THE IMPACT OF CASHLESS POLICY TOOLS ON MONEY CIRCULATING OUTSIDE NIGERIAN BANKS

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ABSTRACT

Monetary and fiscal policies aimed at improving an economy's performance are worth any trial. The Nigerian government's move to implement the Cashless Policy (CLP) in 2012 was just a step in this direction. This research is embarked upon to assess the pre and post-implementation period of Nigeria's CLP with focus on the relationships between tools of CLP and currency outside banks in the Nigerian economy. Focusing on the entire economy, data for the period 2009-2012 was regressed through OLS to test for the impact of these tools on currency circulation in the economy. The results showed a high level of collinearity and perfect fitness thus making it impossible to compute the influence on COB. On considering only two of the variables (ATM and CHQ), it was discovered that a positive insignificant relationship exists on the predictive relationship. This insignificant relationship could be attributed to the period under observation. Majority of the period observed by the study covers the pre-implementation period (2009-2011) while only 1 (2012) post-implementation period was studied. Since ATM and CHQ have insignificant influence in a perfect fitness situation, then it can be concluded that CLP tools does not affect currency circulation outside Nigerian banks. It is however, recommended that an equal period of pre and post implementation (2009-2014) be covered if an acceptable consensus is to be arrived at.

Key words: Cashless Policy (CLP), Automated Teller Machine (ATM), Web-Based Transactions (WEB), Mobile Banking Transaction (MBT), Point-of-Sale (POS), Cheques (CHQ) and Currency in Circulation (CIC) or Currency outside Banks (COB).

Introduction

The rate of rapid development at global level has been so dynamic that it touches all aspects of human venture. The business sector and the banking industry in particular are not left out. Since the art of interdependency became prominent, various transaction methods have been adopted in daily businesses starting with trade by barter. The barter system laid the foundation for the introduction of an acceptable medium of exchange (money). The use of money and coins solved the problem of double coincidence of wants and indivisibility, which were its major disadvantages. Moreover, the use of money has solved most of the challenges posed by trade by barter, yet as an exchange medium, it has its own challenges.

An outcome of the study carried out by the Nigerian Bankers Committee to identify the cost drivers and preferred solutions to cash policies and cash-based transactions was introduced which stipulated 'cash handling charge' on daily cash withdrawals on cash deposits that exceed N500,000 for individuals and N3,000,000 for corporate bodies. This banking policy aimed at reducing (not eliminating) the amount of physical cash (coins and notes) circulating in the economy and encourage the use of electronic-based methods for daily transactions (payments for goods, services, transfers, etc.).

After introduction, the policy was expected to encourage the use of less physical cash by making use of electronic-based methods and cheque payments for goods and services as the alternative to cash payments (Umeano, 2012). Electronic based transactions are a major tool used to discourage high circulation of cash in an economy. Though Agbonifo, Adeola and Oluwadare (2012) posits that Nigeria adopted electronic banking system in the early 2000s, the pilot phase of the CLP could be traced to its operation in Lagos on April 1st 2012 and was scheduled to be extended to 5 States and the Federal Capital Territory (FCT) on January 1st 2013 which was later rescheduled for July 1st 2013. The affected States were Abia, Anambra, Kano, Ogun, and Rivers (Olanipekun, Briamah & Akanni, 2013). Other States follow suit on 1st July 2014. There is therefore great interest in assessing the journey being made so far.

The target of this research is to make an evaluation of some pre and post-implementation periods of Nigeria's CLP since 2012 (2009-2012). Specifically the study targets:

    i.   Determining the relationship between the tools of CLP, which are Automated Teller Machine (ATM), Point-of-Sales transactions (POS), Mobile Banking Transactions (MBT), Web transactions (WEB) and the use of Cheques (CHQ).

ii.   Assessing the impact of CLP implemented on the Cash in Circulation outside Banks (COB).

To enhance an effective analysis the following developed hypothesis was tested in this research to guide in achieving the objective of the work:

1. H_{01}: There are no significant relationships between the individual tools of CLP.
2. H_{02}: There is no significant impact of the tools of CLP on the volume of cash in circulation outside banks in the years under observation.

The methodology involves covers the entire banking system in the Nigerian economy over the period 2009-2012. Using regression, the variables were correlated to test for their relationship and significance to justify the acceptance or otherwise of the hypothesis formulated.

Though an old policy in most advanced nations, cash less policy in a developing country like Nigeria is still at its initial phase. This stage has put so much pressure on banks as well as customers leading to many problems. Given the fact that the policy has a brighter future, the authors are therefore, pushed to provide some form of education and assessment of the policy at its initial stage.

