



Cashless Policy Implementation: A Possible Way-out of Exchange Rate Crisis in Nigeria

Habeeb O. Olayiwola

The Federal Polytechnic, Ilaro / Department of Banking and Finance
habeeb.olayiwola@federalpolyilaro.edu.ng

Najeem A. Isiaka

Federal Polytechnic, Ilaro / Department of Banking and Finance
najeem.isiaka@federalpolyilaro.edu.ng

Abstract: *Depending on methods of transmission, cashless policy could significantly redirect macroeconomic variables. However, the influence of cashless policy tools on the Nigerian exchange rate management has not been extensively discussed in the academic literature. Therefore, this study assessed the nexus between cashless policy and exchange rate in Nigeria covering the period of 2014Q1 and 2023Q4. The variables captured in this study include exchange rate (measured by official exchange rate) and cashless policy instruments – the value of Automated Teller Machine (ATM), the value of Point of Sale (POS), the value of Mobile Payment (MP), the value of WebPay (WP) and the value of cheques. The data were gathered from Central Bank of Nigeria (CBN) statistical bulletin of 2023. The techniques such as descriptive statistics, correlation analysis, ADF unit root test, co-integration test, and Autoregressive Distributed Lag (ARDL) were used to analyze the data collected. The results of ARDL show the existence of short run connection between cashless policy instruments and exchange rate in Nigeria. Majorly, ATM, and Mobile Payment are the main instruments of exchange rate stability in the short run. However, there is no long run interaction among the variables of study. The study concludes that cashless policy implementation serves as lubricant to lessen exchange rate problem in Nigeria within a short period. It was therefore suggested that the Nigeria's apex institution should persuade banks to provide quality ATM services for their customers as this will help to boost confidence of the customers and facilitate online payment system rather than physical payment transaction.*

Keywords: Cashless Policy, Mobile Payment, Point of Sale, Automated Teller Machine, ARDL.

Introduction

Over the years, the Central Banks of Nigeria (CBN) has been introducing series of economic reforms and financial policy implementations to attain effective financial system in Nigeria. Most of these reforms and policies were targeted at boosting economic performance, pursuing development goals and remain competitive with other economies' financial system around the world (Agu & Agu, 2020). Elechi and Rufus (2016) are of the opinion that these policies are the ingredients of a good economic management. Unsurprisingly, the apex bank continues to shoulder the responsibilities of improving economic condition, maintain currency stabilization, and reduce inflation via various economic policies (especially the monetary policies). Meanwhile, to achieve these vital objectives, affordable and secure payment systems have been pointed by Gbanador (2023) as the only channel for developing countries like Nigeria.

Consequently, the Nigeria's apex bank introduces cash policy in 2012 but fully implements it in 2014 to pave way for operations of online banking and paperless banking transactions. The policy aimed at improving technology

and also helps to reduce the paper work compared to the primitive days (Austin, 2016). For instance, an upward review of weekly withdrawal was announced by the CBN for the individual and company to N500,000 and N5,000,000 respectively effective from January 9, 2023. The reviewed policy nullified the early pronouncement of December 6, 2022 on the withdrawal limit of N100,000 and N500,000 for individuals and corporate organizations (ThisDay Newspapers, 2023). This policy was to motivate and encourage digital transaction and not to completely eliminate paper notes as conceived in the financial operations of the developed countries.

For a country like Nigeria, to compete with advanced nations and also re-focus on her failed vision of 2020 (the goal of being among the best twenty financial and economies of the world), sustenance of cashless based economy becomes the utmost priority. It was anticipated that the policy will not only minimize the risk of cash usage and fraudulent activities but also enhance business transaction and economic growth (Osazevaru & Yomere, 2015). However, the government who often advocates for cashless economy is still battling with several challenges



such as low level of technology, insecurity, high rate of illiteracy, poor power supply among others.

Furthermore, many Nigerians lack belief, confidence or trust in the so-called alternative means of business transaction. Some scholars see it as an instrument of hardship for individuals and businesses because of indiscriminating deductions from various accounts. In fact, the past enforcement of cashless policy and naira swap by the former CBN governor, Mr Godwin Emefiele expose the deficiencies of network bandwidth and inability of banks to handle high level of online transactions in Nigeria. This in addition to some other factors prompted the previous researchers to assess the implication of cashless policy on Nigeria economy (Gbanador (2023); Ibe & Odi (2018); Ejioh et al (2019); Mamudu & Gayovwi, 2019). Still, inconclusive results were reported.

