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An Empirical Investigation into the Effects of Cashless Policy on Deposit Money Banks Liquidity in Nigeria

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Abstract: This study focused on the effects of cashless policy on deposit money banks liquidity (DMBs) in Nigeria. The data for the study were obtained from the Central Bank of Nigeria statistical bulletins and the World Bank. A significant effect of cashless policy (point of sale, Web Pay and Mobile Pay) on deposit money banks liquidity spanning for the period of (2013-2020) in Nigeria was evaluated with the help of regression analysis. The trace test indicate 1 cointegration which meant there was a long term relationship among the research variables. The major objectives of the study were to examine the effects of point of sale (POS) on deposit money banks liquidity, to determine the effects of Mobile Pay on deposit money banks liquidity and to assess the effects of Web Pay on deposit money banks liquidity. The policy implication is that point of sale, web pay and money pay are function of cashless policy in Nigeria. Therefore, the study recommends that the Central Bank of Nigeria (CBN) should intensify its effort for full implementation of cashless policy, CBN should also provide enabling environment for the smooth conduct of cashless policy and facilitate, encourage and enforce on all deposit money banks to comply with the policy. Deposit money banks should intensify their effort toward the improvement of the number of automated teller machine, point of sales terminals and internet facilities. This study therefore placed more emphasis on the level and rate of individual access to cashless financial services with the aims of promoting deposit money banks liquidity in Nigeria.

Keywords: Cashless Policy, Point of Sale, Mobile Pay, Liquidity, Web Pay

Introduction

Global economic transformation and development has undergone different stages and advancement date back to the olden days of batter system where goods are exchange with goods. The introduction of money to the economy has undergone series of developmental stages which took to electronic money that humanity is experiencing now. There is no doubt that cashless policy is the solution to the economic challenges that encompasses other factors that include social, political, technological environment that is on top today. It is easy to track with cashless policy, investigate and prove financial crimes. According to CBN report (Central Bank of Nigeria, 2012) cashless economy is prerequisite for Nigerian to be among the best 20 economies before the year 2020.

The main motive for cashless policy in Nigeria is to reduce the volume of Naira and Cions in circulation not to eliminate the use of cash in totality. According to (Ejiro, 2012) cash base economy is the condition where financial transaction and exchange is been done through electronics means without the use of physical cash. This can be possibly achieved through the use of electronic payment system such as debit card, credit card, POS, ATM, web pay mobile pay and others. The Central Bank of Nigeria is saddle with the responsibility of cashless policy formulation, adoption and implementation through DMBs and end users for long term sustenance of the economic and better performance of deposit money banks (Ahmed et al., 2022).

Cashless economic does not mean complete absence of physical cash but it connotes a system where most of the payment and exchange processes are done electronically. Woodford (2013) assert that cashless economic is the situation whereby few transactions are done with the use of physical cash, the study further state that the use of cash balance will be the last option always. In cashless economic most of the individual find it easy, favourable and secured to use electronic means instead of physical cash. Similarly, Ajayi and Ojo (1981) opine that efficient, effective, secured, convenient and cost-effective payment system promote economic growth.

Most of the developed countries of the world resort to use the cashless economic by taking the advantage of their technological know-how (Humphrey, 2004). CBN cashless policy is focused on offering electronic means and replace the old method cash base transformation that exclude millions of Nigerians from enjoying safe, easy fast and cost-effective means of accessing financial products and services. In Nigerian electronic payment system the Automated Teller Machine (ATM), Point of Sales terminals (POS), mobile voice, web, intra –bank, inter-bank, and kiosks are included (Hassan & Wood, 2020; Muotolu and Nwadialor, 2019; Lee et al., 2018; Firdous & Farooqi, 2017; Khan & Hossain, 2015; Song & Vong, 2013; Achor & Robert, 2013; Siyanbola, 2013; Anderson, 2010; Jayawardhena & Foley, 2000; Dos Santos & Peffers, 1995).

The global advancement in the field of information and communication technology is making the world a global village and all the aspect of life and social interactions are fast changing through electronic means. Never the less the banking system too is not left out, no country will achieve cashless economy without transformation of banking industry and heavily investing in electronic and payment technologies. With cashless policy the entire banking activities, procedures have shift from ancient manual to electronic means with ease and convenient without going to bank. Similarly, Laudon and Laudon (2001) states that banking operation are now taking advantage of information and communication technology for better sustainable performance both at local and global level.

