FINANCIAL TECHNOLOGY AND LIQUIDITY IN THE NIGERIAN BANKING SECTOR

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ABSTRACT

In recent times, financial technology advancement *has been growing in volume of transactions. The increasingly used payment system has prompted concern on the long run impact of electronic payment on liquidity of the Nigerian banking sector. The study investigated impact of financial technology on the liquidity of the Nigerian banking sector. A case study research design was used to determine relationship existing between electronic payment services and banking sector liquidity in Nigeria. The study covered nine years period, using quarterly data spanning from the first quarter of 2009 to the fourth quarter of 2017. Secondary data was also collected in order to estimate the model. The dependent variable was proxied by loan to deposit ratio while the independent variables was proxied by automated teller machine, point of sales, mobile payment and automated clearing system-cheque. A unit root test was employed as a pre-estimation technique for this study, hence the variables where stationary at first difference. The study employed the Auto Regressive Distributed Lag or Bounds test approach in order to establish the short run dynamics and long run relationship of the model. Findings from the study suggested that there was a notable impact of electronic payment (fin-tech) on liquidity among all Deposit Money banks in Nigeria. Due to this finding the study concluded that an e-system in the banking sector will bring about financial development. Deposit Money banks should be encouraged to adopt electronic payment systems so as to*

have a better banking experience, easy access to banking products, reduced cost and flexibility of online international transactions.

Keywords: *Electronic Payment System, Deposit money banks, Auto Regressive Distributed Lag, Bounds test approach*

1.0 Introduction

1.1 Background to the Study

According to the July (2012) Reserve Bank of Zimbabwe Monetary policy, efforts to improve the economy's liquidity were attributed great prominence on improving confidence in the banking sector. Customer confidence is based on the liquidity of the banking sector. Uremadu (2009) explained the banking sector liquidity in terms of the availability of assets that are liquid as a portion of total deposit kept by banks. The banking sector liquidity is better measured with total loan to total deposit ratio as compared to current assets to current liability ratio. Liquidity is one of the most important factors in any financial institution because it can pass confidence to the general public. The CBN controls the deposit money banks to ensure that there is an adequate trade-off between liquidity and profitability. In other words the banks should not pursue profitability at the expenses of liquidity since the objective of the bank is profit maximization. Liquidity could be seen as the speed at which assets are converted to cash without losing its capital and interest. A bank may be profitable without necessarily being liquid, therefore liquidity should be managed in order to obtain an optimal level, that is, a level that avoids excess liquidity which may mean lack of business idea by management (Owolabi & Obida, 2012).

Financial technology (fin-tech) in its broad perspective is defined as the application of technology in finance. The definition of fin-tech cannot be related to only institutions but also electronic payment system. Wilson (2017) explained the concept of financial

technology as a company that uses technology solely for making profit through the creation of financial products as services to satisfy customer needs. In the financial system, traditional banks have been playing important roles to facilitate financial development in the globe, i.e., financial development are the ability to stimulate economic growth and reduce poverty through the reduction of cost in the financial system. Though, a growing technological environment has gradually exposed the global economy to digital channels. Financial technology (fin-tech) companies as disruptors have rapidly digitalized the financial market (Skan, Dickerson & Masood, 2015).

Irrespective of the irresistible standards associated with electronic payment systems, the use of cash and cheques has been predominant as regards banking transactions in Nigeria. The electronic payment system is a preferred alternative due to the time lag associated with lodgement of cheques and receipt of value as well as fraud. However, the full implementation of Nigerian Automated Clearing system (NACS) that kick started in 2002 was set up with the aim to substantially mitigate clearing days and militate against fraudulent transactions. According to the Central Bank of Nigeria the volume and value of cheques cleared has been decreasing over the year from 2013 till date. These transactions reduced in the first half of 2014 by 13.48 per cent and 8.90 per cent to 7,144,340 and ₦3,710.67 billion respectively as compared to the second half of 2013 of 8,257,330 and ₦4,073.15 billion. Consequently, in the first and second half of 2017 reduced significantly which summed up to ₦10,808,983 and ₦ 5,381.92 billion in volume and value respectively (CBN, 2017)?