It is important to also state that majority of the previous studies strictly focus on cashless policy and economic growth without considering the policy implication directly on exchange rate stability. The former CBN governor outlined the benefits of cashless policy and also argued that the policy could assist in safeguarding the value of Nigeria's currency (Abubakar, 2022). This statement necessitates the need to conduct research on the nexus between cashless policy instruments and exchange rate stability in order to fill the gap in the literature and also contribute to the existing body of knowledge globally.

Literature Review

The process of operating a reduced but not completely eliminated cash transaction in an economy is conceptualized by Abubakar (2022) as the cashless policy. This implies that cashless policy combines both e-banking transaction and cash based economic system. According to Akhalumeh and Ohiokha (2012), cashless policy embraces mobile payment which allows bank's customers to facilitate financial transactions through mobile phones without or with internet accessibility. Most outstanding cashless policy as pointed out by Woleola (2017) does not only use mobile phones but also include Point of Sale (POS), Cheques, and Automated Teller Machine among others. Acha, Ikoh and Nsien (2016) and Odumeru (2015) highlighted that cashless policy (with the aid of information technology) helps to achieve sustainable growth, job creation and ensure stable foreign exchange. Thus, a country without optimal use of cashless policy (technology) may possibly find it hard to achieve speedy growth and development (Onoh, 2017). Daisi (2016) reiterates that the policy does not nullify cash usage as money is still medium of exchange. The main goal is for the financial institutions to create alternative means of payments and debts settlement (Abu, Bolarinwa & Akpoviroro, 2013).

As outlined by Woleola (2017) and Tan and Teo (2002), the channels of payment system through cashless policy include internet/online banking, mobile banking, electronic card, point of sale, and automated teller machine among others. They argued that among all the channels, automated teller machine provides easy access to cash when required.

Since it has been argued that a 10% increase in the payment system would result in a 1% increase in the gross domestic product and effective payment system (Odior & Banuso, 2012). According to Tunde (2012), implementing a cashless policy will boost bank profits due to the high transaction fees and also provide jobs for individual. In order to attain the benefits of a cashless policy, it is imperative to significantly reduce illiteracy, which impedes the advancement of e-payments (Mamudu & Gayovwi, 2019). Additionally, stable electricity supplies and a willingness to adopt modern technology among bank employees and customers are also necessary. Ifeakandu (2011) also confirmed the need to improve ICT, power shortage, uptime payment operation and networks capacity to attain effective functioning of cashless policy.

Theoretically, Irving Fisher's hypotheses in his book titled "Quantity Theory of Money (QTM)" shed light on the relationship between exchange rates and cashless policies. He made the assumption that money would continue to flow at the same rate and that an increase in the money supply would cause prices to rise proportionately. Thus, currency appreciation may occur from the increasing usage of cashless policy instruments in an economy. Over the long period, the growth can only be influenced by real factors, while supply of money (supply of currency) is neutral over the short and long periods (Gali, 2015).

On the empirical ground, Ghanador (2023) used Autoregressive Distributed Lag (ARDL) to conduct the nexus between cashless policy and economic growth over a period 2012 and 2021. It was revealed that internet banking and cheque play significant role in enhancing gross domestic product while automated teller machine contribute negative and insignificant influence on gross domestic product in Nigeria. In the study of Abu, Bolarinwa, and Akpoviroro (2018), 210 employees of eight commercial banks in Lagos were sampled in order to assess the potential benefits and challenges of cashless policies in Nigerian banks. Inferential and descriptive statistics were used to analyze the collected data, and the results showed that cashless policies had a positive impact on the banks' fortunes, even though they would soon become less relevant. Muhibudeen and Haladu (2015) used regression analysis to examine the impact of post- and pre-implementation cashless policies on currency outside Nigeria using cashless policy measurement. They measured cashless policies by ATMs and checks, and found a positive but insignificant impact of these variables on the regressand. Ultimately, the study concluded that cashless policies do not significantly influence currency



outside Nigerian banks. Ejiobih et al. (2019) also used 410 questionnaires in total, carried out a survey study on the application of Nigeria's cashless policy. Partial Lease Square (PLS) and Smart PLS software were used in the study to analyze the collected data. It was discovered that despite Nigeria's adoption of the cashless policy, a number of people still experience so many difficulties in the usage of cashless policy instruments in Nigeria. Thus, coordinated efforts are still required to establish a cashless economy that is both effective and efficient.

