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## THE ROLE OF PAYMENTS SYSTEM IN LIQUIDITY MANAGEMENT: CENTRAL BANK PERSPECTIVE

By

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### 1.0 INTRODUCTION

A stable financial system is a prerequisite for growth and development. Some of the major criteria for a stable financial system are the existence of efficient financial markets and financial instruments as well as efficient payments and settlement system. A well functioning payments system is of primary importance, especially in the implementation of monetary policy, particularly, in liquidity management.

Typically, banks are better equipped to play the role of payment intermediaries, because they hold the accounts of those who engage in economic activities, and also provide the liquidity for the entire economy. In most

developing economies, efforts are geared towards improving the payments system in order to expedite the processing of payments, reduce the risk and uncertainty associated with non-cash payments, facilitate the adoption of indirect instruments of monetary policy, and deepen financial markets.

In Nigeria, the Central Bank of Nigeria (CBN), has taken giant steps to ensure the smooth running of the payments system. Some of the actions taken include the establishment of clearing houses across the country and sponsoring of legislations aimed at ensuring the soundness and stability of the banking system. The legislations include the promulgation of Dishonored Cheques Offences

Act and Failed Banks Financial Malpractices in Banks Act. In order to reduce the settlement cycle, the CBN introduced the Magnetic Ink Character Recognition (MICR) processing, fully automated the cheque clearing system for the Lagos Clearing Zone and most recently, introduced a new clearing and settlement arrangement that segregated banks into "settlement and non-settlement banks". The introduction of the wide area network in the banking system has also reduced the cycle-time for intra-bank settlement.

In this paper, attempt would be made to examine the role of the payments system in liquidity management. The paper is divided into six sections. Following this

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introduction is section two which deals with the conceptual issues, including the link between payments system and liquidity management. An overview of the Nigerian payments system including the efforts at improving the payments system in Nigeria by the CBN will be examined in section three, while the challenges of improving the payments system in Nigeria for effective liquidity management is considered in section four. The need to reposition the Nigerian payments system for effective and efficient liquidity management is the subject of discussion in section five, while section six concludes the paper.

## **2.0 Conceptual Issues in Payments System and Liquidity Management**

Conceptually, the term payments system refers to the institutions, instruments, operating procedures, information and communications systems employed to initiate and transmit payment infor-

mation from payer to payee, involving the transfer of money and other near-money claims. Thus, a payment system is essential for the transfer of financial assets including securities and foreign currency between banks, enterprises, households and governments. The mechanism is based on a platform of uniform set of rules and procedures and comprises three elements. The first is the technical infrastructure, i.e. the communication systems and hardware and software components required by the system operator and participants to exchange data and settle transactions. The Second is a system of accounts where the financial assets to be transferred are held and to which they can be transferred. In practice, these are account-based claims on the central bank or another financial intermediary who acts as a settlement agent. The third element comprises the rules used to exchange information and transfer funds from one account to another. Clear rules enable users to

assess the risks involved in the system. Detailed information on the procedures used to settle payments also enhances the standardization and automation of the system. The design of these systems critically affects the efficiency with which monetary policy is conducted, the soundness of financial institutions, and the functioning of the economy as a whole.

The exchange of payment-related information between system participants and any regulations under which payments are settled on a bilateral or multilateral basis is known as clearing. By contrast, settlement implies the actual discharge of an obligation, i.e. by debiting the specific amount from the payer's account and crediting same to the payee's account, while the infrastructure which facilitates the clearing and settlement of financial instruments can be referred to as the payments system. The payments system must be guided by a set of well defined rules. It could be automated or otherwise. But