The entire work is divided into five sections starting from the introduction that gives the background, objective, and principal target of the study. The second section is the review of relevant literature and empirical studies conducted so far on the subject matter. The methodology of the study formed the third part. In this part, the tools of data collection and analysis were fully discussed. In the fourth section, data obtained was analyzed to show our findings. Finally, a summary of findings and recommendations were discussed in the fifth section, which forms the bases of our conclusion.

2.   Review of Literature

2.1   Introduction
Cashless banking may be defined as that banking system which aims at reducing (not eliminating) the amount of physical cash (notes and coins) circulating in the economy, whilst encouraging non-cash (little cash) and more electronic-based transactions (payment for goods, services, transfers etc.) through non-physical cash means. In other words, it is a combination of e-banking and cheque-based systems. The term should not be however, confused or mistaken for a situation is which the use of cash is totally eradicated from the economy. The term Cashless should be differentiated from the term "Cash-Less. The latter terms denotes a situation of complete stoppage or eradication of the use of physical cash. The aim of CLP is to encourage as best as possible the use of "less cash" or limited amount of cash for business transactions.

A Cashless economy is at its prime when almost all modes of payments are carried out without the use of physical cash. Payments will range from a list of options such as cheques, wireless transfers, debit and credit cards, online transactions, and mobile banking. The advantages of a Cashless society are enormous, from regulating and controlling the economy, it extends to securing the entire financial system.

2.2   Tools of Cashless Economy
The major tools of CLP as used in the Nigerian situation are mainly five though one of them (the use of Cheques) is fast becoming outdated.

2.2.1   ATM: is an electronic telecommunication device that enables the customers of financial institution to perform financial transaction without the need of human cashier, clerk, or bank teller. An ATM card (also known as a bankcard, client card, key card, or cash card) is a payment card provided by financial institution to its customers, which enables the customer to use an Automated Teller Machine (ATM) for transactions such as deposits, cash withdrawals, obtaining account information, and other types of banking transactions, often through interbank networks.

ATM is known to have replaces the option of human to human servicing with human to machine servicing, which enables individuals to perform banking transaction without entering a banking hall. As a tool for CLP it limits the amount of physical cash accessible owing to the fact the there is a limit to cash withdrawal per day.

2.2.3   Mobile (Internet) Banking Transactions: The Federal Reserve Board of Chicago's Office of the Controller of Currency - OCC (Internet Banking Handbook, 2001) as cited in Agbonifo, Adeola and Oluwadare, (2012) describes Internet Banking as "the provision of traditional *banking services* over the Internet".
It is a product that is Module and in-built on the new Banking Application, BANKS implemented by banks to serve the Internet Banking needs of bank's customers. In reducing the cash in circulation as a CLP tool, internet banking enables individual to initiate transaction over the internet without having to physically carry cash to make transaction.

2.2.4   Mobile Banking: This product offers Customers of Banks access to services as they go. Customers can make their transactions anywhere. Services such as account balance, transaction enquiries, stop Cheques, account verification, bill payments, electronic fund transfer, updates, & history, and other customer services are all deliverables via mobile phones.

2.2.5   Point-of-Sale (POS) Machine: A Point-of-Sale machine is the payment device that allows credit/debit cardholders make payments at sales/purchase outlets. It allowed customers to perform the following services: retail payments, cashless payments, cash back balance enquiry, airtime vending, printing mini-statement, etc.

2.2.6   Cheque: A cheque is a document that orders the payment of money from a bank account. The person writing the cheque is the drawer who holds a current account with the bank. In other words, a cheque is a type of bill of exchange developed to make payment without the need to carry physical cash.

2.2.7   Cash in Circulation: This is the total value of a country's currency in circulation. This is what makes up the total currency outside banks.

2.3   Review of Empirical Works

The work of Omotunde, Sunday and John (2013) using accidental sampling method on some 500 traders, students and civil servants through administered questionnaires; showed that CLP increases employment and reduce cash related robbery thereby reducing risk of carrying cash around. They also reported that CLP also reduce cash related corruption and attract more foreign investors to the country. It is therefore, a step in the right direction as its impact will be felt in the modernization of Nigeria payment system, reduction in the cost of banking services, reduction in high security and safety risks and also curb banking related corruptions (Ejiofor & Rasaki, 2012; Omotunde, Sunday and John 2013).

