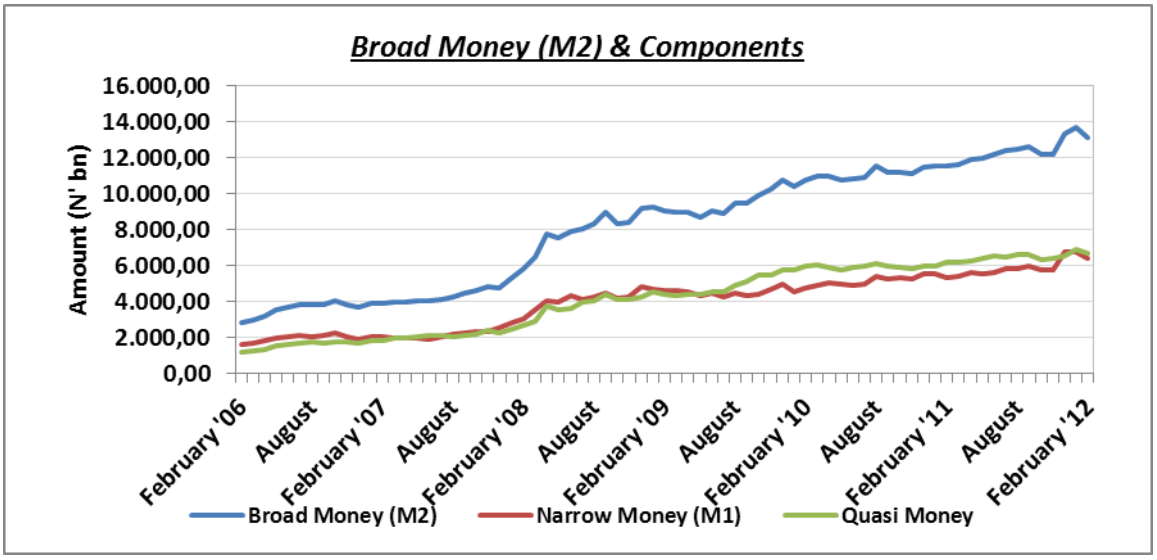
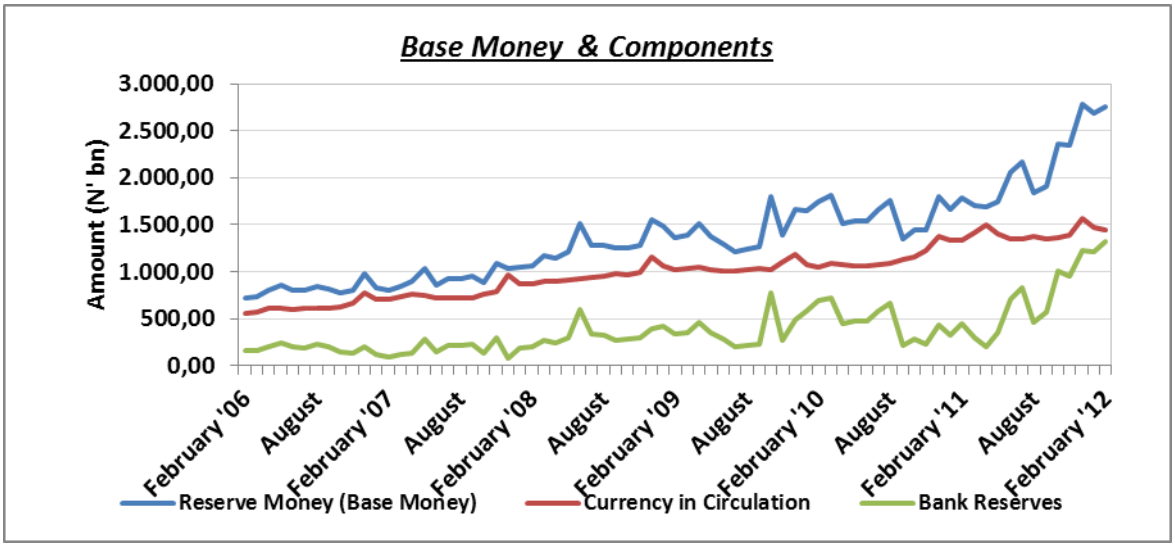


Figure 8: Selected Money and Credit Statistics Base Money



As observed in Figures 6 - 8 above, virtually all the money and credit variables (M1, M2 and Base Money components) has been on the rise since February 2006, with the exception of currency outside banks and currency in circulation which were quite stable initially but indicated downward patterns since January 2012.

Another notable observation is the Base Money, also called High-Powered Money (the liquid money stock in an economy) whose trend was relatively volatile between February 2006 and February 2012. However, this volatility was largely due to the unstable portfolio behavior of the bank (Bank Reserves) compared to that of the non-bank public (Currency in Circulation).