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other instruments. Currency or cash includes bank notes and coins, and are highly prone to risks of loss, robbery, accident etc. In addition, it is bulky to transfer, especially if in coins or lower denominations. Paper-based instruments are cheques, bank drafts, and travellers' cheque. In the developed countries, the use of paper-based instruments is wide spread, while in the developing countries like Nigeria, the use of paper-based instruments is minimal. Also, there is relative low confidence in the banking system in the developing countries and the use of paper based instruments is limited, because of the low level of trust and acceptability of the instruments in the settlement of business transactions; arising from the high frequency of dud instruments. The paper-less or electronic instruments are computer-based technology payment instruments like the automated teller machines (ATMs), automated clearing houses (ACHs), point-of-sale-

terminals (POSTs), internet payments and wire transfers. The wide use of these instruments in Nigeria is constrained by high cost of installation and continuous dependence on the Nigerian Telecommunications Limited (NITEL) for connectivity. Other instruments include: postal orders, money orders, vouchers and prepaid cards. In recent times, a wide range of other instruments have evolved following the worldwide financial liberalization and deregulation, which are also driven by the users' changing needs and technologies as well as competition among banks. For example, mobile telephones are widely used in the advanced economies for e-banking, e-commerce, and e-payments.

There are also a plethora of channels through which settlements are achieved. These include the use of domestic Real Time Gross Settlement (RTGS) system, Deferred Net Settlement (DNS) system, correspondent bank, and Delivery Versus Payment (DVP) system. In Nigeria, banking

system liquidity management by the CBN exploits some of these channels. Specifically, liquidity inflows and outflows in the banking system are effected through the RTGS and DNS systems. These are undertaken through the utilization of Mandates, Open Market Operations (OMO), Repurchase Agreement (REPO) and reverse REPO transactions.

### **2.3 The Link between Payments System and Liquidity Management**

Liquidity management involves controlling the level of money supply in the economy in order to maintain monetary stability. The source and size of liquidity would dictate the type of securities the central bank would employ. In Nigeria, like most developing economies, the major source of liquidity injection into the economy is the government's budgetary operations; and the claims of the banking system on the economy he

it must be risk-free, efficient, effective and secured, for it to enhance monetary policy implementation and commerce.

### 2.1 The Core Principles of Payments System

The core Principles of the payments system as issued by the Committee on Payment and Settlement Systems (CPSS) of the Bank for International Settlements in January 2001 are summarized as follows:

- ✍ The system should have a well-founded legal basis under all relevant jurisdictions.
- ✍ The system's rules and procedures should enable participants have a clear understanding of the system's impact on each of the financial risks they incur through their participation in it.
- ✍ The system should have clearly defined procedures for the management of credit risks and liquidity risks, which specify the respective

responsibilities of the system operator and the participants and which provide appropriate incentives to manage and contain those risks.

- ✍ The system should provide prompt final settlement on the day of value, preferably during the day and at a minimum at the end of the day.
- ✍ A system in which multilateral netting takes place should, at a minimum, be capable of ensuring the timely completion of daily settlement in the event of an inability to settle by the participant with the largest single settlement obligation.
- ✍ Assets used for settlement should preferably be a claim on the central bank; where other assets are used, they should carry little or no credit risk and little or no liquidity risk.
- ✍ The system should ensure a high degree of

security and operational reliability and should have contingency arrangements for timely completion of daily processing.

- ✍ The system should provide a means of making payments which is practical for its users and efficient for the community.
- ✍ The system should have objective and publicly disclosed criteria for participation, which permit fair and open access.
- ✍ The system's governance arrangements should be effective, accountable and transparent.

### 2.2 Payments System Instruments and Channels

Payments system instruments can be categorized into four; namely, currency or cash, paper-based instruments, paperless or electronic instruments and

- ✎ delivery of daily commitment and forecasts,
- ✎ monitoring of counterparties,
- ✎ liquidity provisioning,
- ✎ funding of liquidity shortfall.

Anecdotal evidence has shown that in developing economies, the payments system is essentially rudimentary and dominated by cash. This is largely due to the limited confidence in other modes of payments, dearth of payments modes that are effective, efficient and reliable; and a feeble infrastructural architecture, particularly power and information and communication technologies (ICT). This has generally constrained timely clearing and settlement cycles as well as effective financial intermediation and its complementary propagating transmission required in efficient monetary policy implementation. In contrast, the developed and

emerging market economies had metamorphosed from an end-of-day process to a real time gross settlement system which has facilitated intra-day process. This transition has occasioned better measurement of payment flows; contemporaneous assessment of build-up on imbalance within the system; and the application of queuing techniques to regulate payment flows for better communications, among others. As a consequence, there is clearer focus on the management of liquidity of banks, particularly, the effective allocation of liquidity, coordination of different pools of liquidity sources, streamlining of liquidity utilization along targeted lines, and the putting in place of a clear strategy on banks approach to the choice of payments system channel and the ability to quantify and checkmate liquidity trends.