The study will help bank management make the required effort to increase the volume of payment transaction by way of expanding e-payment service which will encourage the liquidity in the Nigerian banking sector. It will also help bank managers to make informed decision based on information (customer transaction history) saved as a result of automated systems. The study will

also help the regulatory authority (CBN) to make relevant regulatory policies that will guide both banks and customers decisions on electronic payment transaction. This study will help academicians to further carry out studies in this area and also expand the frontier of literature. The study will help customers understand the importance of using electronic payment as it will increase their confidence in the banking sector. Customer confidence in the banking sector is based on banks liquidity

1.2 Statement of the Problem

One of the primary ways of enhancing liquidity in the banking sector is through the innovation of a robust financial technology. This motivation drives entrepreneurship and in the case of the banking sector especially in frontier markets, it enhances an efficient payment system which improves liquidity and the growth potentials of banks.

Financial technology is used as a tool to cut cost, increase efficiency, deliver varieties of products, and increase flexibility for the mere purpose of being perceived as technology leader (Pyun, Scruggs & Nam, 2002). Financial technology in Nigeria most especially Point of sale (POS) has been growing in its volume and value of transaction to about ₦147 million and ₦1,409.81 billion respectively in 2017 (Central Bank of Nigeria statistical bulletin, 2017). Despite this observable increase, this has not affected liquidity of deposit money banks in Nigeria significantly.

Furthermore, Abubakar, Shagari and Olusegun (2015) in their study that examined the link between electronic banking and liquidity in the Nigerian banking sector, found that POS and mobile payment has no significant relationship with liquidity,

1.3 Research Questions

In order to tackle these problems mention, these research questions have been asked in consideration of the study.

1. How has electronic payment affected the banking sector liquidity in Nigeria?
2. To what extent has mobile payment been affecting banking sector liquidity in Nigeria?
3. What is the relationship existing between point of sale (POS) and banking sector liquidity in Nigeria?
4. How has the automated teller machine (ATM) payment service been influencing the banking sector liquidity in Nigeria?
5. What is the relationship between automated cheque clearing system and liquidity in Nigerian banking sector?

1.4 Objectives of the Study

This study focuses on investigating the effect of financial technology on banking sector liquidity in Nigeria. The objectives are to:

1. Investigate the influence of electronic payment on banking sector liquidity in Nigeria.
2. Analyse the effect of mobile payment services on banking sector liquidity in Nigeria.
3. Investigate what effect point of sales (POS) services have on banking sector liquidity in Nigeria.
4. Analyse the relationship existing between automated teller machine (ATM) and the Banking sector liquidity in Nigeria.
5. Evaluate the impact of automated clearing system-cheques on the liquidity of the Nigerian banking sector.

1.5 HYPOTHESIS

The hypotheses are stated in its null form as follows:

1. **H_0:** Electronic payment transaction does not affect banking sector liquidity
2. **H_0:** Mobile payment service does not affect banking sector liquidity
3. **H_0:** Point of sale (POS) payment service does not affect banking sector liquidity

4. **H_0:** Automated teller machine (ATM) payment service does not affect banking sector liquidity.
5. **H_0:** Automated clearing system (ACS) cheques payment service does not affect banking sector liquidity.

2.0 Literature Review

2.1 Review of Variables

The Nigerian automated clearing system is a platform used for banking and financial industry at large. It helps in clearing transaction for electronic payments (ACS) and paper-based payment transaction (cheques). Prior to the technology era, the clearing system in Nigeria was being operated manually which made the paper based transactions (cheques) take several days to clear as a result of the time delay function associated with clearing houses. The NACS that took-off on the 21st of October, 2002 brought about the possibility for cheque transactions physically cleared to be transformed into electronic platform/ format.

The Central bank of Nigeria (CBN) Act No_24 of 1991 gave power to the apex bank to help facilitate cheque clearing and other payment system. Consequently the development on automation of clearing system has brought about a quick and speedy process for cheque transactions. Following the implementation of the cheques truncation by the CBN, there is only one clearing house in Nigeria known as the Nigeria inter-bank clearing and settlement system.