The cashless policy has now become a global issue, the concept of electronic banking (E-banking) is now attracting the attention of many researchers. Empirical evidences prove the significance of e-banking on economic growth and liquidity of deposit money banks (DMBs) in Nigeria. E-banking provide opportunity for deposit money banks to improve their operation, product and financial services, it also promoted saving culture by offering various financial product that customers can easily utilize (Adewuyi, 2011).

The cash transformation and the cost of printing money make the use of cash base economy expensive to both government and individual, (Central Bank of Nigeria, 2011c; Nweke, 2012) found that developed countries of the world to some extend are making effort to shift from ancient means of payment system to electronic means for a better economy development. With the introduction of #25 billion minimum capital bases for deposit money banks in Nigerian by CBN in 2004, banking sector record huge development in electronic payment system, technology advancement and infrastructure that serve as bases for cashless policy that professionals are yarning for.

The excess use of cash base transaction in Nigeria is radically reducing but at slow rate, the government has great opportunities from the dividends of e-payment that led to the introduction of a single federation account. Queueing problems of deposit money banks are considerably reducing. The cash transaction is associated with many negative challenges ranging from problems of counting, and verifying received money, queuing in banking halls, risk of holding cash and others.

Echekoba (2012) found that in Nigeria 28% percent of respondent complained about the negative attitude of banks workers while 28.2% emphasised on the problem of long queues in the banking hold and 2.89 complained about the distance between the bank and customers location which cashless policy would have address or minimise the challenges on the country. On contrary view Akhalumeh and Ohiokha (2011) point out some challenges associate with cashless policy ranging from internal fraud, illiteracy and availability. Gandy (2017) observed that cashless policy promotes self-banking where citizens have access and perform self-banking transaction without the use of physical cash, this finding is similar to that of Tayo (2016).

The importance of cashless policy to deposit money banks liquidity cannot be over emphasis couple with many challenges and problems associate with holding, using and cost of printing volume of cash available within the country. Too much use of physical cash within the economic kindle social verses such as arm robbery, theft, kidnaping, insurgency within the economy as we are witnessing today in the country. The needs to implement cashless policy in the country cannot be over emphases, aside from improving deposit money banks liquidity and performance, the cashless policy is the way out to these social verses. With the development in the field of information and communication technology which facilitates the electronic payment system it is easy to track and regulated financial transaction within and outside the country. Similarly, Ovia (2002) study cash base economy taking culture and illiteracy level of citizens where people want to hold and use physical cash without considering the associated holding and storage problems, the lack of security consciousness and merits of electronic payments.

The introduction of cashless policy in Nigeria has create a room for electronic payment system to be encourage and to discourage cash base transaction, various electronic payment system available are still yet to be utilised. The cashless policy was meant to transform the whole system of economic and improve deposit money banks liquidity. It is also pertinent to stress that cashless policy will go a long way in addressing monetary challenges such as money volume outside banking system, inflation, money laundry, diversion of funds, goes workers and improve accountability and transparency within the banking economy and system. The problems necessitate the researcher to conduct study with the view of finding effects of cashless policy on DMBs liquidity in Nigeria.

Objectives of the Study

Having discussed the possible problem that may arise from the cashless policy on DMBs liquidity, one states the clear objectives of the study in order to provide the research focus. The specific objectives of this study are to:

i. Examine the impact of POS on DMBs liquidity

ii. Determine the impact of Mobile Pay on DMBs liquidity

iii. Assess the impact of Web Pay on DMBs liquidity

Research Questions

The basic questions of the research are:

i. Does the effective implementation of POS significantly increase the DMBs liquidity?

ii. To what extend does the effective implementation of Mobile Pay significantly increase the DMBs liquidity?

iii. Does the effective implementation of Web Pay significantly increase the DMBs liquidity?

