

The Imperatives of E-Banking for Monetary Policy in Nigeria

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The electronic delivery of banking services is fast gaining wide acceptance in many jurisdictions including Nigeria. The importance of this channel of banking service delivery has been strengthened by advancement in information and communications technology (ICT) that has re-shaped global financial architecture. This paper examines the crucial nature of electronic banking (e-banking) to monetary policy implementation in Nigeria and advocates necessary actions for enhancing the effectiveness and efficiency of monetary policy execution for the achievement of the ultimate target of economic growth and development. It is postulated that, subject to initial conditions and establishment of risk mitigating factors, e-banking is beneficial to monetary policy execution, financial sector and economic development in Nigeria as speed and convenience endears banking culture to a greater segment of the economy while the proportion of money stock under the discretionary control of the monetary authorities is increased. Although, some seigniorage income may be lost, the Central Bank of Nigeria's contribution to the economy should be measured in terms of achievement of its mandate of price stability and efficient payments system in a stable financial environment, that engenders balanced and sustainable economic growth and development.

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I. Introduction

The successful implementation of monetary policy in any economy is dependent on the level of development of the financial sector. For this reason, monetary authorities, financial institutions and other stakeholders are usually preoccupied with product

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innovations and process re-designs in order to enhance the quality of banking services and engender the stability of the system. One of the latest innovations is the deployment of electronic banking (e-banking) facilities in many jurisdictions including Nigeria. Given its speed, convenience and cost minimization, the introduction of e-banking in Nigeria is potentially capable of enhancing the stability of the financial system as well as promote the transmission mechanism of monetary policy to the real sector, for timely achievement of macroeconomic objectives of economic growth and development. However, the deployment of electronic banking also poses challenges for monetary authorities in engendering public confidence in the financial system with implications for effective execution of monetary and other macroeconomic policies.

E-banking, which was introduced in Nigeria in the late 1980s with the Automated Teller Machines (ATMs), is still at its rudimentary stage, albeit with a promising future given the size of the Nigerian financial market and the increased desire to embrace information and communications technology (ICT) in the country. Although guidelines on the practice of e-banking were issued by the Central Bank of Nigeria (CBN) in 2003, a number of measures, including legislation, still have to be put in place in order to avoid threats to the stability of the financial system with attendant collateral damage on the nation's economy.

The objective of this paper is to examine the essence of e-banking deployment for monetary policy purposes in Nigeria with a view to advocating necessary actions required for enhancing the effectiveness and efficiency of monetary policy execution for the achievement of the ultimate target of economic growth and development. For ease of presentation, the paper is structured into five parts. Following this introduction, section II presents some conceptual issues guiding the use of e-banking in any financial system. Section III examines the practice of monetary policy in Nigeria, while section IV presents the challenges posed by e-banking to monetary policy execution and financial system stability in Nigeria, as well as remedial actions. Section V ends the paper with summary and conclusion.

II. Conceptual Issues

Business transaction or information exchange executed through electronic networks or the use of ICT is generally referred to as electronic commerce (e-commerce). Essentially, e-commerce involves the utilization of Intranet, Internet or electronic mail (e-mail), smart cards/electronic purse/digital purse, point of sales devices, ATMs, telephone banking to conduct any business transaction. E-commerce can be divided into two broad categories of e-money and e-finance. The former is simply stored value

or prepaid payment mechanism which does not require keeping balances in financial accounts with banks, while the latter refers to provision of financial services through electronic systems. E-finance is further divided into e-banking and other financial services and products such as on-line brokering, capital market operations and insurance. As an integral part of e-commerce, e-banking is the execution of banking services by financial institutions and their customers through electronic devices such as internet banking and other types of on-line banking transactions. It is a paperless system of banking that has made customers' physical presence and the use of paper redundant to a great extent, as computer and telecommunication networks are deployed through satellite in effecting financial transactions. Electronic banking service delivery owes its origin to the adaptation of advancements in ICT to traditional system of banking activities. While its development could be said to be internally-induced in industrial countries, its application in developing countries is externally-induced in order to keep pace with international best practice.