POS volume of transaction will helped reduce the amount of cash outside the banks and thereby increasing saving in the banking sector which influences the liquidity of banks. Hence the bank will be able to keep its deposit base sufficient. Though, it was found in a study that (POS) has no significant correlation with the banks liquidity (Abubakar, Shagari & Olesegun, 2015). In this study it is expected that (POS) device is paramount to growth of the Nigerian banking sector.

2.1.1 Mobile electronic payment

The mobile payment is a type of electronic payment service that involves the use of mobile phone with the presences of internet to handle some banking transaction such as bills payment, funds transfer and air-time top-up, These services provided by banks are used by customers for their payment transactions. Mobile payments requires an application which is installed on the customers mobile phone in order to carry out this transaction and mobile payment could be carried out through the Unstructured supplementary service data (USSD) code. The USSD code is a technology that connects GSM network with service provider's platform through the use of real time messaging communication technology, though the USSD regulatory framework had just been implemented on June 1st, 2018 by the CBN. The USSD is still a convenient and easy means of mobile banking.

2.2 THEORETICAL FRAMEWORK

The bank-focused theory is harboured on the proposition that banks use non-traditional but common delivery channel with little cost to offer a better service to their customers. Kapoor (2010) stated that such channels include automated teller machine (ATM), mobile payment (mPAY), point of sale (POS), among others. These channels are used by bank to offer more efficient services to customers irrespective of the banks location. The theory based its argument that due to an effective e-payment service provided for customers, it will encourage customer confidence in the banking sector which will bring about a considerable liquidity to the banks.

This study will be built on this theory because it lays emphasis on electronic platforms as the best channel for financial transaction or services in the financial market. Also the theory of liquidity requirement stipulates that the amount of cash held by banks are usually fixed because holding cash reduces risk, makes cash available and verifiable by customers. Deposit money banks hold cash voluntarily or based on CBN regulations. A bank ensures that it has enough cash to meet customers demand for both borrowers

and lenders (Calomiris, Heider & Hoerova, 2015). Electronic payment because of its nature in the reduction of money circulated outside the banking sector, will increase the amount of money held by bank which could indicate a level of increase in the liquidity of the Nigeria banking sector.

3.0 METHODOLOGY

The bank-focused theory is harboured on the preposition that banks use non-traditional but common delivery channel with little cost to offer a better service to their customers. Kapoor (2010) stated that such channels include automated teller machine (ATM), mobile payment (mPAY), point of sale (POS), among others. Research design was described by Oloyo (2001) and Newing (2011) as the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure.

These channels are used by bank to offer more efficient services to customers irrespective of the banks location. The theory based its argument that due to an effective e-payment service provided for customers, it will encourage customer confidence in the banking sector which will bring about a considerable liquidity to the banks. This study employed secondary data which were sourced from the Central bank of Nigeria statistical bulletin and the Nigerian bureau of statistics of the entire banking sector in Nigeria. a thorough and well reported investigation, focusing on data collection and analysis methods.

3.2 Model Specification

The model used in this study is adapted from the empirical work of (Njilu, 2016) and it is specified in both its mathematical form and econometric form:

$L_q = f(POS, ATM, ACSc, mPAY)$

Equation…….…… *(1)*

$L_q = \beta_0 + \sum_{i=1}^{n} \beta X + \varepsilon$

Equation……..…. *(2)*

Where; L_q = Banking sector liquidity proxy by (loan to deposit ratio)

β_0 = constant term (intercept)

X = independent variables proxy by; automated teller machine (ATM), automated clearing system-cheques (ACSc) point of sale (POS) and mobile payment (mPAY).