4.0 Rationale for cashless banking in nigeria

Unlike the previous studies examined which focus on 'cashless' banking, this study dwells on 'cash-less' banking for two main reasons. First, Nigeria is still on the transition to a cashless economy wherein, no more study notes and coins are printed by the central bank. Secondly, cash-less banking is already in operation in Nigeria. Thus, it necessitates the evaluation of the existing cash-less policy as well as the potential implications of eventual cashless banking in Nigeria.

Cash-less banking may be defined as that banking system which aims at reducing, not eliminating the amount of physical cash (study notes and coins) circulating in the economy, whilst encouraging more electronic based transactions (payment for goods, services, transfers etc.). In other words, it is a combination of two e-banking and cash-based systems. In most

developing countries, it represents a middle phase in the development of payment system as illustrated below;

The new 'cash-less' policy was introduced in April 2011 by the Central Bank of Nigeria. The justifications for this policy are briefly explained below;

i. To drive the development and modernization of the payment system in line with Nigeria's vision 2020 goal of being amongst the top 20 economies by the year 2020. An efficient and modern payment system is positively correlated with economic development and is a key enabler of economic growth**.**

ii. To reduce the cost of banking services (including cost of credit) and drive financial inclusion by providing more efficient transaction options and greater reach.

iii. To improve the effectiveness of monetary policy in managing inflation and driving economic growth.

iv. To curb the negative consequences associated with high cash usage, with has resulted to a number of challenges across the system. Example of challenges resulting from high-cash usage (not exhaustive) includes: corruption, robberies and cash-related crime, high cost of processing borne by every entity across the value chain (i.e. from CBN, to banks, to the operating entities as well (e.g. staff required to process cash transactions, manual operating systems, etc)), revenue leakage arising from significant handling of cash, inefficient treasury management due to nature of cash processing, limitations of monetary policy due to high volumes of cash outside the formal economy and encourages money-laundering, terrorist funding, etc (CBN Website, 2011).

Relevant Information

- The limits apply to the account so far as it involves cash, irrespective of the channel (e.g over the counter (OTC), ATMs, 3rd party cheques en-cashed OTC etc) in which cash is withdrawn or deposited.
- The service charge for daily cumulative deposits above the limits into an account shall be borne by the account holder. However, during the pilot run in Lagos, individuals paying money in Lagos into an account outside Lagos, shall bear the charges for any single transaction above the limit. The limit also applies to cash brought through Cash-

In-Transit (CIT) companies, as they are licensed to provide cash-pick up services.

Table 7: Key Contents of the Cash-Less Policy

Policy Elements	Initial Policy (April 20, 2011)	Revised Policy (March 19, 2012)
Daily cumulative cash withdrawals/lodgements limits (without fees)	*N150,000 by individuals *N1 million by corporate customers	*N500,000 by individuals *N3 million by corporate customers
Processing fee for withdrawals above limits	*10% by individual customers *20% for corporate customers	*3% by individual customers *5% for corporate customers
Processing fee for lodgements above limits	*10% by individual customers *20% for corporate customers	*2% by individual customers *3% for corporate customers
Exemptions	*None	*MDAs of the federal and state government on lodgements for account operated by them, for revenue collection purpose only
Kick off dates	*January 1, 2012 for partial implementation (pilot run without charges) in Lagos State *June 1, 2012 for execution across Nigeria	* January 1, 2012 for partial implementation in Lagos state *April 1, 2012 for full execution in Lagos State (charges collection to take effect from that day) *January 1, 2013 for execution across Nigeria

Exclusion of Microfinance banks (MFBs) and Primary Mortgage Institutions (PMIs) from the policy for corporate bodies (direct withdrawal/deposit) to enable them meet the legitimate demands of their numerous customers, but such limits are applicable to the customers of MFBs and PMIs.

Exemption of all embassies, diplomatic missions, and multilateral and aid donor agencies in Nigeria from such charges and penalties as it is against the international practice for sovereign states to impose penalties on other sovereign states.

5.0 Highlights of expected benefits of the cashless policy

In Alan Greenspan (2007) "The Age of Turbulence", if you wanted to cripple the U.S. economy and you take out the payment systems. Banks would be forced to fall back on inefficient physical transfers of money. Business would resort to barter and IOUs; the level of economic activity across the country could drop like a rock.'

This shows that efficient payment system is a prerequisite for the development of the national economy. The payment system is a significant national infrastructure and is critical to the growth of the national economy just like telecommunication, electrical power, and transportation infrastructures are.