Major attractions of the system include the speed and convenience it offers consumers and bankers in effecting banking and other financial transactions round the clock. Further utility is derivable from reduction in the cost of operation on the part of banks as the need for physical location of bank branches is greatly reduced through the use of ATMs, while customers can transact banking business from any branch location (on-line banking) round the clock regardless of where an account is domiciled. It allows banks to penetrate new markets, and, thus expand their geographical reach more effectively and at substantially lower cost. For instance, as Nsouli and Schaechter (2002) stated, a typical customer transaction costing \$1.00 in a traditional "brick and mortar" bank branch or \$0.60 through telephone costs only about \$0.02 on-line. Because the Internet covers a wider radius, as it works through publicly-shared worldwide network of computers and telephone devices via satellite, it enables communications with other entities around the world. Additionally, e-banking promotes competition among banks as customers could easily compare banks' services/products as well as costs, thus, enabling them to migrate to banks where higher utility could be derived. The positive benefits of e-banking explains its widespread deployment in Singapore, the Scandinavian countries, Korea, Switzerland and the United States, where more than 75.0 per cent of all banks offer the service.

The interactive nature of internet banking enables customers to access accounts and general information on bank products/services through personal computer (PC) or other devices such as cellular phones anywhere across the globe. Once a PC is connected to a banking website, a customer can access a bank through a modem and phone line or other telecommunications devices and an Internet Service Provider (ISP).

Although the introduction of internet banking has not obliterated physical branch networking, it has led to the concept of virtual banking, which has extended banking services to a wider segment of the society at a reduced cost. Three broad categorizations of internet banking are recognized in the literature, namely: informational, communicative and transactional. The first is the dissemination of basic information about a bank's products/services usually in a standalone server for marketing purposes, while the second allows limited interactions such as e-mail, account related information or data updating between a customer and the bank's system. Lastly, the third type enables execution of financial transactions on a bank's website by customers, without leaving their location (DeYoung, 2001). The range of activities includes checking account balances, funds transfer, paying for bills to loans application. With e-banking in place, the financial architecture has been re-drawn such that the financial system is characterized by both "brick and mortar" bank branches and on-line internet banking services i. e. "brick and click". Consequently, a customer may not come into physical contact with a bank branch throughout his/her banking relationship. The final layer in the architecture is the "virtual" or internet-only banks having no physical branch network but only an administrative office or non-bank facilities like automated teller machines, a system practiced in the United States, (Nsouli & Schaechter, 2002).

Associated with e-banking is the need for the establishment of a state-of-the-art inter-bank payments and settlement system designed on the concept of Real-Time Gross Settlement (RTGS) basis to provide the backbone for advanced and sophisticated payments and settlement systems. Such a system improves efficiency in monetary management through reduction in the liquidity requirements of the funds transfer process and transfer cycle, and elimination of clerical processes of the paper-based system. At the macroeconomic level, output is enhanced as the timely use of financial resources improves productivity. On the international scene, the system also complies with best practice and facilitates timely cross-border funds transfer.

E-banking is not without side effects, especially if improperly deployed or in the absence of critical pre-conditions, or failure to observe precautionary measures. It is not only susceptible to, but could aggravate, some of the risks inherent in traditional banking such as operational, corporate governance, legal, reputational, and those associated with security and market. It poses new challenges for both operators and regulatory/supervisory authorities in the areas of market discipline, customers' right protection and public trust in the banking system with implications for cross-border capital movements and macroeconomic policy management. The system could also be threatened by system failure, cyber crimes, obsolescence and loss of audit trail as well

as money laundering. Thus, the concern for soundness and stability of the financial and banking system, efficient payments system as well as the effective and efficient execution of monetary policy remain ever present and could be heightened without adequate checks and balances in the practice of e-banking.

Furthermore, the fact that national boundaries have become less relevant has great implications for macroeconomic management. Again, monetary policy implementation could be threatened if the use of electronic devices makes it easier for banks to avoid reserve requirements or transactions could be conducted in foreign currencies as in domestic currency. Other challenges include jurisdictional authority in regulatory and supervisory issues, while the incidence of off-shore e-banking could weaken the effectiveness of monetary policy.

Notwithstanding its flip side, the proper deployment of e-banking is capable of positively influencing the effectiveness of monetary policy execution in Nigeria. Other utilities include enhanced competition, diversity of financial products and reduction in the proportion of cash outside banks in the money stock. It is also a useful tool in promoting an efficient payments system, while economic growth is capable of being enhanced through reduction in time, cost and space involved in consummating economic activities. To the extent that the deployment of e-banking affects the competitiveness of financial institutions and their balance sheet; structure of the financial system; and the monetary policy transmission mechanism, it must, of necessity, be examined by the monetary authorities with a view to ensuring an orderly development of the financial system. Before examining the intricacies of e-banking and the conditions under which it could be Pareto-optimal, the process of monetary policy execution in Nigeria is first presented.