It is assumed in this study that "*i*" is observed on all time period (time series). In Equation (1) is specified in its implicit form and equation (3) is specified in its explicit form

$LDR_i = \boldsymbol{\alpha}_0 + \boldsymbol{\alpha}_1 POS_i + \boldsymbol{\alpha}_2 ATM_i + \boldsymbol{\alpha}_3 ACSc_i + \boldsymbol{\alpha}_3 mPAY_i + \varepsilon_i$

Equation…… *(3)*

3.3 Estimation Techniques

The Autoregressive Distributed lag (ARDL) or bound test procedure will be used, as long as the required variables are stationary at levels, first difference or combining the I(0) and I(1). According to Nkoro & Uko (2016), the most important reason for this approach situates on the identification of the co-integrating vectors where multiple co-integrating vectors exist. However, this technique will be unreliable in the presence of integrated stochastic trend of I(2). To prevent effort on its future validity, it may be advisable to test for unit roots among the variables, though not as a necessary condition.

Bounds Test

The null hypothesis suggest that no co-integration exist if the calculated F-statistics value is below the lower bound critical values, I(0), which indicates that there is no long-run correlation between the regressand and regressors. Consequently, if the F statistics value is above the upper bound critical value, this indicates that there is co-integration among the variables (long run relationship exists).

$\Delta LDR_t = \beta_0 + \sum_{j=1}^{p} \Phi_j \Delta LDR_{t-j} + \sum_{j=0}^{p} \theta_j \Delta LnPOS_{t-j} + \sum_{j=0}^{p} \lambda j \Delta LnATMt\text{-}j + \sum_{j=0}^{p} \sigma j \Delta LnACSc_i + \sum_{j=0}^{p} \alpha_j \Delta LnMPAY_{t-j} +$

$\delta_1 LDR_{t-1} + \delta_2 LnPOS_{t-1} + \delta_3 ATM_{t-1} + \delta_4 ACSc_{t-1} + \delta_5 mPAY_{t-1} + \varepsilon_t$

Equation…… *(4)*

Where Δ is the first-difference operator and *p* is the maximum lag order. The existence of the co-integration is tested through the F-statistics. The coefficient (***Φ***, ***θ***, ***λ***, β, ***σ***, α) correspond with short-run dynamics of the model, while (δ_1, δ_2, δ_3, δ_4, δ_5) represents the long-run relationship.

H_0: $\delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = 0$ (null, i.e. the long-run relationship does not exist)

H_1: $\delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_4 \neq \delta_5 \neq 0$ (Alternative, i.e. the long-run relationship exists)

Given that co-integration exists, hence we estimate the long run coefficient. The long-run model specification is given as,

$LDR_t = \beta_1 + \sum_{j=1}^{p} \Phi_{1j} LDR_{t-j} + \sum_{j=0}^{p} \theta_{1j} LnPOS_{t-j} + \sum_{j=0}^{p} \lambda j \Delta LnATMt-j + \sum_{j=0}^{p} \sigma j \Delta LnACSc_i + \sum_{j=0}^{p} \alpha_j \Delta LnMPAY_{t-j} + \varepsilon_t$

Equation…….... (5)

Liew (2004) in other to specify the right ARDL Model, appropriate lag selection criterion such as Akaike information criterion should be used provided the sample size is less than 60. Given that the study used an Annual data, a maximum lag (*p*) of order 2 is selected in line

The ARDL specification of the short-run dynamics which was derived from the error correction model is shown below:

$LDR_t = \beta_1 + \sum_{j=1}^{p} \Phi_{1j} LDR_{t-j} + \sum_{j=0}^{p} \theta_{1j} LnPOS_{t-j} + \sum_{j=0}^{p} \lambda j \Delta LnATMt-j + \sum_{j=0}^{p} \sigma j \Delta LnACSc_i + \sum_{j=0}^{p} \alpha_j \Delta LnMPAY_{t-j} + \partial ECM_{t-1} + \varepsilon_t$

Equation…… *(6)*

Where ECM_{i-1} is the error adjustment term, given as;

$$ECM_i = LDR_i - \left[\beta_1 + \sum_{j=1}^{p} \Phi_{1j} LDR_{t-j} + \sum_{j=0}^{p} \theta_{1j} LnPOS_{t-j} + \sum_{j=0}^{p} \lambda j \Delta LnATMt-j + \sum_{j=0}^{p} \sigma j \Delta LnACSc_i + \sum_{j=0}^{p} \alpha_j \Delta LnMPAY_{t-j}\right]$$

Equation…….... *(7)*

The entire coefficients of the short-run model are coefficients explaining the short-run dynamics which shows the meeting point of the model to (∂) and which represents the re-parameterization of errors generated in one period and corrected in the subsequent period.