Research Hypotheses

i. There is no significant effect of Point of sale on DMBs liquidity in Nigeria**.**

ii. There is no significant effect of Mobile Pay on DMBs liquidity in Nigeria**.**

iii. There is no significant effect of Web Pay on DMBs liquidity in Nigeria**.**

Scope of the Study

The scope of this study indicates the content of coverage of the study. According to Jen (2007) there are the boundaries of the study to which focus is maintained and directed. This study was intended to examine the impact of cashless policy on bank performance. The scope of this research work covered the period from 2013–2020. The study considered all the population. Cross – section time – series panel data of DMBs in Nigeria will were used in this study. In this research were used secondary data which source are from Central Bank of Nigeria (2011a, 2011b) and annual report of DMBs in Nigeria.

Literature Review

Conventional money development is becoming more recognised in the world economic literature. Before, banking operation was manually done with many challenges and inefficiency which necessitate the contemporary banking system through electronic means (Siyanbola, 2013). According to Ragaventhar (2017) cashless transaction through electronic mainstream start becoming familiar in day to activities since 1990s.

Odior and Banuso (2012) state that every one percent electronic transaction performs the increase of the GDP by 10percent. Matthew and Mike (2016) states that the cashless transaction is a type of transaction that facilitates different available electronic means instead of using physical cash. Odior and Banuso (2012) evaluate the effects of cashless banking in relation with the monetary policy in Nigeria while Obumneke et al. (2014) examine the impacts of cashless policy in connection with foreign direct investment in Nigeria. The cashless policy is becoming more familiar nowadays in Nigeria and is drawing researcher's attention to conduct studies in the area.

Adurayemi (2016) considers the cashless policy as economy system where money is spent using electronic means instead of physical cash. Muyiwa et al. (2013) find the cashless society as an environment where community makes the use of charge card, credit card, cheques and direct transfer as payment mechanism through internet and other electronic platform or means the study further assert that application and use of computer technology lead to widespread use of cashless policy in society this is also incline with the study by Elechi and Rufus (2016).

Evolution of Cashless Economy and Phases of Implementation in Nigeria

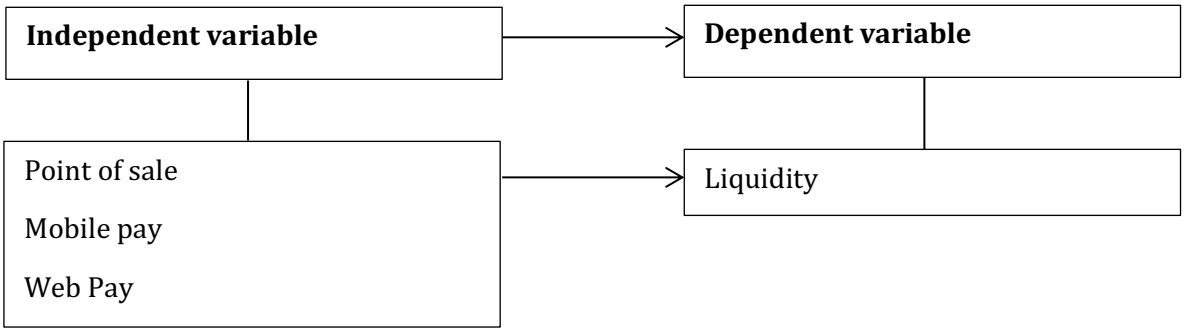
In January 2012 the Central Bank of Nigeria announces the pilot scheme of cashless policy in Lagos state. According to CBN (Central Bank of Nigeria, 2012) cashless policy DMBs should charge withdrawal fee of more than five hundred (500,000) to individual and one million (100,000) to corporate bodies. Despite the paramount significance of the policy, the implementation was suspended shortly after the outcome of the pilot test in Lagos, a lot of issues and concern were raised on the efficiency and

effectiveness of the policy walkability at national level. Akeem (2017) question the ability, capacity and technological development of banking industry toward stable and easy implementation of the policy at national level.

The major challenges toward the implementation of the cashless policy in Nigeria is that if penalty is impost on individual and corporate bodies on daily withdrawal of cash and the banking industry fail to provide effective and conducive environment, Nigerians will resort to saving their money at home instead of bank which will be a great setback on the banking industry and the economy at large. Despite the alarm raise in terms of the national implementation on the policy in 2013 the policy record huge success in Lagos which lead to the extension of the policy to cover other six stages which include Abia, Anambra, Ogun and Abuja, Rivers, Kano. After the former CBN Governor Lamido Sanusi Lamido tenure, nothing much has been hard about the progress or challenges concerning the policy. In 2017, there was a changed drive to implement the cashless policy reintroducing penalties, ceilings, and charges across the country.