III. Monetary Policy Implementation and the Banking System in Nigeria

Monetary policy refers to a tool of general macroeconomic management, under the control of the monetary authorities, designed to achieve government economic objectives. Monetary policy influences the level of money stock and/or interest rate, i. e. availability, value and cost of credit in consonance with the level of economic activity. Macroeconomic aggregates such as output, employment and prices are, in turn, affected by the stance of monetary policy through a number of ways including interest rate or money; credit; wealth or portfolio; and exchange rate channels (Akhtar, 1997; Pass *et al*, 1991; CBN, 1995). This is achieved through the use of monetary

instruments, albeit with due regard to the inter-relationships between money supply and the ultimate target, such as inflation, and the stability of the velocity of money. The monetary authorities apply their discretionary power of influencing the money stock and interest rate to make money either more expensive or cheaper depending on the prevailing economic conditions and policy stance, in order to achieve price stability. In general, most monetary authorities or central banks have been saddled with controlling inflation, maintaining a healthy balance of payments position to safeguard the external value of the domestic currency and promoting economic growth.

In Nigeria, the major objectives of monetary policy have continued to be situated within the overall economic objective of welfare improvement of the citizenry, as stated in the CBN Act 24 of 1991 (as amended) and enunciated in the annual monetary policy circular and other guidelines issued by the CBN from time to time. In this context, monetary policy articulation and execution focus on the attainment of internal and external balance for the achievement of the ultimate objectives of low inflation and sustainable real growth of the economy, employment generation, poverty reduction and favourable balance of payments position (CBN, 1998). Specifically, monetary policy, in recent years, seeks to maintain price and exchange rate stability through effective liquidity management, by maintaining the desired monetary aggregates (a money stock target and/or desired interest rate) that is compatible with the absorptive capacity of the economy. In recognition of the fact that monetary policy impacts on the ultimate objectives with a substantial lag, the CBN, since 2002, adopted a two-year medium-term framework for the conduct of monetary policy. The policy shift was designed to free monetary policy from the problems of time inconsistency and over-reaction arising from temporary shocks.

An integral part of the goals of monetary policy, in a developing economy like Nigeria, is the development of the financial sector given its rudimentary nature. In this regard, the monetary authorities' avowed objective is to ensure banking soundness and financial sector stability with a view to improving the efficiency of the payments system and effective transmission of monetary policy to the real sector (CBN, 2004). Other objectives include ensuring effective enforcement of market rules to enthrone the right market expectation. This is in recognition of the fact that the maintenance of financial sector stability and rational expectation are complementary to the achievement of monetary and price stability, which are vital prerequisites for economic agents' confidence upon which investment and growth are built. In Nigeria, the sector's stability is being addressed through the adoption of reform programmes, including deregulation of the financial system and movement from direct control to

market-based technique of monetary policy in 1993; universal banking scheme; and consolidation of the banking industry, among others.

The operations of the deposit money banks (DMBs) is guided by the monetary policy objectives which, in Nigeria, are essentially the stimulation of non-inflationary growth and employment; and the achievement of internal and external balance through the use of different techniques/monetary instruments subject to the prevailing economic conditions. In order to achieve these goals in a stable financial environment, the CBN has, over the years, evolved policies to enhance the soundness of the Nigerian financial system. The monetary policy environment under which the DMBs operate can be classified into two distinct periods, viz: direct control (1960-1986) and market-based instrument approach (from 1986 to date). The underdeveloped nature of the financial system encouraged the former approach, which utilized policy instruments including credit ceilings, selective credit controls, administered interest and exchange rates as well as prescription of cash reserve requirements and special deposits.

As the banking system and the economy developed, and the need for a general economic reform arose, the Structural Adjustment Programme (SAP) of 1986 ushered in the use of market-based method of monetary management to influence the availability and cost of credit as in developed financial markets. The driving force for the paradigm shift has been the desire to achieve enhanced efficiency in the mobilization and utilization of resources, as well as develop an efficient framework for monetary management. Consequently, all restrictions in banking business practice were removed while appropriate legal and regulatory measures were put in place to enable the use of open market operations (OMO) as the main policy instrument, complemented with reserve requirements and discount policy.