4.0 DATA ANALYSIS AND INTERPRETATION OF RESULT

Unit Root Test

Table 4-1 Augmented Dickey Fuller Test

Variables	Test statistics	Critical Value	Remark	Test Statistics	Critical Value	Remark	Order of integration
LDR	-1.5939*	-2.9484	**Non stationary**	-5.069**	-2.95112	**stationary**	**I(1)**
LATM	-0.8017*	-2.9484	**Non stationary**	-5.601**	-2.95112	**stationary**	**I(1)**
LCHEQUE	-1.6636*	-2.9484	**Non stationary**	-6.120**	-2.95112	**stationary**	**I(1)**
LPOS	-0.2420*	-2.9511	**stationary**	-7.570**	-2.95112	**stationary**	**I(1)**
LMPAY	-5.9850*	-2.9484	**stationary**	N.A	N.A	N.A	**I(0)**

Source: E-views output 2019

Note: The variables are stationary at 5% level, * and ** indicate level and first differencing respectively

Table 4-1, shows the Augmented Dicker Fuller (ADF) test statistics, respectively. A variable is considered to be stationary when the ADF test statistics is greater than its critical values at 10, 5 and 1 per cent significant level. The result of the ADF test statistics indicates that all the variables are stationary after first differencing at 5 percent levels of significant. Consequently Table 4-2, which shows the result of Philip-person test statistics.

Table 4-2 Ardl Bound Test or Test for Co-Integration

Test statistic	Value	Significance level (%)	lower bound	Critical value bound (CV) Upper bound
F-statistic	4.7223		I(0)	I(1)
		1	4.093	5.532
		5	2.947	4.088
		10	2.46	3.46

Source: Researcher's computation, 2019

Equation (5) is specified in order to test if the null hypothesis should be rejected or accepted. The null hypothesis implies that there is no long run relationship exists between all the regressand and regressors. Table 4-2 displays the output of the computed F-statistics based on the Narayan's critical values (CV) table. However, Narayan (2004) stated that existing critical values in Pesaran F-statistics is not applicable. Hence, provides a set of critical values for sample size running from 30 to 80. The calculated F-statistics (4.7223) is above the upper bound critical value at 5 per cent level of significance. As a result of this, the null hypothesis is rejected and concludes that there is a long-run correlation or co-integration between the semi-logarithms of the electronic payment tools on the liquidity of the Nigerian banking sector.

Table 4-3 Long-Run Coefficient

AIC – ARDL s(1, 3, 2, 4, 0) Dependent variable LDR	Coefficient	Standard Error	T-statistics
C	-1.893528	85.73344	-0.022086
LPOS*	30.46359	6.908258	4.409736
LATM*	-36.02420	6.401911	-5.627101
LCHEQUE**	23.88554	9.174858	2.603369
LMPAY	0.464662	3.164287	0.146846

Source: Researcher's computation, 2019

Note: that * and ** are significant at 1 and 5 per cent level respectively.
Table 4-3, shows the semi-logarithm model, the interpretation of the coefficients will be in percentage. The result shows that the logarithm of POS and CHEQUE are positively and statistically significant at the level of 1 and 5 per cent respectively; and also the logarithm of ATM is negatively significant at 1 per cent level. The coefficient estimates indicates that 1 per cent increase in POS transaction will bring about a 30.46 per cent increase in the level of loan to deposit ratio in the Nigerian banking sector, also the result show that a 1 per cent increase in ATM transaction will bring about a 36.02 per cent decrease in loan to deposit ratio, it is interpreted in term of elasticity. The direct relationship existing follows the theoretical statement of bank-focused theory by kapoor.
In comparison to other empirical studies in this area, Abubakar, Shagari and Olusegun (2015) shows a similar result as regards mobile payment which indicates an insignificant relationship whereas in the study of Obiekwe and Anyanwankwo (2017) found that ATM and mobile payment had significant relationship in the Nigerian economy. Examining the coefficient of mobile payment tranactions in Nigeria, the result shows that a 1 per cent increase in the variable will induce a 0.46 per cent increase in liquidity of the Nigerian banking sector and the result is statistically insignificant. This is in line with bank-focused theory which stipulated that mobile payment influences liquidity as result of the transaction value.