Figure 1

Research conceptual framework



Source: author own development

Figure 1 indicates model conceptual framework. Cashless policy is the independent variable proxy by point of sale, mobile pay and web pay while the dependent variable bank liquidation proxy by bank liquidity.

Research Methodology

This study adopted the use of multiple regression analysis. This model was formed from the functional and linear relationship that existed between the research variables, from the theoretical and literature review in the previous chapter, it was observed that there was a causal link between POS, MP and WP on DBMs. The data for the study were obtained from the Central Bank of Nigeria statistical bulletins and World Bank. The model was to verify the effectiveness of cashless policy on DMBs Liquidity in Nigeria.

The ordinary least square (OLS) is given by the formula below

Model 1

$$LQT = f(POS) \quad (1)$$

$$LQT = \beta_0 + \beta_1 + POS_1 + U_t \quad (2)$$

Model 2

$$LQT = f(MP) \quad (3)$$

$$LQT = \beta_0 + \beta_1 + MP_1 + U_t \quad (4)$$

Model 3

$$LQT = f(WP) \quad (5)$$

$$LQT = \beta_0 + \beta_1 + WP_1 + U_t \quad (6)$$

Where

β_0 is an Intercept/Constant

β_1 is parameter

LQT = Liquidity

U_t is the unobservable variable

POS = Point of Sale

MP= Mobile Pay

WP = Wep Pay

A priori expectation

It is expected that: $B_1 < 0$, and $B_2 > 0$

Research Results

The result and interpretation of this study is explained in this section the data was collected from the CBN statistical bulletins. The OLS regression and cointegration were explained in this section.

Table 1

Descriptive statistics

	LQT	**MP**	**POS**	**WP**
Mean	3.827669	5.016725	5.355662	4.605632
Median	3.827554	5.847796	5.743228	4.432601
Maximum	4.646312	8.533255	8.072389	6.516075
Minimum	3.272985	0.239017	2.400619	3.220874
Std. Dev.	3.381002	2.582765	2.044152	1.0370787
Skewness	0.530649	-0.474186	-0.182070	0.589625
Kurtosis	3.300691	2.129376	1.650615	2.405627
Jarque-Bera	0.557686	0.759639	0.895326	0.799291
Probability	0.756659	0.683985	0.670558	0.670558
Sum	42.10436	55.18398	50.66195	50.66195
Sum Sq. Dev.	1.451622	66.70673	10.75530	10.75530
Observations	11	11	11	11

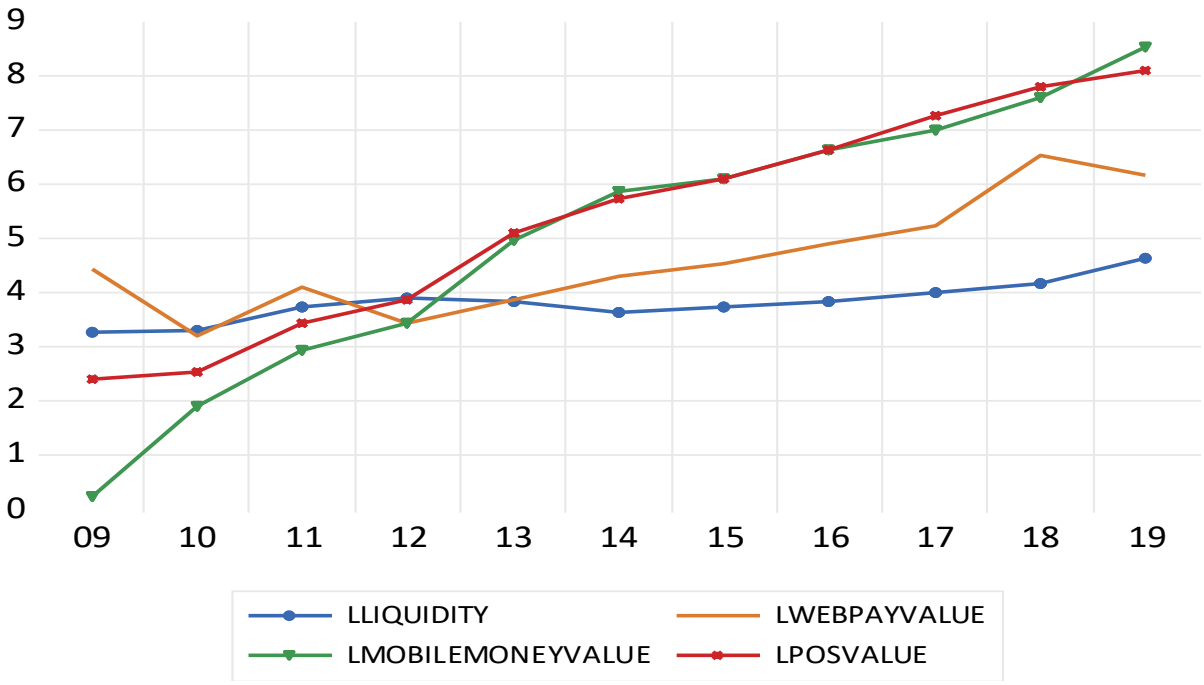
***Source**: Authors' analysis using EViews 12 software.*