### 3.0 An Overview of the Nigerian Payments System

Nigeria's payments system is dominated by cash transactions. For instance, the component of currency outside the banking system as a proportion of total money stock (M2) broadly defined, averaged 23.0 per cent in 1980-90, but increased to 29.3 per cent in 1991-2000. This ratio is indeed relatively high when compared with newly industrialized economies such as Malaysia and Thailand with a ratio of less than 10 per cent. However, the deregulation of the financial sector from the mid-1980s brought competition and other electronic payments instruments in Nigeria. Specifically, the entry of new generation banks into the industry encouraged the promotion of efficient services as well as the introduction of automated systems in Nigeria. The period heralded the installation of computer network in the 1990s and the use of electronic banking

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### 3.1 CBN's Efforts at improving the payments system in Nigeria

A number of programmes, facilities, legal provisions, rules and regulations have been put in place to enhance an efficient and reliable payments arrangement in Nigeria.

In order to ensure a viable payments system, the CBN Act, 1958 (section 29, subsection 1) provides that “the Bank may: provide the establishment of bank clearing systems and give facilities for the conduct of clearing business in premises belonging to the Bank”. Also, section 42 of the Acts states that “the CBN shall assume the duty of Bank to facilitate the clearing of cheques and other credit instruments for banks carrying on business in Nigeria. For this purpose the Bank shall, at any appropriate time and in conjunction with other banks, organize a clearing house in Lagos and in such other place or places as may be desirable in premises provided by the Bank”. It

was against this background that in May 1961, the CBN established the first clearing house as part of the Bankers' Clearing System. Thereafter, clearing houses were opened in some central bank branches. The Bankers' Clearing System has also expanded to cover all deposit money banks, while expenses incurred in providing clearing facilities are borne by the Central Bank of Nigeria. The CBN provides the facilities and establishes rules, regulations and procedures for the orderly conduct of clearing business.

Furthermore, to enhance the speed and efficiency of the clearing system, the Nigerian Inter-bank Settlement System (NIBSS) was incorporated (by the Bankers' Committee) in March 1993 with an authorized share capital of N10 million, fully subscribed by the deposit money banks. The NIBSS, has over the years been complementing the Central Bank's clearing and settlement systems in minimizing bottlenecks and settlement

of high inter-bank transfers and payments.

Over the years, the Central Bank of Nigeria had monitored the developments in the financial system and in collaboration with the Banker's Committee, made proposals and/or introduced measures to improve the Nigerian payments system. Most recently, the CBN introduced a new cheque clearing and settlement arrangement which is based on selected principal banks. The principal settlement banks were selected on the basis of set objective criteria e.g. the volume and value of clearing transactions which must exceed a prescribed threshold, ability to deposit N15 billion as collateral etc. Under the new arrangement, non-settlement banks are required to clear their cheques through the settlement banks. With this arrangement, settlement and clearing risks have reduced significantly, and the CBN has ceased to be the lender of “first resort”. The new clearing arrangement together with the



(lending to the public and private sectors). Typically, liquidity is reflected in the size of the banking system reserves. The bigger the reserves, the greater the ability of the banking system to advance more credit and “create money“.

Generally, the management of excess liquidity puts central banks on the defensive, as they are compelled to find efficient ways and means to mop-up large excess liquidity, for which there might not be enough instruments. To be sure, Central banks that have greater options for managing excess liquidity would be in a better position to design the appropriate mix of intervention instruments. Most often, Central banks that have achieved relative success in the application of indirect monetary tools manage shortages and not excess liquidity. The main advantage derivable from managing liquidity shortage is that banks in most cases begin each day with shortages, which compel them to seek for facilities

from the central bank thereby, affording the central bank the opportunity to use the instruments of monetary policy effectively. Conversely, the management of excess liquidity is costly, time consuming and problematic.