Table 4-4 Short-Run Coefficient or Error Correction Model

AIC – ARDL (1, 3, 2, 4, 0) Dependent variable DLnCBLSMEs	Coefficient	Standard Error	T-statistics
D(LPOS)	-2.524152	4.349957	-0.580271
D(LPOS(-1))	-7.851328	4.015280	-1.955362
D(LPOS(-2))	-12.79630	4.359616	-2.935189
D(LATM)	-12.79747	3.944265	-3.244578
D(LATM(-1))	14.61374	5.121136	2.853614
D(LCHEQUE)	3.912016	6.945557	0.563240

D(LCHEQUE(-1))	-41.90402	10.81550	-3.874440
D(LCHEQUE(-2))	-6.715558	7.577280	-0.886276
D(LCHEQUE(-3))	-25.07021	7.527572	-3.330451
ECM	-0.750004	0.123858	-6.055371

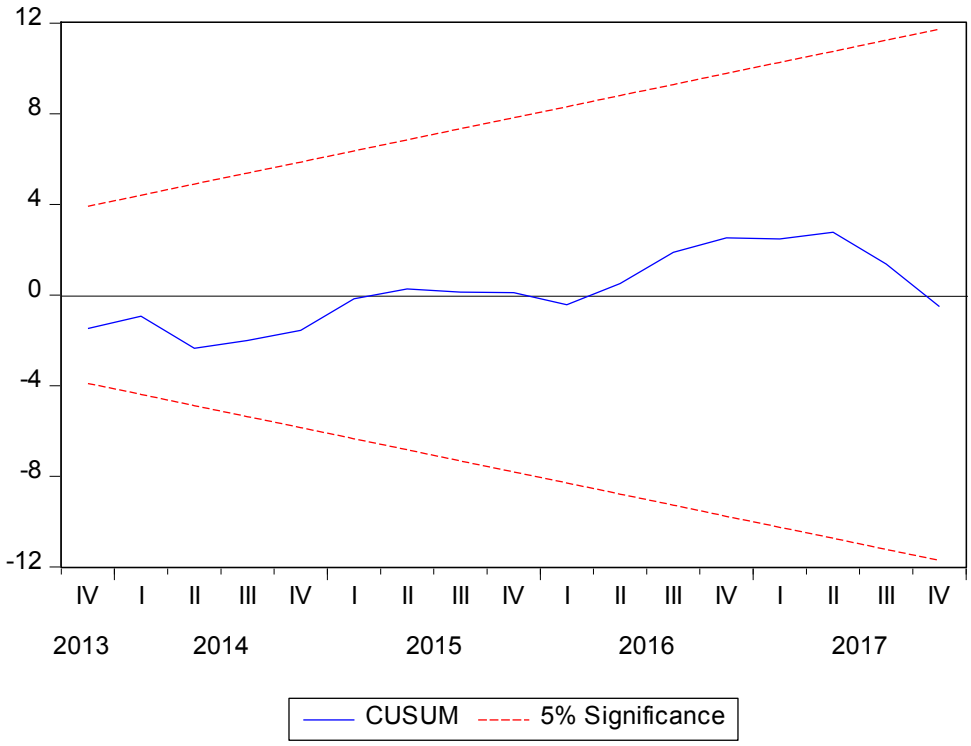
Source: E-views10 output 2019.

Note: "D" denotes difference, significant at 1 per cent level.