Table 2 present the descriptive statistics where Skewness, minimum, Kurtosis, maximum, Probability, mean, median, Jarque-Bera, sum sq. Dev. standard deviation and Sum Sq of the data for the

variables used in the study are described. The minimum and maximum values of LQY are 4.646312 and 3.272985 with an average of 3.827669 while MP, POS and WP, vary from a minimum of 0.239017, 2.400619 and 3.220874 and maximum of 8.533255 8.072389 and 6.516075 with an average of 5.016725, 5.355662 and 4.605632 respectively. LQT and WP have positive skewed and MP and POS. all the variable are statistically insignificant at 5% with negative skewness.

Figure 2

Trend analysis of the variables



Source: Authors' analysis using EViews 12 software.

It was imperative that the trend analysis of LQT was conducted on the cashless policy variables. The cashless policy examine were the Point of Sale, Mobile Pay and Web Pay from 2009 to 2019.

Table 2

Unit root test

VARIABLES	STATIONARY	ADF STATISTIC	PROBABILITY	CRITICAL VALUE
LQT	(d(2))	-3.336156	0.0046	10%level -1.599088 5%level -1.995865 1%level -2.886101
MP	(d(2))	-4.489376	0.0009	10%level -1.598068 5%level -2006292 1%level -2.937216
POS	(d(2))	-6.250704	0.0001	10%level -1.599088 5%level -1.995865 1%level -2.886101
WP	(d(2))	-3.519721	0.0039	10%level -1.598068 5%level -2006292 1%level -2.937216

Source: Authors' analysis using EViews 12 software.

The results of the unit root test in Table 3 above indicated that all the variables were stationary at second difference (d (2)). The Augmented Dickey-Fuller test statistic value for liquidity is -3.336156 and the critical values are -2.886101, -1.995865 and 1.599088 at 1, 5 and 10 percent level respectively. The Augmented Dickey-Fuller test statistic for mobile pay is -4.489376 and the critical values are -2.937216, -2006292 and -1.598068 at 1, 5 and 10 percent respectively. The Augmented Dickey-Fuller test statistics for Point of Sale are is -6.250704 and the critical values are level -2.886101, -1.995865 and -1.599088 at 1, 5 and 10 percent respectively. The Augmented Dickey-Fuller test statistics for web pay are is 3.519721 and the critical values are level -2.937216, -2006292 and -1.598068 at 1, 5 and 10 percent respectively. Base on the result obtained by comparing the Augmented Dickey-Fuller test statistic values with the correspondent critical values at 1, 5, and 10 percent all the probability are statistically significant.

Table 3

Cointegration test

DEPENDENT VARIABLES	INDEPENDENT VARIABLES	TRACE STATISTIC	CRITICAL VALUE	PROBABILITY	LAGS INTERVAL	CIONTEGRATING
LQT	MP POS WP	4.835085	3.841465	0.0279	1,1	1

Source: Authors' analysis using EViews 12 software.