Research has shown that 10% increase in the efficiency of the national payments system leads to 1% increase in the GDP *ceteris paribus.* An efficient payments system will depend less on cash, and has great potential to grow the national economy by:

i. Increasing the velocity of money, which in turn promotes economic growth
ii. Reducing the volume of cash kept outside the banking system (CIC = CIB + COB)
iii. Providing banks with more liquidity for lending to the needy sectors of the economy, at attractive rates
iv. Reducing corruption
v. Reducing overall cost of banking and payments, thereby reducing bank charges

The Expected benefits of the new cashless policy in Nigeria various stakeholders include:

i. For Customers: Increased convenience/access, more service options, reduced risk of cash-related crimes, cheaper access to (out – of – branch) banking services and access to credit.
ii. For Corporations: Better access to capital due to shorter payment processing times, Increased efficiency of payment processes and accounting, Reduced revenue leakages and More efficient treasury management
iii. For Government: Increased tax collections, greater financial inclusion and increased economic growth (positive correlation with increased payment efficiency)
iv. For Banks: Efficiency through electronic payment processing, reduced cost of

operations (cash handling) and Increased banking penetration (CBN, 2011). Other merit of the cashless policy is that it will help reduce the risk of carrying cash around. Cash is expensive. It is expensive to print and move about from one location to another. It is also risky to carry about, even in short distances, because you become vulnerable to attacks or robbery. Cash is inefficient. Cash has a lot of problems. So, as a country, it is important that we reduce our dependence on cash. Nigerian society will be better-off with a cashless policy in place.

Also cashless policy will help promote the usage of electronic products. IT companies will have the opportunity to produce debit cards, credit cards, recharge cards, chip and PIN card. These merits will be appreciated if all these products are launched into the market and the majority of people are utilizing it.

Cashless policy has the capacity to track down all major movement of money including terrorism financing, bribery and all attempts to compromise financial transparency.

The fear of being robbed of large sum of money would not be there again because the robbers know also that you don't carry cash". Transaction would be consummated faster as you do not need to pass through the apex bank to effect payment abroad in any international business transaction.

It will also reduce cost of processing so much notes for CBN and for the commercial banks, it will reduce cash flow or movement of cash from one location to the other to effect customers needs.

Other stakeholders are NIBSS (Nigerian Interbank Settlement Scheme), POS Manufacturers, telecom providers, Switch operators and definitely CBN. The various cashless banking instruments introduced are: EFT (Electronic Fund Transfer), ATMs, Internet Banking, POS systems, Mobile payments and direct debits.

6.0 Challenges facing the cashless policy in nigeria

The financial sector, which is the central nervous system of any economy, is important for the development of any nation. Globally, the relationship between the financial system and development remains very critical for any economy to realize its potentials. Though the banking system functions more efficiently and effectively when there is a robust and efficient payments systems infrastructure.

As the Central Bank of Nigeria (CBN) prepares Nigerians for a rough transition into a cashless economy, there are a couple of concerns about the feasibility of the policy in

Nigeria. Though the policy is as beautiful as it is faces great challenges. A few of these inherent challenges are listed below:

i. Infrastructure deficit:

The financial infrastructure in Nigeria is not adequate to carry the load of a cashless society; ATM's, Point of Sales system, mobile banking and other mediums have to dramatically expand to touch at least 40% of the whole economy before any meaningful effect can be achieved.

ii. Power:

Power must be improved dramatically to accommodate for smooth operations of financial activities.

iii. Prevalence of e-fraud/Consumer Protection:

Another major concern would be the risk involved, because if the process is rush and the economy losses confidence in the system due to high level of fraudulent activities, it will be devastating to the Nigeria economy.

iv. Literacy Levels ("Numeracy" versus literacy):

As noted in any developing country, the literacy rate in Nigeria is still very low especially in the Northern part of the country. Hence, the business men here prefer to keep their money in their own vault while there are banks scattered all over the country.

v. Religious beliefs:

Recently there has been psychological war in the country over the proposed Islamic bank by the CBN. The Muslims believe that the conventional banks are guilty of sinning against God by their interest charges. This has been one of the reasons why the achievement of the cashless Nigerian society is doubted.

vi. Availability of real data:

Proper and accurate identification of account holders must be maintain and shared when necessary by all financial institutions; also CBN must collaborate with all other

government and private agency responsible for collection of Identification of individuals in Nigeria for reconciliation of any identification.

vii. Investments:

CBN must be ready to invest heavily to make these transitions possible; Technology is not cheap and ever changing at a very fast pace. Investments in billions of dollars made in infrastructure, training, marketing, security, maintaining it networks on so on will be on a yearly basis for the years to come and should be a collaboration of efforts by all invested parties.

viii. Security:

As it relates to laws that are need to enforce new methods of transactions and a changing culture, the CBN must partner and work with the National Assembly to ensure proper legislation is been formulated. Enforcements of new legislation would be carried by the CBN and all other executive arms that are empowered such as the EFCC. They must commit to training of personnel and the judiciary must be prudent and up to the task.

ix. Communications:

Ability to guarantee network availability and quality at all times

x. Lack of Trust and the Bounced-Cheque Syndrome:

Trust is lacking in Nigeria's business environment. As a result, business operatives believe in cash and carry. Bounced cheque issue is a very common thing in Nigeria. People place less trust on the use of Cheques too.

xi. Getting it right the first time:

Another major concern would be the risk involved, because if the process is rushed and the economy losses confidence in the system due to high level of fraudulent activities, it will be devastating to the Nigeria economy.

xii. **Bank Charges / High fees on some electronic channels**

xiii. **Cash-less not cashless**

xiv. **Stakeholder engagement/Grass roots sensitization**

xv. **Job-loss versus Job creation**

xvi. **Purchase, installation, usage and security of critical application**

xvii. **Rise in money laundering before 2013**

7.0 Policy implications of cashless banking in nigeria

The introduction of cashless banking in Nigeria has several implications for policymakers. This subsection seeks to evaluate these significant implications particularly in regards to monetary policy.

First, the development of e-money could lead to the decline in currency demand. However, currency notes are not perfect substitute for electronic money even in a pure cashless economy. This is because the demand for currency is part of demand for central banks' base money. Second, the operation of cashless banking implies a consequent decline in high-powered money (*H*), which connotes highly liquid form of money. As illustrated below, high-powered money is a function of currency in circulation (*C*) and reserves (*R*).

$H = f(C, R)$

1

$H=a_0 + a_1C + a_2R + \mu$

2

where: $a_1 > 0$; $a_2 < 0$.

This indicates for a cashless society that as *C* falls, *H* falls. On the contrary, if *R* falls, *H* rises. Thus, high-powered money has positive and negative relationship with *C* and *R* respectively. And there could be loss in CBN's monopoly power in currency issue as electronic money would be largely dominated by private institutions. However, this does not prevent CBN from performing its monetary policy function.

There exists a different approach to monetary policy conduct. This implies that instruments of monetary policy such as Open Market Operations and reserve requirements would be used more often than MPR for inflation-targeting in a cashless society.

Another major policy implication is the introduction of more risk control measures by the relevant authorities, particular Basel Committee and CBN. Since the advent of e-money comes with technological risks, more regulations and supervision are being conducted.

The consistent usage of e-channels in financial transactions possibly leads to network congestion. In other words, there exist large probabilities that such cashless banking systems such as POS terminals and ATMs experience overload.

The evaluation of cashless banking reveals that public revenue (in form of seignorage) may decline steadily because less currency notes are printed by CBN. However, this is also balanced with savings in printing costs and may not eventually reduce its revenue.

The cashless banking system also implies that there exists increased competition between financial and non-financial institutions such as telecommunication companies. Also, the implementation of cashless banking system implies growth of the financial sector as cash-handling costs is reduced significantly. However, it does not mean that financial sector's growth would automatically have a 'trickle-down effect' on the real economy.

The plan of CBN in granting license to few POS manufacturers could yield an oligopolistic market and possibly a cartel, thereby subjecting Nigerians to possible exploitation. The CBN might have limited ability to raise funds, manage liquidity and control short-term interest rate in a pure cashless society. However, it depends on the extent to which the Treasury can supply potentially large amount of risk free securities to the central bank.

Cashless banking has the possibility of stimulating trade and commercial activities as the velocity of circulation (rate at which money changes hands) is likely to increase in the long-run.

8.0 Recommendations

In outlining the study major findings, the study shows that the Nigerian economy is predominantly a cash economy and over the last six years (February 2007 – February 2012), the Monetary Policy Rate had relative significant effect in stabilizing inflation rate. Also, there has been high volatility in the trend of Nigeria's base money or 'high-powered money' and cashless banking leads to cost savings in the financial sector, but does not necessarily translate to real sector growth. There would be possible reduction in system liquidity and increased velocity of money circulation and possible limitations in the ability of CBN to manage liquidity and short-term interest rates.