The short run dynamic of the model is presented in Table 4-5. It shows the Error Correction Mechanism (ECM) of the model and speed of adjustment. The rule of thumb states that ECM which is given as CointEq (-1) must be negative and lie between zero and one. This shows that for the model specified, the Error Correction Model result is (-0.750004). This indicate that about 75 per cent of errors generated in each period are automatically corrected in the subsequent period (on an annual basis).

Table 4-5 Robustness Test

	Probability
Breusch Godfrey serial correlation test	0.1797
Breusch Pagan-Godfrey heteroskedasticity test	0.9380



Source: E-views10 output 2019

Figure 4-1 Parameter Stability Test

According to Murthy and Okunade (2016), one of the econometric requirements for a well specified Autoregressive Distribute Lag model is the presence of parameter stability. The cumulative sum (CUSUM) test is adopted to check the stability of the short run and long run coefficient estimates. From Figure 4-1, it can be seen that the CUSUM test lie inside the critical boundaries at 5 per cent level. Therefore, we can conclude that the ARDL co-integration model displays parameter stability. Also applying other post-estimation test such as, Breusch Godfrey serial correlation test and Breusch Pagan-Godfrey heteroskedasticity test, Table 4-5 shows no evidence of serial correlation and heteroskedasticity in the disturbances because the changes in the error are constant and the error are not correlated.

5.0 CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The Apex bank and deposit money banks are important participants in electronic payment systems and will require a more efficient guidelines and practices to enhance liquidity in the entire Nigerian banking sector. Findings from the study suggest that there was notable impact of electronic payment (fin-tech) on liquidity among all deposit money banks in Nigeria. Due to the findings, the study concluded that an e-system in the banking sector will bring about financial development. This is because electronic payment systems help to reduce the amount of money in circulation and thereby increases the amount of money that stays in entire banking sector. This therefore will enable deposit money banks to adequately carry out the banking business. Empirical findings from the study relates to but short run dynamics and long run relationship between electronic payment and liquidity of the Nigerian banking sector. This study thereby concludes that in the long run electronic payment transaction significantly affects liquidity. Practically, deposit money banks have embraced electronic platform for their product and services. This is a performance strategy to facilitate financial inclusion in Nigeria.

Deposit money bank makes more profit (interest on loans) from lending which is their major reasons for deposit mobilization. Therefore, liquidity in the entire banking sector is a major determinant to facilitate financial development in Nigeria.

5.2 Recommendations

Based on the conclusion of this study, the following recommendations are put in place to solve the problems that instigated this research;

1. The Central Bank of Nigeria and the Nigerian deposit insurance corporation (NDIC) should encourage deposit money banks to give out facilitating loan to sectors in the

economy that will keep expanding financial development. Since electronic payment increase liquidity, monetary policy should be put in place to channel their lending practices to real sectors

2. All Deposit money banks should be encouraged regulatory authorities to adopt electronic payment systems so as to enhance a better banking experience. Point of sales transaction had the highest impact on liquidity which implies that more investment on POS devices is important to further improve the liquidity of the entire banking sector.
3. By audit trail the regulatory authority should ensure a proactive and less fraudulent electronic payment system to encourage customers to make use of mobile banking platforms. This will bring about a significant impact of MPAY on liquidity of the entire banking sector.
4. The Nigerian inter-bank settlement system should undergo a more efficient and effective transaction process in real time, since they aim at mitigating or entirely removing the glitches associated with electronic payment. This is important to give more rise to the use of electronic payment platform by customers.

6.0 CONTRIBUTION TO KNOWLEDGE

In furtherance to strengthening the Nigerian banking sector, the study clarified the adverse effect as regards electronic payment. Due to the enormous use of automated teller machines for cash withdrawal, it has led to the inconsistency of ATM transaction on liquidity of deposit money banks. The study contributed to existing knowledge by way of examining the relationship between automated cheques clearing system, i.e. to better measure the impact of electronic payment tools on the liquidity, cheque should be consider among electronic banking tools.

REFERENCES

Abubakar, A, Shagari, J. N., & Olusegun, K. L., (2015). The Relationship Between Electronic Banking and Liquidity of Deposit Money Banks in Nigeria, *International Journal of Economics Commerce and Management*, 3(9), 830-847.