James (2013) in an investigation of the determinants of the adoption of mobile banking in Nigeria using Rogers' Diffusion of Innovation theory, and a questionnaire as the main form of data collection and multiple regression to analyze the data; discovered that age and educational background are the key to the adoption of mobile banking. He recommended that relevant stakeholders should pay adequate attention to the relative advantage, complexity, compatibility, trialability, and observability of the use of mobile banking to increase its usage. Oluwasogo, (2013) presented a remedy to stabilize and achieve the purpose of the new CLP in Nigeria's economy by the proposition of Bayes' theorem to centrally monitor, control and checkmate the customers' multiple opening of bank account at account opening desk. The result which is the probability of 'x' [P(x)] calculated was less than 0.5 ((that is if P(x) < 0.5)). This would allow the continuation of the account opening process, otherwise (if P(x) ≥ 0.5) it will alert that the account is already existing and would prevent further opening of such an account. Some studies have sought to point out the prospects and challenges of CLP in a developing country like Nigeria (Yaqub, Bello, Adenuga, & Ogundeji, 2013). They emphasized on moves towards a Cashless Nigeria with its numerous benefits. More awareness should be created in order to entice the numerous unbanked Nigerians into the banking system.

Princewell and Anuforo (2013) showed that majority of the stakeholders support the CLP because of the reasons of it being potential in reducing cash-related robberies, corruption, and other fraudulent practices among others. They however, noted that stakeholders who are against the policy-shift hinged their reasons on payment fraud associated with the Cashless economy; high rate of illiteracy and infrastructural decay in Nigeria. They had a similar recommendation to that of Yaqub, Bello, Adenuga, and Ogundeji (2013). In the same vain Maitanmi, Awodele, Ogbonna and Osundina (2013) examined the Cashless economic system in order to assess its feasibility in Nigeria concerning timeliness, preparedness, and adequacy against the backdrop of low level of development both technologically and educationally. Likewise Okey (2012) and Okoye and Raymond (2013) studied the significant benefits and essential elements of CLP, and to check the extent to which the policy can enhance the growth of financial stability in the country. They came out with similar result as Yakub, Bello, Adenuga and Ogundeji (2013), Princewell, and Anuforo (2013).

Agbonifo, Adeola and Oluwadare, (2012) assessed the role of ICT in readiness for the implementation of cashless transactions in Nigeria and identify the challenges associated with the implementation of the proposed cashless transactions as affecting banks customers. Questionnaires were used in collecting data on sampled respondents. In addition, data on the volume of transaction of the alternative payment systems in use in Nigeria was collected from the Central Bank of Nigeria.

Employing simple descriptive statistics the study of Nwanko and Eze, (2013) examined the extent to which electronic payment affect the Cashless economy of Nigeria. The study indicates that the electronic system of payment has great implications on the economy by leading to a significant decrease in deposit mobilization and credit extension by Nigerian banks. They put forward a critical appraisal of the pros and cons of the Cashless economy policy within the context of socio-economic realities of Nigeria, with a view to determining its workability as intended by the Central Bank of Nigeria (CBN). In another study considering the role of the CBN acting as a monopolist (Tobias &Stephen, 2012), it was discovered that the CBN acts as an operator of an individual payment system for optimal solution.

Applying a survey method the work of Ebipanipre & Uyoyou, (2013) studied the merits of the Cashless economy to the Nigerian populace and the pains of a cash-based economy. Using accidental sampling method and descriptive statistics and regression with the Chi-square and Analysis of variance (ANOVA) tests, their result reveal a positive and significant relationship between Cashless economy and transparency, accountability and reduction of cash-related fraud. It showed that a Cashless economy has a positive impact on economic development.   The research recommended adherence to minimum-security standards and deployment of more ATMs for smooth implementation of the CLP in Nigeria.

Tajudeen, (2013) assessed the perceptions of stakeholders on the types of corruption that can be reduced by the CLP and examined the effectiveness of the policy in curbing corruption; and identified critical success factors for effective implementation of the policy. Primary and secondary data were sourced for the study. His results found out that, no single