For the cashless banking policy to have sustained socially desirable effects on the Nigerian economy, it is recommended that the following should be done:

i. Adequate and well-functioning infrastructural facilities must be in place. More

specifically, issue of electricity should be tackled by the government to facilitate the usage of electronic money.

ii. Regular awareness campaign to educate the public on the cashless banking channels and security measures that protects the users from electronic theft.

iii. Consistent and effective appraisal of cashless banking operations. Basically, such appraisals should be quantitative and qualitative in nature.

iv. Effective regulatory measures should be continuously implemented at the domestic and international level. In other words, legal, regulatory and economic policy frameworks should evolve to cope with these new cashless banking products.

v. The Central Bank of Nigeria should redesign its monetary policy framework in such a way to recognize the effects of reduced production of currency notes.

vi. Individual and collective analysis should be made of the various e-banking channels to determine relative impact on the economy.

vii. The aforementioned stakeholders as well as the law enforcement agencies should work co-operatively to give life to the 'cashless banking policy'. This is because they have significant individual roles to play.

viii. Harmonization of monetary and fiscal policy. in essence, the federal government should not pursue contractionary/expansionary fiscal policy while the CBN embarks on expansionary/contractionary monetary policy.

ix. Fair competition should be allowed in order to prevent 'monopoly-like' behavior by the licensed POS manufacturers.

x. The execution of cashless policy should be carried out in stages. Alternatively, Nigeria can move first to 'cash-less' society before migrating to a pure 'cashless economy'.

xi. There must be clear-cut intention of pursuing either inflation-targeting goals or economic growth and developmental goals.

xii. To encourage Nigerians to patronize such cashless banking channels, the cost should not be too high as a larger percentage of the population experience poverty.

9.0 Conclusion

This study examined the new cashless banking policy in Nigeria with a view to ascertain the policy implications as well as to evaluate other policies of the Central Bank of Nigeria. It was motivated by a number of considerations. First, is that the financial sector has witnessed so many reforms without commensurate improvements in the standard of living of

Nigerians. Secondly, there has been disagreement on what form of money should guarantee the effectiveness of monetary policy. In order to achieve the objectives of this study, the method of simple descriptive analysis were performed.

The study also presented a review of literature on the research topic by ascertaining the strengths and criticisms of previous relevant studies. Here, most researchers took a one-sided look by examining either the benefits or the costs of cashless banking while the others did not examine comprehensively the policy implications of cashless banking. However, this was able to fill that gap.

The development of innovative cashless banking has the potential to transform economic activity and achieve developmental goals. If an effective cashless banking system can be developed and the above recommendations are carried out then it will have desired impact on the Nigerian economy. Therefore, trusted central banks and governments must play a key role in promoting the development of popular forms of e-banking channels.

This study concludes with a final observation about the central bank's role in the development of the payments system. Over the next decade, there would be progress towards a cashless or study-less society both in Nigeria and other countries. In the presence of these trends, the responsibility of central bankers is to anticipate such change and channel it in such a way to ensure the safety, efficiency and effectiveness of domestic and international banking system.