The use of OMO and reserve requirements as monetary policy instruments under a fractional reserve system, squarely address the reaction function of the three principal agents, namely, monetary authorities (CBN), the DMBs and the non-bank public, involved in the Nigerian financial system. The behaviour of these economic units can be gleaned by examining the traditional money supply equation as follows

$$M2 = C + D \dots\dots\dots(1)$$

$$BM = C + R \dots\dots\dots(2)$$

M2 is the money supply broadly defined, being the sum of currency outside the banking system (C) and banking system's total deposit liability (D). BM on the other hand is base money comprising the sum of currency outside banks and reserves (R) of the DMBs. Dividing equations (1) and (2) by D and representing C/D and R/D by c and r,

respectively, we have

$$M2/D = 1 + c \dots\dots\dots (3)$$

$$BM/D = c + r \dots\dots\dots (4)$$

Where c is the currency/deposit ratio and r is the reserves/deposit ratio. Under a steady state assumption, money supply is related to the base money, hence dividing equation (3) by equation (4) gives us the money multiplier (m);

$$M2/BM = m = (1 + c)/(c + r); \quad 0 < r, c < 1 \dots\dots\dots (5)$$

Expressing money supply as a function of money multiplier and base money, we have

$$M2 = mBM = \{(1 + c)/(c + r)\}BM \dots\dots\dots (6)$$

As can be seen from equation (6), money supply ($M2$) is a function of the currency/deposit ratio c indicating the non-bank public asset behaviour; reserves/deposit ratio, r , - showing the behaviour of the banking sector; and base money, BM , (made up of bank reserves and currency), supplied by the central bank. The positive influence of e-banking on monetary policy transmission mechanism lies in its ability to discourage the desire of the non-bank public to want to hold cash. As this becomes common place, the practice of e-banking reduces the currency holding appetite of the non-bank public and correspondingly increases the deposit liability of the banking system and by extension the reserves component without endangering the financial system. Consequently, the monetary authorities' power of discretionary control of the money stock to suit policy stance is enhanced in the conduct of monetary policy under the market-based system of monetary management.

In an electronic banking environment, the design and execution of monetary policy is of necessity dependent on banking system ICT network, OMO, discount window, and interest rate policy among others. Greater reliance must be placed on state-of-the-art ICT for the monetary authorities to track the deposit liabilities of the DMBs on real time on line basis for successful liquidity management especially where price stability is the sole/main focus. The money market must be made vibrant through a myriad of instruments at market-determined interest rates to ensure the effectiveness of OMO. Above all, there must be policy harmony and coordination between fiscal and monetary authorities, while government deficit must be financed by sources other than the central bank.

Deposit money banks constitute a veritable channel of monetary policy transmission to the rest of the economy. The increasing sophistication of consumers, the wide branch network of banks and developments in ICT led to the introduction of e-banking in Nigeria. Thus, of the 89 licensed banks in Nigeria, about 40 have embraced limited Internet and e-banking as at 2002, (CBN, 2002). The services offered range from ATMs by seven banks to telephone banking by 24 banks, while only 27 operators had security policy in place as shown in Table 1 below.

Table 1: Number of Banks Engaged in E-Banking in Nigeria in 2002

Facility	Internet Facility	Transac-Tional	Information Only	Information Transfer	Telephone Banking	ATM	Security Policy In place	Others
Banks	39	22	14	11	24	7	27	13

Source: Central Bank of Nigeria

Activity level as indicated by number of facilities and value of transaction grew between 2000 and 2004. For instance, both number of point of sales (POS) machines and value of transactions rose steadily from 1,601 units and N0.962 billion in 2000 to 5,806 and N61.280 billion, respectively, by 2004 (Table 2). The growing influence of e-banking in the Nigerian economy can be gleaned from the fact that transaction through this medium, which was 0.2 and 0.1 per cent of M1 and M2 in 2000 rose to 4.6 and 2.7, respectively, in 2004. The picture becomes striking when e-transaction is related to DMBs' deposit liabilities. As a ratio of demand deposit, e-transaction grew from a modest level of 0.3 per cent in 2000 to 8.41 per cent in 2004. In view of this, it is imperative for the monetary authorities to keep track of e-banking operations in Nigeria in order to combat potential abuse capable of undermining the stability of the financial system.