The Johansen cointegration test results in Table 4 above confirmed the existence of long run relationship between Liquidity, Mobile Pay and Point of Sale and Web Pay in Nigeria as indicated by the TRACE-statistic 4.835085. The TRACE-statistics results revealed that there was 1 cointegrating equation at 5percent level with critical value of 3.841465.

Table 4

Regression result

Model 1									
Dependent Viarable	**Independent Variable**	**Coefficient**	**T Statistics**	**Prob.**	**F Statistics**	**Prob.**	**R^2**	**Adjusted R^2**	**Durbin Watson Statistics**
LQT	POS	0.153491	4.354914	0.0018	18.96527	0.001837	0.678	0.642	0.951933
	C	3.005621	14.96270	0.0000					
Model 2									
Dependent Viarable	**Independent Variable**	**Coefficient**	**T Statistics**	**Prob.**	**F Statistics**	**Prob.**	**R^2**	**Adjusted R^2**	**Durbin Watson Statistics**
LQT	MP	0.123062	4.538485	0.0014	20.59785	0.001409	0.695	0.662	1.001732
	C	3.2103302	21.18535	0.0000					
Model 3									
Dependent Viarable	**Independent Variable**	**Coefficient**	**T Statistics**	**Prob.**	**F Statistics**	**Prob.**	**R^2**	**Adjusted R^2**	**Durbin Watson Statistics**
LQT	WP	0.267569	6.567728	0.0001	10.16710	0.011032	0.530	0.478	1.130188
	C	2.595344	3.188589	0.0110					

Source: Authors' analysis using EViews 12 software.

Table 4 Model 1 present the OLS results for the independent and dependent variables. The coefficient value of 0.153491 indicate the existence of positive relation that is one percent changes in value of point of sale will influence the Deposit money banks liquidity is influences by 15.35 percent in Nigeria. The F- statistics is 18.96527 with P-value of 0.001837. The model is suited for the study, as the value is less than 1%. R^2 of 0.678 indicates that 67.8% of the changes in the dependent variable liquidity is explained by the independent variable point of sale. This position was also good after testing the adjusted R^2. Adjusted R^2 was maintained at 0.642 value, which implies that after adjusting for the error term the R^2 still remain significant at 64.2%. The Durbin-Watson statistic 0.951933 is observe to be less than 2 but greater than the Durbin Watson lower limit (dL) at 0.9273, therefore we cannot rule out the presence of serial autocorrelation in this regression.

Also, Table 4 Model 2 present the ordinary least square results for the independent and dependent variables. The coefficient value of 0.123062 indicate the existence of positive relation that is one percent changes in value of point of sale will influence the Deposit money banks liquidity is influences by 12.31 percent in Nigeria. The F- statistics is 4.538485 with P-value of 0.011032. The model is suited for the study, as the value is less than 1%. R^2 of 0.695 indicates that 69.5% of the change in the dependent variable liquidity is explained by the independent variable point of sale. This position was also good after testing the adjusted R^2. Adjusted R^2 was maintained at 0.662 value, which implies that after adjusting for the error term the R^2 still remain significant at 66.2%. The Durbin-Watson statistic 1.001732 is observe to be less than 2 but greater than the Durbin Watson lower limit (dL) at 0.9273, therefore it's impossible ruling out the presence of serial autocorrelation in this regression

Similarly, Table 4 Model 3 present the ordinary least square results for the dependent and independent variables. The coefficient value of 0.267569 indicate the existence of positive relation that is one percent changes in value of point of sale will influence the Deposit money banks liquidity is influences by 26.76 percent in Nigeria. The F- statistics is 10.16710 with P-value of 0.0014. The model is suited for the study, as the value is less than 1%. R^2 of 0.530 indicates that 53.0% of the changes in the dependent variable liquidity is explained by the independent variable point of sale. This position was also good after testing the adjusted R^2. Adjusted R^2 was little bit low at 0.478 value, which implies that after adjusting for the error term the R^2 is little bit low below the standard at 47.8%. The Durbin-Watson statistic 1.130188 is observe to be less than 2 but greater than the Durbin Watson lower limit (dL) at 0.9273, therefore we cannot rule out the presence of serial autocorrelation in this regression.