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APPENDIX

Table A: Money and Credit Statistics

		Narrow Money (M_1)	Currency Outside Banks	Demand Deposits	Broad Money (M_2)	Quasi Money	Net Foreign Assets (NFA)	Net Domestic Credit (NDC)	Credit to Government	Credit to Private Sector	Reserve Money (Base Money)	Currency in Circulation	Bank Reserves
2006	January	1,710.64	478.45	1,232.19	2,841.03	1,130.39	4,675.57	2,467.45	485.74	1,981.71	705.53	572.75	132.78
	February '06	1,673.47	480.24	1,193.23	2,877.49	1,204.02	4,607.44	2,506.76	527.68	1,979.08	720.61	561.63	158.98
	March	1,724.53	479.97	1,244.56	3,003.13	1,278.60	5,108.96	2,392.32	445.36	1,946.96	728.89	563.71	165.18
	April	1,847.72	530.27	1,317.45	3,179.83	1,332.11	4,679.49	2,587.35	506.83	2,080.53	805.51	610.13	195.38
	May	2,029.92	520.66	1,509.26	3,566.53	1,536.61	5,428.06	2,358.32	7.23	2,351.09	852.36	611.22	241.13
	June	2,078.83	514.61	1,564.22	3,733.72	1,654.89	5,568.81	2,698.31	394.61	2,303.70	797.64	602.83	194.81
	July	2,155.15	511.17	1,643.98	3,852.80	1,697.65	5,719.06	2,351.53	-33.27	2,384.80	796.13	606.86	189.27
	August	2,041.15	504.81	1,536.34	3,815.55	1,774.41	5,500.40	2,469.00	-73.81	2,542.81	838.15	609.35	228.80
	September	2,105.36	524.35	1,581.01	3,848.93	1,743.57	5,575.70	2,435.62	-136.06	2,571.68	815.95	615.14	200.81
	October	2,286.14	538.45	1,747.69	4,037.47	1,751.33	6,598.02	1,745.33	-804.94	2,550.28	771.46	629.51	141.95
	November	2,093.67	578.19	1,515.49	3,844.59	1,750.91	6,739.78	933.28	-1,644.22	2,577.50	799.98	669.52	130.46
	December	1,935.01	690.84	1,244.16	3,674.64	1,739.64	6,219.01	753.81	-1,812.02	2,565.83	974.90	779.25	195.65
2007	January	2,040.30	574.67	1,465.64	3,920.46	1,880.16	7,232.76	306.91	-2,302.01	2,608.92	827.89	705.16	122.73
	February '07	2,038.82	579.07	1,459.75	3,906.45	1,867.63	6,880.02	348.70	-2,536.81	2,885.51	801.37	704.58	96.79
	March	2,028.38	603.52	1,424.86	3,998.10	1,969.71	7,026.11	273.60	-2,730.18	3,003.78	841.25	727.41	113.84
	April	1,981.99	620.27	1,361.71	3,960.31	1,978.32	7,107.16	461.89	-2,726.20	3,188.10	896.02	766.01	130.01
	May	1,962.12	565.81	1,396.31	4,047.37	2,085.25	7,360.03	685.03	-2,729.39	3,414.41	1,031.50	742.81	288.69
	June	1,947.68	525.29	1,422.39	4,079.81	2,132.13	7,661.24	330.87	-3,116.96	3,447.83	858.30	714.96	143.35
	July	2,034.91	519.11	1,515.79	4,151.19	2,116.28	7,052.96	491.27	-3,337.98	3,829.25	923.42	714.34	209.07
	August	2,184.95	523.74	1,661.20	4,245.69	2,060.75	6,732.63	793.46	-3,178.62	3,972.08	925.55	717.70	207.84
	September	2,288.74	539.50	1,749.24	4,458.52	2,169.78	6,956.79	1,404.78	-2,752.58	4,157.36	945.49	722.31	223.18
	October	2,375.84	571.71	1,804.13	4,601.19	2,225.35	7,282.75	1,499.98	-2,863.24	4,363.22	885.55	755.64	129.90
	November	2,376.65	618.80	1,757.84	4,827.78	2,451.13	7,268.82	2,001.96	-2,638.16	4,640.12	1,089.55	790.18	299.37
	December	2,552.17	730.09	1,822.08	4,801.93	2,249.76	7,510.86	2,212.67	-2,829.63	5,042.30	1,036.67	960.21	76.46
2008	January	2,824.13	667.52	2,156.61	5,349.93	2,525.80	7,486.35	2,322.91	-2,971.16	5,294.07	1,050.30	865.94	184.37
	February '08	3,091.48	687.41	2,404.07	5,816.95	2,725.47	7,704.85	2,406.74	-3,147.32	5,554.06	1,065.91	866.68	199.24
	March	3,592.92	674.46	2,918.45	6,486.22	2,893.30	8,136.02	2,907.36	-3,053.99	5,961.35	1,164.88	891.82	273.06
	April	4,055.60	674.77	3,380.83	7,805.09	3,749.50	8,157.10	3,599.02	-2,895.19	6,494.21	1,137.54	898.90	238.64
	May	3,996.72	659.94	3,336.78	7,546.00	3,549.27	8,178.89	3,701.28	-3,062.56	6,763.84	1,211.73	916.90	294.82
	June	4,328.51	673.06	3,655.46	7,948.37	3,619.86	8,319.78	4,038.24	-2,716.45	6,754.68	1,517.77	918.28	599.49
	July	4,098.96	705.08	3,393.88	8,067.59	3,968.63	8,037.00	4,907.13	-2,433.99	7,341.12	1,279.23	936.86	342.37
	August	4,263.13	725.76	3,537.37	8,329.69	4,066.56	8,458.84	4,382.82	-3,025.84	7,408.66	1,273.82	948.26	325.55
	September	4,525.96	751.95	3,774.00	8,954.39	4,428.43	8,522.66	4,215.45	-3,242.82	7,458.27	1,247.21	976.36	270.85
	October	4,235.81	743.15	3,492.66	8,339.12	4,103.30	7,975.73	4,254.70	-3,439.07	7,693.78	1,251.93	966.14	285.79
	November	4,268.98	744.34	3,524.64	8,387.16	4,118.17	7,633.71	4,337.28	-3,635.99	7,973.27	1,284.52	988.18	296.34
	December	4,857.54	892.91	3,964.64	9,167.07	4,309.52	8,550.43	4,951.89	-3,107.66	8,059.55	1,549.33	1,155.57	393.76