Methodology

Data Sources and Analytical Technique

Time series and secondary data are employed in the study. This was in line with the research conducted by Gbanador (2023) and Agu and Agu (2020). The data used were provided by Nigerian apex institution. Since the full implementation of cashless policy (rather than e-banking) started in 2014, the study's time frame is from 2014Q1 to 2023Q4. This study included some variables like the exchange rate (as determined by the official exchange rate) and cashless policy instruments; the values of cheques, Automated Teller Machines (ATMs), Point of Sale (POS), WebPay (WP), and Mobile Payment (MP). The study employed Autoregressive Distributed Lag (ARDL) to evaluate the nexus between cashless policy tools and exchange rate in Nigeria. ARDL's versatility with regard to its integration of order made the technique relevant for the analysis. Additionally, the method is more appropriate for studies with small sample sizes and is typically dependable over both short and long-time frames (Nadeem, Jiao, Nawaz, & Younis, 2020). The technique was also adopted in line with the work of Nadeem, Jiao, Nawaz, & Younis, (2020).

Theoretical Setting and Model Specification

The Fisher model, which connects money to a few economic variables, served as the foundation of this research work. The Fisher's QTM equation can be written as follows:

$$MV = PT \quad (1)$$

Where M is the money stock, V is the money velocity, P is the commodity trading price, and T is the number of products transacted. This model has been altered, with EXCH taking the place of MV and VATM, VPOS, VWP, VMP, VCHQ replacing PT. Thus, the following is the model specification:

$$EXCH = f(VATM, VPOS, VWP, VMP, VCHQ) \quad (2)$$

$$EXCH = \beta_0 + \beta_1VATM + \beta_2VPOS + \beta_3VWP + \beta_4VMP + \beta_5VCHQ + \mu \quad (3)$$

The model is further written in ARDL form:

$$\Delta EXCH = \alpha_0 + \sum_{t=1}^{p1} \alpha_1 \Delta EXCH_{t-1} + \sum_{t=1}^{p2} \alpha_2 \Delta VATM_{t-1} + \sum_{t=1}^{p3} \alpha_3 \Delta VPOS_{t-1} + \sum_{t=1}^{p4} \alpha_4 \Delta VWP_{t-1} + \sum_{t=1}^{p5} \alpha_5 \Delta VMP_{t-1} + \sum_{t=1}^{p6} \alpha_6 \Delta VCHQ_{t-1} + \beta_1 EXCH_{t-1} + \beta_2 VATM_{t-1} + \beta_3 VPOS_{t-1} + \beta_4 VWP_{t-1} + \beta_5 VMP_{t-1} + \beta_6 VCHQ_{t-1} + \mu \quad (4)$$

Where; EXCH denotes the Official Exchange Rate; VMP is the Value of Mobile Payment; VATM represents the Value of Automated Teller Machine; VCHQ is the Value of Cheques; VPOS implies Value of Point of Sale; VWP proxies the Value of WebPay; α_1 - α_6 signifies the short-run coefficient; β_1 - β_6 entails the long-run coefficient; α_0 is the constant term and μ explains the error term. Hence, the cashless policy instruments are expected to have positive and significant influence on exchange rate in both short and long periods.

Empirical Results and Discussions

The variables captured in the study were analyzed using trend analysis, descriptive statistics, correlation analysis and Autoregressive Distributed Lag (ARDL) model. The outcomes of the analysis are presented as follows.

Trend Analysis of the Variables

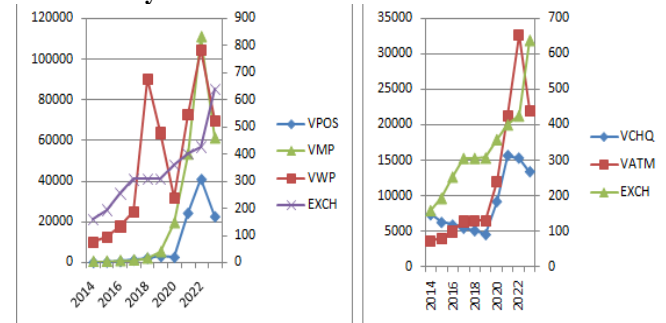


Figure 1: Relationship between Cashless Policy Instruments and Exchange Rate in Nigeria