strategy can address all types of corruption and that the CLP can only reduce petty corruption, which is the lowest level of corruption as against all forms of corruption. It concluded that the inevitability of addressing the root-cause of corruption and devising compatible, systemic, and multi-pronged solutions is the most appropriable approach to addressing the menace which require enacting or modifying legislation, having effective punishment for corrupt individuals, and systemic changes occasioned by re-engineering processes that interface with the common man through the use of innovative technology solutions such as electronic governance; which will play the role of empowering the citizens by making governance more transparent and citizen-friendly. The success of CLP hinges on strong legal framework, state of infrastructure, availability of real data, investments in technology, adequate security and an effective Judicial Process (Ikpefan & Ehimare, 2012), in a study that addresses the benefits and challenges of a Cashless economy in Nigeria. Oginni, El-Mande, Mohammed and Michael, (2013) explored the relationship between e-payment system and economic growth as a means of reviewing current transition to Cashless economy in Nigeria. Data was analyzed using OLS method covering a period of 7 years (2005-2012). The result indicates a significant positive relationship between e-payment system and economic growth in terms of real GDP per capita and trade per capita. In terms of other variables, only ATM was found to positively contribute to economic growth while other e-payment channels contribute negatively. Hence, current CLP should be tailored towards effective e-payment system and other factors, which bear much relevance on successful transition to Cashless economy, should be prioritized.

The philosophy of the Triple-A (Arrange, Acquire and Appraise) must be adopted (Ochel, 2012) for flexibility if proper monitoring and controlling of overspending among citizens in Cashless society is to be anchored. The strategies are presented in such a way that it can be applied by single persons as well as small to medium size businesses. If properly, implemented it will help citizens to monitor and control their spending habits.

Fidelis, Francis, Samuel, Frank and Calister, (2012) surveyed the security challenges facing the full implementation of the Cashless e-payment policy of Nigeria and at the end recommends the introduction of an enhanced modified security framework for Nigeria's Cashless economy that may be easier and cheaper to implement by the majority of the stakeholders after studying the loopholes in the current Nigeria e-payment system models.

Sequel to the above review of empirical cases, it is evident that most researches have concentrated on issues other than relating CLP tools to the amount of money in circulation outside banks. In Nigeria the policy is new, coming into effect around 2012, thus making it a virgin area of exploration. This study therefore, intends to investigate the gap on the relationship between tools of CLP and the amount of currency circulating outside banks in the Nigerian economy.

3. Methodology

The entire monetary system in the Nigerian economy doubles as the targeted population and sample of the study. Secondary data mostly collected from the annual reports of the CBN was used as the major source of data. Two major variables were used: Cash circulating outside banks (dependent variable) and tools of CLP (independent variable). Under the tools of CLP 5 observations which include: ATM, WEB, POS, MBT and CHQ were tested; selected mainly because they are the main instruments used by most banks in Nigeria to limit physical cash carriage. The study used cash in circulation outside bank as its dependent variable because we aim to see the effect of the tools of CLP on cash circulating outside banks. There is no doubt, that the major purpose of CLP is reduction of the amount of physical cash carried around for transaction purposes. Thus, the total cash in circulation ultimately becomes the cause of disagreement. For the purpose of this research, we defined the total cash in circulation as made up of all the cash outside banks, since the policy is targeted toward cash carriage.

To analyzed the data and determine the relationship between the variables, OLS regression was used. Descriptive and inferential statistical information in the form of mean, standard deviation, Bi-variant correlation were the key guide in determining the relationship between the variables. The result of the ANOVA on the level of significance was used to decide on whether or not to accept the hypothesis formulated for this study.

4. Discussion of Results

The study looks at the relationship between COB and tools of CLP and between the tools of CLP. The COB/CIC is given as a summation of all cash outside bank vaults. Cash in the bank is the total of ATM + WED + POS + MBT + CHQ. This resulted in a total cash in bank (CIB) of ₦645.14, ₦1,072.92, ₦1,671.34 and ₦2,095.72 billion for 2009, 2010, 2011 and 2012 respectively (Table 1).

Table 1: Currency in Circulation (CIC)

YEAR	2009 ₦' billion	2010 ₦' billion	2011 ₦' billion	2012 ₦' billion
CIC/COB	927.20	1,082.30	1,245.10	1,301.20
ATM	548.60	954.00	1,561.80	1,984.70
WEB	84.20	99.50	58.00	31.80
POS	11.00	12.70	31.00	48.00
MBT	1.30	6.70	20.50	31.50
CHQ	0.04	0.02	0.04	0.02
CIB	645.14	1,072.92	1,671.34	2,095.72

Source: Compiled from CBN Annual Reports 2009-2012

The distribution of the variables in the model gives some interesting results. On average, ₦1,138.95, ₦1,262.28 billion, ₦68.30 billion, ₦25.68 billion, ₦15.00 billion and ₦0.03 billion amounts were recorded as currency outside the bank (COB), ATMs, WEB, POS, MBT and used as Cheques (CHQ) during the period under observation (2009-2012) respectively. Cash outside banks (COB) has a minimum of ₦927.20 billion and a maximum of ₦1,301.20 billion. At any point in time cash outside banks ranges between ₦927.20 and ₦1,301.20 billion where as the range is between ₦548.60 billion and ₦1,984.70 billion for ATM and ₦0.02 billion and ₦0.04 billion for cheques. On average, the cash inside bank vaults (tools of CLP) forms about 120.40% of the currency outside the banks. A clear indication of a reduction of cash in circulation.