2009	January	4,724.89	839.20	3,885.69	9,294.04	4,569.15	7,884.70	5,293.46	-3,215.12	8,508.58	1,486.82	1,064.62	422.21
	February '09	4,659.01	814.93	3,844.08	9,087.97	4,428.96	8,421.24	4,493.18	-3,974.80	8,467.98	1,355.39	1,024.20	331.19
	March	4,666.72	804.07	3,862.64	8,997.82	4,331.10	8,105.33	4,820.84	-3,405.61	8,226.44	1,384.04	1,037.77	346.27
	April	4,569.66	823.77	3,745.89	9,001.01	4,431.34	7,963.79	5,273.40	-3,106.51	8,379.91	1,506.02	1,048.14	457.88
	May	4,322.46	764.39	3,558.07	8,720.58	4,398.12	7,713.04	5,456.66	-3,052.67	8,509.32	1,381.36	1,026.92	354.44
	June	4,484.62	746.46	3,738.15	9,077.03	4,592.41	7,643.61	5,677.16	-2,879.78	8,556.94	1,291.49	1,006.60	284.89
	July	4,303.79	766.88	3,536.91	8,889.36	4,585.57	7,553.99	5,938.12	-3,087.95	9,026.07	1,210.81	1,008.28	202.52
	August	4,509.19	760.94	3,748.25	9,455.05	4,945.86	7,498.43	6,569.43	-3,119.17	9,688.60	1,239.51	1,019.43	220.08
	September	4,333.50	778.72	3,554.78	9,458.49	5,124.99	6,886.86	6,991.21	-2,820.16	9,811.36	1,261.97	1,031.85	230.12
	October	4,390.65	781.32	3,609.32	9,911.55	5,520.91	7,256.13	7,203.29	-2,650.32	9,853.62	1,794.95	1,020.14	774.81
	November	4,721.90	851.39	3,870.50	10,239.56	5,517.66	7,477.28	7,496.54	-2,493.44	9,989.98	1,383.51	1,108.62	274.89
	December	4,967.28	930.73	4,036.55	10,730.79	5,763.51	7,548.46	7,875.50	-2,279.94	10,155.44	1,668.53	1,185.04	483.49
2010	January	4,591.28	824.46	3,766.82	10,396.73	5,805.45	7,296.14	7,728.39	-2,289.65	10,018.04	1,653.86	1,072.13	581.73
	February '10	4,787.47	812.13	3,975.33	10,779.40	5,991.93	7,298.14	8,147.35	-1,908.87	10,056.21	1,738.74	1,049.41	689.33
	March	4,953.20	833.56	4,119.65	11,010.06	6,056.86	7,249.63	8,387.95	-1,649.47	10,037.42	1,810.89	1,086.46	724.43
	April	5,030.04	831.29	4,198.75	10,959.24	5,929.20	7,008.86	8,513.78	-1,552.19	10,065.98	1,516.55	1,072.61	443.94
	May	5,005.02	817.43	4,187.59	10,746.07	5,741.04	6,601.41	8,882.62	-1,131.10	10,013.72	1,534.79	1,056.75	478.04
	June	4,917.99	795.41	4,122.58	10,845.50	5,927.51	6,484.76	8,612.94	-1,489.88	10,102.82	1,535.11	1,063.63	471.48
	July	4,958.35	805.68	4,152.67	10,941.44	5,983.09	6,583.04	8,595.04	-1,315.67	9,910.71	1,658.88	1,076.92	581.96
	August	5,422.50	822.23	4,600.27	11,520.64	6,098.14	6,526.92	9,326.10	-787.10	10,113.20	1,752.95	1,094.71	658.24
	September	5,255.99	880.95	4,375.04	11,224.89	5,968.90	6,368.29	9,317.74	-1,018.11	10,335.85	1,344.41	1,125.48	218.93
	October	5,332.75	874.89	4,457.86	11,224.61	5,891.86	6,247.76	9,460.25	-1,074.12	10,534.37	1,438.35	1,153.17	285.18
	November	5,274.24	892.33	4,381.91	11,142.65	5,868.41	6,327.10	9,547.26	-1,201.12	10,748.38	1,450.82	1,227.64	223.18
	December	5,534.45	1,082.19	4,452.27	11,488.72	5,954.26	6,303.63	8,962.97	-740.73	9,703.70	1,803.91	1,378.02	425.89
2011	January	5,545.80	1,033.34	4,512.46	11,540.25	5,994.45	6,046.64	8,910.35	-302.78	9,213.13	1,657.84	1,340.33	317.52
	February '11	5,365.63	1,025.02	4,340.61	11,572.16	6,206.54	6,455.61	8,386.16	-774.59	9,160.75	1,784.32	1,337.17	447.14
	March	5,424.52	1,112.68	4,311.83	11,653.62	6,229.11	6,988.08	7,854.70	-1,571.84	9,426.54	1,705.92	1,416.38	289.54
	April	5,616.62	1,141.07	4,475.56	11,898.96	6,282.33	6,274.53	9,121.78	-778.25	9,900.03	1,696.24	1,492.28	203.96
	May	5,551.09	1,055.21	4,495.87	11,986.23	6,435.15	6,357.09	8,963.19	-886.06	9,849.25	1,750.91	1,401.79	349.12
	June	5,642.56	1,016.45	4,626.11	12,177.39	6,534.83	6,453.69	8,908.46	-1,064.75	9,973.21	2,065.06	1,353.98	711.07
	July	5,870.50	1,039.75	4,830.75	12,391.45	6,520.96	7,506.06	8,142.22	-1,824.85	9,967.07	2,169.38	1,343.60	825.78
	August	5,874.00	1,060.54	4,813.46	12,510.79	6,636.78	6,976.39	9,990.75	-908.74	10,899.49	1,841.96	1,379.72	462.25
	September	6,005.08	1,012.37	4,992.71	12,620.90	6,615.82	6,669.79	9,981.56	-1,144.46	11,126.02	1,908.85	1,342.97	565.88
	October	5,802.85	1,038.22	4,764.64	12,177.15	6,374.30	6,724.54	10,848.39	-1,364.71	12,213.10	2,366.21	1,359.58	1,006.62
	November	5,775.95	1,069.14	4,706.81	12,213.14	6,437.19	6,623.23	11,226.98	-1,191.65	12,418.63	2,341.93	1,390.70	951.23
	December	6,768.43	1,244.85	5,523.58	13,300.34	6,531.91	7,180.64	12,403.18	-531.16	12,934.34	2,784.28	1,565.76	1,218.52
2012	January	6,767.53	1,092.60	5,674.94	13,704.05	6,936.52	7,331.69	12,704.04	-643.91	13,347.96	2,689.32	1,475.53	1,213.79
	February '12	6,418.36	1,081.14	5,337.22	13,151.55	6,733.18	7,263.32	12,170.65	-591.90	12,762.54	2,759.91	1,438.07	1,321.84