Efficient payments system provides the basis for the Central Bank's liquidity forecasting and management process, the features of which affect the demand and supply of bank reserves, credit delivery and support for economic growth. It requires a clear and conscious strategy on the approach and the ability to measure and control excess liquidity. Specifically, an efficient payments system minimizes float, liquidity risks, as well as settlement, systemic, credit and operational risks which are inherent in financial transactions. If the payments system is underdeveloped and inefficient, the banking system will hold large amounts of excess reserves which often lends to highly volatile and

unstable reserve floats. An efficient payments system however, promotes timely clearing and settlement, as well as payment finalities at least cost to customers. It is amenable to various types of inter and intra financial transactions and is available to all segments of the economy. The impact of such a system is to facilitate high inflow of liquidity into the banking system, enhance effective management of liquidity as well as improve the ability to implement monetary policy.

The link between the payments system and liquidity management is reflected in the interface between liquidity and payment channels. Principally, a liquidity management system provides a source of detailed and relevant information (data) that enhances the understanding of the adequacy or otherwise of money supply in the system. Information is critical for liquidity forecast by the central bank. It should be noted that the objectives of liquidity management include:

in the Nigerian financial system. One of the critical areas is in the area of electronic fund transfer. Unfortunately, it has been difficult to check this fraud, mainly because of the inefficient system of crime investigation and the weakness in law enforcement in the country. However, with the establishment of the Economic and Financial Crime Commission (EFCC) in the country, it is expected that the incidence of fraud and other related financial crimes that undermine public confidence in the payments system would be minimized, if not eradicated. Although efforts have been made to reduce the clearing cycle in Nigeria, the non-enforcement of the dud cheque Act as well as the non-curtailement of other abuses in the use of paper-based instruments remains critical in encouraging the use of such instrument.

Furthermore, there is the challenge of the country being under-branched. Given the limited number of bank branches and the rms

absence of banking facilities in many places especially, the rural areas, access to banking services is practically impossible for a large section of the population. This has led to a great number of financial transactions still being carried outside the banking system. The recent reforms in the banking industry which is expected to engender competition in the industry and subsequent opening of new bank branches in the long run would impact positively on the payments system.

The need to fashion out programmes and strategies aimed at eliciting more private involvement in payments processing is fundamental and require prompt action. This may involve the facilitation of arrangements for converting from paper to book entry method of clearing and settling transactions. The operation of a payments system is a resource consuming activity especially, with the introduction of new technology which involves huge sunk costs. Private

sector involvement in such high fixed costs investment, especially, in payment processing, clearing and settlement, would require some elements of increasing returns to scale.

On the part of the deposit money banks and other financial intermediaries, there is need to continue to design payment services around the needs of the consumers and businesses who are the ultimate beneficiaries. Globalization allows goods, services and financial instruments to be traded routinely across national borders, which makes it imperative to also focus on international payments mechanisms. Moreover, since cross-border systems may operate in many countries and time zones, a variety of challenges are presented which require cooperation with other countries in the development and execution of payment policies. For a country like Nigeria to play a role as a financial centre in the sub-region, there is need to upgrade the integrity and

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## REFERENCES

- Ogwuma, P.A. (1995),** “Problems and Challenges of Developing and Efficient Payments System in Nigeria”, CBN Bullion, Vol. 19, No. 3, July/September
- Central Bank of Nigeria (2003)** “The Nigerian Payments System”, CBN Briefs, Series No. 2002-3/03.
- Bank for International Settlement (2003),** “The Role of central bank money in payments system”, Committee on Payment and Settlement Systems.
- Deutsche Bundesbank(2004),** “Payment system oversight-a contribution to the stability of the financial system and the efficiency of payment operations”, Deutsche Bundesbank Monthly Report January 2004
- Heller, D and Sturn, A, (2003),** “The Role of the Swiss National Bank in the electronic payment system” SNB 44 Quarterly Bulletin 1/2003.