Discussion

From the results obtained in table 5 above, it is clearly visible that both the three cashless policy variables have significant effects on the deposit money banks liquidity. The first model found that the point of sales (POS) has positive significance effects on deposit money banks liquidity as indicate by probability value of 0.001837 which implies that the variable is significant at 0.18 less than the maximum acceptance level of 5%. The coefficient value of 0.153491 indicate the existence of positive relation that is one percent changes in value of point of sale will influence the Deposit money banks liquidity is influences by 15.35 percent in Nigeria, this result are in line with a prior expectation that there is positive relationship between the cashless policy and deposit money banks liquidity as indicated by table 5 model 1 above. Similar studies of Siyanbola (2013), link point of sales with the act of selling by traders also Suda (1996) confirmed Point of sale device to be commonly found in banks today, supermarket, filling station, universities for payment of good and service.

Table 4 Model 2 above shows there is significant positive effects of money pay (MP) on deposit money banks liquidity as indicate by probability value of 0.001409 which implies that the variable is significant at 0.14 less than the maximum acceptance level of 5%. The coefficient value of 0.123062 indicate the existence of positive relation that is one percent changes in value of point of sale will influence the Deposit money banks liquidity is influences by 12.31 percent in Nigeria which is in line

with the study of Anderson (2010), Hassan and Wood (2020), and Song and Vong (2013). The R^2 value indicate that 69.5 percent variation of deposit money banks liquidity is influence by value of mobile pay transaction in Nigeria, this result is in line with a prior expectation that there is positive relationship between the cashless policy and deposit money banks liquidity as indicated by table 5 model 2 above.

Similarly, Table 4 Model 3 above indicates positive significant effects of web pay (WP) on deposit money banks liquidity as indicate by probability value of 0.011032 which implies that the variable is significant at 0.11 less than the maximum acceptance level of 5%. R^2 value of 53.0 indicates 53.0% percent variation of deposit money banks liquidity is influence by value of web pay transaction the coefficient value of 0.267569 indicate the existence of positive relation that is one percent changes in value of point of sale will influence the Deposit money banks liquidity is influences by 26.76 percent in Nigeria. in Nigeria, this result is in line with a prior expectation that there is positive relationship between the cashless policy and deposit money banks liquidity as indicated by table 5 model 3 above. Jayawardhena and Foley (2000) studies states that web pay is facilitate by electronic transfers which used internet channels via Personal Computers, phones, laptops, tablet and other electronic devices that enable customers who subscribed to internet banking to enjoy basic electronic banking facilities and transactions via the web. Firdous and Farooqi (2017) found high connection between internet banking service quality and consumer loyalty.

Limitation of the Study

This study encountered certain limitation by covering only the DMBs in Nigeria. Moreover, the research did not include other banks like mortgages and microfinance banks and this study did not cover the whole period of time.

Conclusions and Implications

The findings clearly indicate that POS, mobile pay and web pay have positive significant effects on deposit money banks liquidity in Nigeria. This study concludes that the cashless policy has positive and significant effect on deposit money banks (DMBs) liquidity. The null hypothesis that state that there were no significant effects of point of sale, money pay and liquidly ratio on deposit money banks liquidity is rejected, the point of sale, money pay and web pay are statistically significant at 0.001837, 0.001409 and 0.011032 respectively which is less than 5% level. Therefore, the study recommends that CBN should intensify full implementation of cashless policy, CBN should also provide enabling environment for the smooth conduct of cashless policy and facilitate, encourage and enforce on all deposit money banks to comply with the policy.

Suggestions for Future Research

This study examined the effects of cashless policy on deposit money banks liquidity (DMBs) in Nigeria. Regression analysis techniques found significant effect of cashless policy (point of sale, Web Pay and Mobile Pay) on deposit money banks liquidity spanning for the period of (2013-2020). Other studies should include other variables of cashless policy on deposit money banks liquidity and other banks performance measures such as earning, capital adequately, asset quality and management efficiency. The quantitative research mythology was employed in this study, survey and other method of data analysis need to be tested too, this study also focus on deposit money banks other studies should try to cover the entire banking sector, the entire economy and include other countries of the world. The study intensively used secondary data, there is also needs to test the qualitative effects through the use of primary data. Last both not the list other studies should consider other sources of data such as World Bank Data for effective comparative analysis.

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Conflict of Interest

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