Table 2: Growth of E-Payments in Nigeria

Year/E-Payment Facility & Value	2000	2001	2002	2003	2004
Point of Sales (POS) Machine/Location	1,601	2,964	4,416	5,095	5,806
Value of E-Transactions (₦'bill.)	0.962	4.964	21.113	49.621	61.280
No of cards Issued	74,891	149,521	252,215	290,474	621,551
No. of ATMs	3	43	68	101	183
E-Transaction as % of DMBs' Demand Deposit	0.26	1.11	4.19	8.59	8.41
E-Transaction as % of DMBs' Deposits	0.13	0.52	1.82	3.71	3.69
E-Transaction as % of M1	0.15	0.61	2.23	4.05	4.61
E-Transaction as % of M2	0.09	0.38	1.32	2.50	2.71

Source: Central Bank of Nigeria

The traditional system of banking in Nigeria is adequately governed by statutes duly enacted and copious regulations issued from time to time by the monetary authorities. However, the same cannot be said of e-banking, as existing legislations, regulations and codes of professional ethics which governed paper-based transactions were relied upon in spite of the higher risk exposures inherent in the latter. It was not until August 2003 that the first set of guidelines was issued by the CBN to take account of the peculiar features of e-banking. The guidelines cover technology and security standards, legal, monetary policy, regulatory and supervisory issues.

For optimum efficiency of monetary policy, it has to be executed in an atmosphere of financial stability in order to minimize macroeconomic losses, which is a cardinal policy objective. By financial stability is meant the expected macroeconomic losses that arise from financial system disturbances, covering the probability of financial disturbances occurrence and the magnitude of macroeconomic costs of such disturbances when they crystallize, (Kent and DeBelle, 1999). Given the links between the real sector and the financial sector of the economy, monetary authorities need to take cognizance of the potential for financial system stability, which is important for the conduct of monetary policy. Consequently, one of the major tasks of the monetary authorities is to help ensure that shocks to any part of the financial system do not ultimately threaten the health of the system and the economy. Thus, the effect of any mode of banking transaction and/or the introduction of products/services on the system must be clearly evaluated to ensure a healthy financial system.

The introduction of e-banking could have salutary effect on monetary policy execution by reducing the non-bank public preference for cash. It is also a useful tool in advancing integration of the domestic financial system with the international financial architecture. Equally important is the need to have a robust payments system that satisfies the needs of economic agents, especially in the areas of time critical transactions that affect productivity and overall economic activity. The use of e-banking, if properly deployed, could enhance public confidence in both the payments and financial systems such that monetary policy would be transmitted in an unfettered manner. The consolidation programme of the banking industry presents another opportunity to increase the tempo of e-banking in the country. With increased capital base, banks would be under pressure to post commensurate returns on investment, which could easily be achieved through migration into e-banking. It is in the light of this that the challenges of electronic banking in the Nigerian financial system are examined in the succeeding section.

IV. Challenges of E-Banking for Monetary Policy in Nigeria

The application of ICT in the Nigerian banking industry has resulted in improved business performance with positive impact on the domestic economy. However, in spite of the enormous benefits of electronic banking in promoting economic activity and its ability to promote monetary policy implementation by reducing the size of cash outside banks in the money stock, it presents great challenges to both operators and regulatory/supervisory authorities. Many of these problems arise from its advantages that endear it to the banking public and the technology employed in

service delivery. Some of these include regulatory, surveillance, seigniorage, operational, system integrity and legal risks. Others, especially in developing countries like Nigeria, include obsolescence and inadequate ICT infrastructure; energy; rudimentary nature of the payments system, information and data security. These factors are discussed in greater details in what follows in this section.

IV.1 Operational Risk

Computers by aiding information acquisition and processing, assist banks in providing customer-focused products/services, building better long-term relationships with customers, increasing revenue streams and achieving profitability growth in a competitive environment. However, reliance on ICT to provide services could be problematic if systems are neither reliable nor available on a daily basis. Given Nigeria's status as a developing country, where the required technologies and equipment are imported, issues to contend with border on use of state-of-the-art technologies as well as regularity of energy to power the technology, which are in short supply. Breakdown in service delivery could erode public confidence in the banking system especially where time critical transactions are involved. Thus, reliability test on both software and hardware should be constantly carried out, while systems are upgraded to keep pace with developments in ICT. Most importantly, activities of hackers and crackers must be nipped in the bud to avoid damage, by installing appropriate "firewalls" that guarantee access by only authorized users. Again, IT governance should be incorporated as an extension of banks' corporate governance with full involvement of board and management.