As shown in figure1, it was found that the increasing value of Exchange Rate (EXCH) in Nigeria has not been significantly reduced by the use of cashless policy instruments such the Value of Automated Teller Machine (VATM), Value of Web Payment (VWP), and Value of Point of Sale (VPOS). Although ATM usage has been effective, it is still not sufficient. The decline in the value of other instruments could be attributed to ignorance and illiteracy, a lack of awareness, and a weak financial network. In a same vein, the declines in the use of cheques and mobile banking and payments, as depicted in figure 1, demonstrated people's unwillingness to fully embrace the concepts of minimum cash usage for transactions. This explains the reluctance of the people to carry out financial transactions via cashless policy instruments instead they exclusively wait in line at ATMs to withdraw cash. While mobile payments were introduced to provide access to banks for unbanked individuals in rural areas and to expedite and facilitate financial inclusion in the nation, their low patronage and usage serves as a cankerworm to Nigeria's currency appreciation (Amaka, 2012). Financial analysts argued that mobile phones and other cashless policy tools make people more involved in the financial system. Consequently, it leads to the economic growth, job creation (like POS dealers), and exchange rate stability (Osazevbaru & Yomere, 2015).

Table 1: Descriptive statistics of variables



	<u>EXC</u> <u>H</u>	<u>VAT</u> <u>M</u>	<u>VPO</u> <u>S</u>	<u>VW</u> <u>P</u>	<u>VMP</u>	<u>VCH</u> <u>Q</u>
Mean	334.8	11991	9958	372.2	25465	8748.7
Median	306.5	6496	2595	356.8	3528	6732.3
Max	638.7	32648	41036	783.7	111122	15606.6
Min	158.6	3679.9	312	74.04	347	4481.7
Std. Dev.	130.4	9528.2	13719	248.9	36306	4186.9
Skew	0.95	1.04	1.24	0.24	1.33	0.68
Kurt	3.65	2.72	3.09	1.58	3.52	1.78
Jarque-Bera	6.70	7.33	10.31	3.74	12.2	5.56
Prob	0.04	0.03	0.01	0.15	0.002	0.06
Obs	40	40	40	40	40	40

Source: Author's computation from Eviews

Table 2: Correlation Analysis

	<u>EXC</u> <u>H</u>	<u>VAT</u> <u>M</u>	<u>VPO</u> <u>S</u>	<u>VW</u> <u>P</u>	<u>VM</u> <u>P</u>	<u>VCHQ</u>
EXC H	1.00					
VAT M	0.76	1.00				
VPOS	0.69	0.98	1.00			
VWP	0.62	0.73	0.74	1.00		
VMP	0.69	0.99	0.99	0.70	1.00	
VCH Q	0.68	0.92	0.91	0.53	0.90	1.00

Source: Author's computation from Eviews

Table 3: ADF Unit Root Test

Var	t-statistic	Features	Pvalue	Order of Integration
EXCH	-6.748847	@ Intercept	0.0000	I(1)
VATM	-6.150834	@ Intercept	0.0000	I(1)
VCHQ	-6.085215	@ Intercept	0.0000	I(1)
VMP	-1.996820	@ No Trend and Intercept	0.0454	I(0)
VPOS	-6.075116	@ Intercept	0.0000	I(1)
VWP	-6.056685	@ Intercept	0.0000	I(1)

(*)Significant at the 10%; (**) Significant at the 5%; (***) Significant at the 1%

Source: Author's Computation and Eviews

Table 4: Cointegration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.333333	62.03315	95.75366	0.9224
At most 1	0.333333	46.62548	69.81889	0.7749
At most 2	0.331198	31.21780	47.85613	0.6548
At most 3	0.230627	15.93164	29.79707	0.7171
At most 4	0.142757	5.968821	15.49471	0.6992
At most 5	0.003036	0.115529	3.841466	0.7339

Trace test indicates no cointegration at the 0.05 level

Source: Author's Computation and Eviews

Table 5: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	209.6426	NA	6777.531	11.65636	11.91759	11.74845
1	184.8639	9*	1877.61	10.3710	10.6757	10.4784
2	184.6670	0.308593	1965.479	10.41443	10.76274	10.53723
3	184.1109	0.841724	2019.287	10.43843	10.83027	10.57657