Asaolu, T. O., Ayoola, T. J., & Akinkoye, E. Y., (2011). Electronic Payment System in Nigeria: Implication, Constraints and Solutions, *Journal of Management and Society*, 1 (2), 16 – 21.

Calomiris, C. W., Heider, F. & Hoerova, M. (2015). A Theory of Bank Liquidity Requirements, *Columbia Business School Research Paper* No. 14-39.

Central Bank of Nigeria (2017). *Central Bank of Nigeria Annual Statistical Bulletin*, Central Bank of Nigeria, Abuja.

Ghodrati, H. & Khah, M. S. (2014). A Study on the Relationship between Electronic Banking and Liquidity Management on Iranian Banks, *Management Science Letters*, 4(6), 1259-1270.

Kapoor, S., (2010). ucceeding In UK with the Bank-Focused Model of Mobile Banking. Finacle Whiteboard. Retrieved On June 21, 2013,

Liew,V.K.-S.(2004). Which lag length selection criteria should we employ? *Economics Bulletin,* 3(33), 1-9

Meifang Yao, He Di; Xianrong Zheng & Xiaobo Xu, (2018). Impact of payment technology on the traditional financial industry: A focus on China. *Technological Forecasting and Social Change,* **135**, (C), 199-207

Murthy, V.N. & okunade, A.A. (2016). Determinants of US Health Expenditure: Evidence from Autoregressive Distributed

Lag (ARDL) Approach to Co-integration, *Economic Modelling*, 59(C), 67-73.

Narayan, P. K. (2004). Reformulating Critical Values For The Bounds F-statistics Approach To Co- integration: An Application To The Tourism Demand Model For Fiji, discussion papers *Department of Economics*, Monash University, Clayton.

Nkoro E. & Nko A. K., (2016). Autoregressive Distributed Lag (ARDL) Co-integration technique: Application and interpretation. *Journal of Statistical and Econometric Method,.* **5 (4),** 63-91

Njilu, K. K., (2016).The Effect of Electronic Banking on Liquidity of Commercial Banks in Kenya. A Research Project Submitted in Partial Fulfilment of the Requirements for the Award of the Degree of Master of Business Administration, School of Business. University of Nairobi.

Obiekwe, C. J & Anyanwaokoro, M, (2017) Electronic Payment Methods and Profitability of Banking Firms in Nigeria, A Panel Data Analysis. *International journal of Finance and Accounting.* 6(3), 67-74.

Owolabi, S. A. & Obida, S. S., (2012) Liquidity Management and Corporate Profitability: Case Study of Selected Manufacturing Companies Listed on the Nigerian Stock Exchange, *Business Management Dynamics*, 2(2).10-25.

Pesaran, H.M. & Shin, Y. (1999), An autoregressive distributed lag modelling approach to co-integration analysis, in Strom, S. (Ed.), *Econometrics and Economic Theory in the 20th Century:* The Ragnar Frisch Centennial Symposium, Cambridge University Press, Cambridge, (371-413).

Pyun, C. S., Scruggs, L. & Nam, N. (2002). Internet Banking in the US, Japan and Europe. *Multinational Business Review* 7381.

Skan, J., Dickerson, J. & Masood, S. (2015). The future of fintech and banking: Digitally disrupted or reimagined? *Tech. rept. Accenture*. Available: http://www.accenture.com

Reserve Bank of Zimbabwe (2012). Mid-Term Monetary Policy Statement Issued in Terms of the Reserve Bank of Zimbabwe Act. *Government of Zimbabwe*, (July). Retrieved from http://www.rbz.co.zw/assets/mid-term-mps-july-2012

Uremadu, S. O. (2009). Determinants of Financial System Liquidity (1980 – 2005): Evidence from Nigeria. Annuals of University of Bucharest, *Economic and Administrative Series 3*, 123-137.

Wilson, J.D., (2017), *Creating Strategic Value Through Financial Technology*. 1st Edition Wiley Finance. Canada, 2017. https://doi.org/10.