IV.2 Information and Data Security

The fact that banking business is based on trust and confidentiality places a fiduciary burden on the banker towards his/her customers. Security threat to financial information and customers' net worth, which could originate from within and outside the system is ever present and heightened in e-banking. This calls for regulators, supervisors and operators putting in place standard practice to guarantee data and information confidentiality. It requires round-the-clock surveillance of the system's security including experts' review of network vulnerability and recovery procedures especially in a developing country like Nigeria. Also, effective consumer education would go a long way in guarding against abuses/negligence on the part of customers.

IV.3 Inadequate ICT Infrastructure and Energy

The efficient functioning of e-banking rests squarely on the adequacy of the ICT infrastructure in terms of quality and volume; and energy that ensure smooth operation. This cannot be said to be the case in Nigeria due to system failures and incessant power outages with loss implications for operators. When electronic banking transactions are significant in a sub-optimal ICT environment, the payments and financial systems could be adversely affected with serious implications for economic activity. In order to ensure a hitch-free operation of e-banking in the country, there is need to have national or shared switches and networks as opposed to standalone switches by individual operators to ensure a cost-effective service delivery. All ICT regulatory agencies including the National Broadcasting Commission (NBC), Nigerian Communications Commission (NCC) and Nigerian Information Technology Development with responsibility for broadcasting, telecommunication and computing, respectively, should collectively fashion out an effective national ICT development strategy. The unbundling of the National Electric Power Authority (NEPA) and subsequent privatization to enhance its efficiency in the supply of electricity will also go a long way in ensuring reliability of electric energy that is a pre-condition for ICT operations.

IV.4 System Integrity/Reputational Risk

Security breaches and disruptions to the efficient functioning of e-banking can damage not only a bank's reputation but also the entire banking system. The more electronic channel is utilized in banking service delivery system-wide, the higher the potential risk of loss of confidence in incidences of service disruptions. At the micro-level, the reputation of a bank is at risk if an electronic bank encounters problems that make its customers loose confidence in the electronic mode of service delivery. This requires that regulators/supervisors must ensure that standards on application and system software, protocols as well as delivery channels are complied with by e-banking operators. If one or a group of electronic banks encounter problems that frustrate the banking public in using electronic delivery mechanism, this could precipitate a systemic run and exacerbate banking distress in Nigeria. System integrity and reputational risk may also arise from ignorance or misuse of security precautions on the part of customers, which calls for customer education.

IV.5 Rudimentary Nature of Payments System

The payments system, being the channel through which liquidity and credit are transferred from one participant to another in the financial system, is expected to minimize liquidity, systemic, credit and operational risks. An efficient payments system, therefore, underlies the optimal utilization of resources, enhances implementation of monetary policy and the maintenance of monetary stability, especially when OMO is a tool of monetary policy, as in Nigeria. The Nigerian payments system is, however, dominated by transactions in cash as against electronic and other non-cash instruments. For instance, the component of cash outside the banking system as a proportion of currency in circulation was 82.0 per cent in June 2004. This situation arose due to delay in clearing time, infrastructural deficiency, sharp practices, financial sector distress and dearth of quality personnel, all of which made preference for cash a natural pastime. The application of e-banking is a mechanism of improving the payments system, if properly utilized, as it reduces the transaction cycle. The sluggish movement away from cash-based transaction is capable of hampering the efficient functioning of the e-banking and payments system unless the poor banking culture is reversed. This calls for application of all rules guiding banking practice including the dud cheque law. The establishment of new clearing and settlement system involving the private sector in payments processing is a welcome development, however, the need to move away from net settlement (retail or small value) to real time gross settlement (wholesale or large value) system cannot be over-emphasized, if e-banking and the payments system are to achieve the desired results.