The degree of correlation between COB and the observations of the tools of CLP is acceptable as it gives values of 0.984, -0.804, 0.909, 0.958 and -0.361 (Appendix) for ATM, WEB, POS, MBT and CHQ respectively. Results for ATM, POS, and MBT are almost perfectly correlated. However, while a positive correlation exists between COB and ATM, POS and MBT; an inverse relationship is what is shown between COB, WEB, and CHQ. The implication is that increase or decrease in the use of ATM, POS and MBT will lead to a corresponding increase or decrease in currency outside banks. However, increase or decrease in WEB and CHQ will lead to a fall in money being circulated outside banks.

Of greater importance however, is the correlated level of significance of the correlation results. While two of the results are insignificant (WEB and CHQ), the other variables of ATM, POS and MBT showed results of 0.016, 0.091 and 0.042 respectively; all at 10% level of significance. This implies that only ATM, POS, and MBT may have any influence over the currency circulating outside banks.

There is also a very high degree of collinearity among the independent variables with only CHQ showing an acceptable collinearity value of -0.376, 0.108, -0.310 and -0.347 for ATM, WEB, POS and MBT respectively. All other independent variable showed high collinearity values of between 0.65 and 0.99 (Appendix). Because of the high level of collinearity and perfect fitness between ATM, WEB, POS and MBT; the influence cannot be computed. Therefore, the decision to drop some of the independent variables. However, attempt to combine WEB and CHQ, POS and CHQ, MBT and CHQ showed un-computed result. Thus the decision to run the relationship between COB, ATM, and CHQ (with acceptable levels of collinearity).

The analysis showed an adjusted R^2 value of 90.6%. This result shows that there is a very high level of influence of the tools of CLP on cash outside banks. However, the result is not significant (0.177) and cannot be used as a predictor of the relationship between the variables. The model fitness is however, acceptable as it gives values of -0.60 and +0.60 (Appendix, Charts).The coefficient of the study showed that for every N262 increase in the use of ATM and N149,532 Cheques, currency outside banks will increase by N1000. In short, an insignificant relationship exists between COB on the one hand and all the tools of CLP (ATM, WEB, POS, MBT, and CHQ) on the other. Thus, supporting the assertion that an insignificant relationship exists between COB and tools of CLP.

The hypothesis that an insignificant relationship exists between the individual tools of CLP is partly supported and partly rejected because of mixed findings. While the correlated association between ATM-WEB, ATM-CHQ, WEB-CHQ, POS-CHQ, and MBT-CHQ are insignificant, the association between ATM-POS, ATM-MBT, WEB-POS, WEB-MBT, and POS-MBT proved to be significant. In summary, our outcome partly supports and partly rejects both hypotheses.

5. Conclusion

5.1 Summary and Findings

Nigeria's acceptance of CLP is a new development. Introduced in 2012, the policy has been hurriedly imposed on both the banks and customers. This has indeed had some impact on business transactions, the population, as well as currency circulating outside banks. It is the latter that this study was undertaken to determine.

With the high rate of illiteracy and rural population, the general acceptance of CLP will take time. Of the many global CLP tools available, only five were employed in the Nigerian situation. While Cheques are fast becoming outdated and unpopular, the ATM remains the only popular instrument among customers.

The outcome of the study shows that of the instruments of CLP applied in Nigeria not a single one have any significant relationship with the value of currency circulating outside banks, mainly due to the high collinearity between the tools of CLP. Therefore, it does not these instruments do not influence the volume of currency flowing outside banks. However, the coefficients showed that both ATM and CHQ have positive but insignificant relationship with COB. That is with currency outside banks.

5.2 Recommendations

Because the CLP is at its early stage, care must be taken not to over or under-state its significance in relation to cash outside banks. It should be noted that this study considers only 1 of the 4 years that the policy has been implemented in the country. It will therefore, be erroneous to draw any concrete conclusions at this stage. It is therefore, highly recommended that more time (at least a five-year period) be given before adequate conclusions will be drawn. Honestly speaking a ten-year period will be most appropriate and acceptable.

5.3 Limitations

Records for 2013 and 2014 were not available as at the time of undertaking this research. Only one year of post-implementation CLP was considered. Future researches may consider data for these two periods to see if it will yield significant results.

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