Source: Author's Computation and Eviews



Table 6: ARDL and Bound Test

Dep Var/EXCH	Short Run Coefficient		
	Coeff.	Std error	Prob.
C	17.87	27.44	0.52
EXCH (-1)	0.88	0.08	0.00
VATM	0.03	0.01	0.01
VATM(-1)	-0.02	0.01	0.04
VPOS	-0.0001	0.003	0.66
VWP	-0.01	0.05	0.79
VMP	-0.01	0.002	0.01
VMP(-1)	0.01	0.002	0.01
VCHQ	-0.002	0.01	0.62
<i>R</i> ²	0.95	<i>AIC</i>	9.98
<i>Adj. R</i> ²	0.94	<i>SIC</i>	10.4
<i>F-stat</i>	72.31	<i>H-Q C</i>	10.11
<i>Prob.(F-stat)</i>	0.00	<i>DW</i>	2.4
Bound Test: F-stat	0.92		
Upper Bound	3.79		
Lower Bound	2.62		

Source: Author’s Computation from Eviews

The mean and median indicate a high level of consistency as reported by the descriptive statistic results. The mean value of VMP shows the highest figure of 25464.7, followed by the value of VATM at 11991. This is an indication that mobile payment and automated teller machine are the main cashless instruments used for the majority of the business transaction in the country. The standard deviation which measures the degree of fluctuation recorded a high value of VMP at 36306.2. It is not surprising that mobile payment is the most fluctuating variable because of the high risk (such as network failure) in dealing with various transactions via this medium. Expectedly, the exchange rate has the least mean, median and standard deviation values, followed by the value of webpay. As regards the skewness results, all the variables of interest are positively skewed. The results of kurtosis show that exchange rate is the highest peaked variable among the series. In addition, the probability of JB statistic of Exchange Rate (EXCH), VATM, VMP and VPOS are less than 0.05 while the values of Cheques and webpay exceed 0.05. Hence, the study concludes that the latter (VCHQ and VWP) are normally distributed while that of former (EXCH, VATM, VMP and VPOS) are not normally distributed.

This study assessed the extent of collinearity among the explanatory variables using correlation analysis. Based on the results, none of the explanatory variable shows a

negative interaction with each other. Most of these variables are highly correlated and positive because the instruments serve the similar purpose in carryout financial transaction within an economy.

To achieve the core objective of this study and ensure effective usage of the analytical techniques, all the data series were subjected to unit root test using ADF method. From the results, only mobile payment is stationary at level I(0) while other variables such Exchange Rate, ATM, POS, WP, and cheques are stationary at first difference I(1) at 5% significance level. Hence, the variables are subject to ARDL approach to avoid spurious findings.

The test for lag selection criteria was conducted to find out the suitable lag for both the explanatory and dependent variables. Using AIC lag selection criteria, it was found that lag 1 is more suitable for the ARDL technique.

From the ARDL results, the coefficient of the current value of ATM and the first period lag of mobile payment shows positive relationship with exchange rate. This means that a unit increases in each of the variable will appreciate Nigeria’s currency by 0.03 and 0.01 units respectively. However, the first lag of ATM, the current value of cheques, POS, Webpay, and the current value of mobile payment negatively interact with exchange rate in the short run. These findings are in line with the work of Agu and Agu (2020) and Gbanador (2023). The justification for this result is not farfetched as the people have not really key into cashless policy and its instruments due to the network failure and power shortage, thereby causing instability in the foreign exchange rate in Nigeria. Among all the explanatory variables, only ATM (current and lag 1) and mobile payment (current and lag 1) have significant impact on exchange rate in the short run. This is a sign that citizens prefer ATM and mobile payment to other cash policy instruments in performing financial transactions in the country. Hence, the combination of these variables plays a significant role in exchange rate stability as confirmed by the f-statistic result.

Conclusion and Recommendations

Based on the results, the study established a short run relationship between cashless policy instruments and exchange rate. Majorly, ATM and mobile payment are the major instruments of achieving stable exchange rate in the country. Hence, the study concluded that cashless policy implementation serves as lubricant for lessen exchange rate problem in Nigeria within a short period. Hence, the study recommends that:

Following the assertion that ATM contributes significantly to exchange rate stability, the Nigeria’s apex institution should persuade commercial banks to provide quality ATM services for their customers. This will help to boost confidence of the customers and facilitate payment system.



Sequel to the important role of mobile payment in exchange rate stability, government should improve ICT infrastructure - both intangible and tangible that is capable of enhancing cashless policy in Nigeria. This will facilitate alternative method of payment or settlement rather than cash-based economy.

Government should sensitize the citizens, especially banks' customers on the benefit of adopting cashless policy instruments (such as cheque and WebPay) on business enterprises and security of their hard-earned money.

The challenges of power shortage should be rectified as this will improve internet banking and increase the volume of other cashless policy instruments in Nigeria.

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