IV.6 Regulatory Risk

The ability of banks to provide electronic services through the internet from any part of the globe to their customers makes it possible for a bank to avoid regulation and supervision from a jurisdiction where it takes deposit if it so desires. Another problem is loss of audit trail of transactions through a system. Even though both the CBN and Basel Committee on Banking Supervision emphasized the need to provide adequate logs for all e-banking transactions, many procedures are not amenable to the creation of documents. Monetary authorities are also faced with the problem of determining at what point a bank's electronic services require being licensed in their jurisdiction. To remedy the situation, there is need for licensing of such virtual banks especially where deposit is effected through automated teller machines, as is the case in the European Union and the United States. At the domestic level, there is the need to build appropriate regulatory/supervisory capacity for e-banking in Nigeria. By the nature of

their duty, regulators/supervisors ought, not only, to be abreast but ahead of operators in the use of ICT resources to ensure meaningful supervision and examination of banks offering electronic services, without creating impediments to such operations. To enhance their supervisory efficiency, therefore, requires capacity building in computer education and e-banking procedures.

IV.7 Legal Risk

As banks expand their customer outreach through e-banking, geographical space is covered rapidly including collapse of national frontiers calling into question the issue of jurisdiction laws and regulations in foreign countries, in which a bank may not be well versed. Consequently, customer protection laws might be violated inadvertently, which may culminate in losses through legal actions, especially where sophisticated customers in jurisdictions with strong legal system are involved. Another major challenge of e-banking is that of money laundering, terrorism financing and cross-border crimes, which could be heightened owing to the anonymity the system provides. While it is easier to observe the principle of “know your customer (KYC)” under the traditional banking system, it is extremely difficult in electronic banking. For instance, once a customer opens his/her account, it is difficult to know the legality or the location of the transactions of the account holder in an e-banking environment. Although the CBN Guidelines on e-banking specify that e-banking account should be opened only after proper introduction and physical verification of the customers' identity, what happens after an account is opened may be impossible to monitor. One way of curbing money laundering, terrorism financing and related vices lies in international cooperation on regulatory and supervisory issues arising from cross-border e-banking. However, the absence of codified laws guiding the practice of e-banking in Nigeria leaves much to be desired. The enactment of appropriate laws and amendments to the CBN and BOFI Acts and the laws establishing other financial sector regulatory authorities such as NDIC, SEC, NSE and NAICOM must be treated with utmost urgency, to provide the required legal basis for a wholesome e-banking practice.

IV.8 Monetary Policy Issues

The efficacy of monetary policy in ensuring monetary stability rests partly on the assumption of stable velocity of money as well as the reaction functions of the central bank, the clearing banks and the non-bank public, under the Classical quantity theory of money. The advent of e-banking has changed the financial landscape and increased

the potential for cross-border capital movements as well as capital flight. The implication is that the practice of electronic banking could lead to variability of the velocity of money, in the short- to medium-term, owing to internet banking, especially where virtual banks operate within a local economy. Internet banking across jurisdictions makes the reaction functions of the DMBs and the banking public less predictable and thus may negate the achievement of price stability as a policy objective of monetary policy in the domestic economy. Monetary authorities could also face difficulties in liquidity management as e-banking makes it possible for banks to avoid reserve requirements or when business could be conducted easily in foreign currency as in domestic currency. At the domestic level, there is need for a well articulated procedure for the deployment of e-banking in Nigeria in addition to enacting appropriate statutes. Also important is the fact that the monetary authorities must be IT-driven in their operations and electronically networked with operators to ascertain their deposit liability profile on current basis for monetary policy to be effectual. In the same vein, accommodating monetary policy should be avoided or at worst reduced to statutory limits based on economic fundamentals. Internationally, the need for cooperation among regulatory/supervisory authorities in order to avoid regulatory arbitrage cannot be over-emphasized. In the light of this, the cooperation among the ECOWAS Central Banks and Association of African Central Banks should be strengthened alongside regulatory/supervisory functions and extended to Nigeria's trading partners, to obviate some of the monetary policy issues arising from cross-border e-banking activities.

IV.9 Bank Consolidation Programme and E-Banking

The banking industry consolidation and strengthening programmes (of raising banking institutions' capital base and withdrawal of public sector funds from DMBs) that commenced in July 2004 provide enormous challenge to DMBs to foray into novel electronic-based products and international market through e-banking and cross-border activities in order to post commensurate returns on capital employed. Apart from forcing the banks to the real sector for businesses, the initiative could make them become multinationals. This implies a challenge for the Nigerian regulatory/supervisory authorities in the areas of surveillance, policy and related macroeconomic issues. In this regard, supervisory capacity building and the cooperation of regulators/supervisors in other jurisdictions cannot be over-emphasized.