Source: Central Bank of Nigeria Statistical Bulletin (2006-2012)

Table B: Monetary Policy Rate and Inflation Statistics

Years	Months	MPR	INFR (Headline)	INFR (Core)	INFR (Food)
2007	January '07	10	8	19.3	-0.1
	February	10	7.1	11	3.3
	March	10	5.3	8.9	1.7
	April	10	4.2	5.4	2.1
	May	10	4.6	4.6	2.4
	June	8	6.4	9.6	3.2
	July	8	4.8	9.9	1.1
	August	8	4.2	11.2	-1.2
	September	8	4.1	10.5	-0.8
	October	9	4.6	10.7	-0.1
	November	9	5.2	7.4	3.2
	December	9.5	6.6	3.6	8.2
2008	January '08	9.5	8.6	2.5	12.6
	February	9.5	8	6.4	8.7
	March	9.5	7.8	0.5	12.4
	April	10	8.2	1.2	13.1
	May	10	9.7	3.3	14.7
	June	10.25	12	3.6	18.1
	July	10.25	14	4.8	20.9
	August	10.25	12.4	3.9	18.8
	September	9.75	13	6.9	17.1
	October	9.75	14.7	7.9	19.2
	November	9.75	14.8	9.3	18.1
	December	9.75	15.1	10.4	18
2009	January '09	9.75	14	8	18.4
	February	9.75	14.6	7.2	20
	March	9.75	14.4	11.8	16.2
	April	8	13.3	10.9	15.3
	May	8	13.2	9.9	15.7
	June	8	11.2	8.5	13.1
	July	6	11.1	8.3	12.9
	August	6	11	8	12.7
	September	6	10.4	7.4	12.5
	October	6	11.6	8.9	12.5
	November	6	12.4	10.7	13.5
	December	6	12	9.7	13.6
2010	January '10	6	14.4	12.1	15.9
	February	6	15.6	14	16.2
	March	6	14.8	13.2	15.8
	April	6	15	12.8	16.3
	May	6	12.9	11.7	13
	June	6	14.1	12.7	15.1
	July	6	12	11.3	14
	August	6	13.7	12.4	15.1
	September	6.25	13.6	12.8	14.6
	October	6.25	13.4	13.2	14.1
	November	6.25	12.8	11.7	14.4
	December	6.25	11.8	10.9	12.7
2011	January '11	6.5	12.1	12.1	10.3
	February	6.5	11.1	10.6	12.2
	March	7.5	12.8	12.8	12.2
	April	7.5	11.3	12.9	11.6
	May	8	12.4	13	12.2
	June	8	10.2	11.5	9.2
	July	8.75	9.4	11.5	7.9
	August	8.75	9.3	10.9	8.7
	September	9.25	10.3	11.6	9.5
	October	12	10.5	11.5	9.7
	November	12	10.5	11.5	9.6
	December	12	10.3	10.8	11
2012	January '12	12	12.6	12.7	13.1
	February	12	11.9	13.5	12.9