IV.10 Surveillance Issues

The juxtaposition of central bank's macro and micro functions, culminating in supervisory function for the purpose of creating a stable financial environment has invariably and ultimately resulted in the provision of lender-of-last-resort facilities. Under the traditional banking system, surveillance is performed through on- and off-site supervision which often takes place long after breaches have been committed owing to long delays in rendition of returns by financial institutions. The deployment of e-banking facilities require the monetary authorities not only to embrace ICT but also to install a wide area network for its own operations and with all the financial institutions under their purview to be in a position to regulate the money creating ability of DMBs as well as nip malpractice in the bud. The task for the CBN in this regard is early completion of its ICT programme at the head office and across branches. It is also very important for the Bank to be networked with all DMBs in order to track operators' net position in the areas of deposit and all current liabilities on current basis so as to be able to enforce liquidity and reserve requirements as well as enhance the effectiveness of OMO. It is essential that not only both operators and the CBN have periodically updated back-up facilities, but the monetary authorities must have back-up facility remotely located in order to mitigate acts of arson, terrorism and similar activities directed against the monetary authorities or the financial system.

IV.11 Seigniorage and CBN Budgetary Issues

As in other jurisdictions, the currency issuance function of the CBN confers on it as well as the government a percentage of minted bullion, the size of which is dependent on the shelf-life of the currency, non-bank public handling of coins and bank notes as well as currency management process of the monetary authorities. The government also reaps benefits especially where deficits are financed through the central bank. Under normal condition and in the traditional banking system in particular, seigniorage contributes immensely to the budgetary revenue and operating surplus of the central bank. The government would continue to enjoy seigniorage as long as deficit is financed by the central bank, rather than through non-bank public. Although, migration to a paperless environment occasioned by e-banking is beneficial to monetary management, the CBN's revenue and operating surplus may be adversely affected as velocity is increased necessitating less physical cash requirement for business transactions. Income from claims on government could also dry up given fiscal discipline especially where deficit is financed by the non-bank public. The revenue issue would be addressed through budgetary prudence, slim and compact

work force. It is equally expected that the CBN would become more efficient in its operations after the re-engineering and re-structuring process. Additionally, operational costs could be reduced through ICT deployment especially in surveillance activities. The long-run cost advantage of a banking system ICT network stems from requisition of less foot soldiers as well as infrequent on-site supervisory activity especially under a risk-based supervision system. The CBN's revenue profile could be buoyed through aggressive investment in foreign assets as well as diversification of the foreign reserve base of the economy in stable hard currencies. More importantly, the success of the CBN should not be measured only in terms of micro objective of operating surplus maximization. Rather, it should be seen in the wider objectives of achieving its core functions of price stability and a payments system that is second to none, in a stable financial environment that engenders balanced and sustainable economic growth and development. As long as the CBN's implementation of monetary policy ensures that macroeconomic goals are Pareto-optimal, the political-economic objective of welfare improvement would have been achieved.

V. Summary and Conclusion

In this paper, the importance of electronic banking to monetary policy execution in Nigeria was examined. In particular, it was noted that much as the evolution of electronic banking is potentially beneficial to economic units and the economy in general owing to convenience and cost minimization, it could aggravate traditional banking risks as well as threaten financial system stability due to its vulnerability to abuses and audit trail difficulty. Other areas of concern include system's reliability, data integrity and infrastructural inadequacy. Although its embrace could facilitate surveillance activity if the CBN is ICT-driven, it is also capable of trimming the CBN's seigniorage income and, hence, operating surplus. The ease with which capital can be transferred between banks and across borders in an electronic banking environment also heightens financial sector's sensitivity to macroeconomic policy management.

It was, therefore, advocated that Nigeria's embrace of e-banking calls for appropriate legislation; continuous vigilance; adaptation of appropriate regulatory and surveillance activities; and education of all stakeholders to curtail its side effects. While the central focus of the monetary authorities in e-banking development in Nigeria should be the promotion of safe and sound banking system without creating undue regulatory impediments to a bank's use of electronic delivery channels to meet customers' needs, operators must accept responsibility for putting in place appropriate risk management processes, as well as provide adequate public disclosures. The monetary authorities must be ICT-driven with a system-wide network

for effective surveillance. Moreover, there is the need for greater harmonization and coordination of regulatory and supervisory efforts across jurisdictions. In conclusion, the success of the CBN should be evaluated in the achievement of its mandate of price stability, efficient payment system and stable financial environment rather than in terms of posting operating surplus.

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