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## **EFFECT OF E-PAYMENTS ON PERFORMANCE OF COMMERCIAL ACTIVITIES IN YOLA METROPOLIS OF ADAMAWA STATE**

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### **Abstract**

*The study examined the effect of e-payments on performance of commercial activities in Yola metropolis, Adamawa state. Primary data were sourced via the administration of 373 structured questionnaires designed in five Likert scale format out of which 325 were return for analysis. The study covered the period from 2019 to 2020. Structural Equation Modeling (SEM) was employed in identifying the effect of E-payment product (point of sale (POS), mobile banking and challenges of E-payments on the performance of commercial activities) in Yola metropolis of Adamawa state. The data was normally distributed as indicated by confirmatory factor analysis and normality test. The coefficient of mobile banking and point of sale (POS), are positively related to performance of commercial activities. This implies that a unit increase in mobile banking transaction increases the performance of commercial activities in Yola metropolis by 0.433 units. Also one unit increase in point of sale transaction will increase the performance of commercial activities in Yola metropolis by 0.454 units. On the other hand there is negative relationship between performance of commercial activities in Yola metropolis and challenges of e-payments in Yola metropolis. This implies that one unit increase in challenges of e-payments transaction will decrease the performance of commercial activities in Yola metropolis by -.121units. Moreover, the coefficient of mobile banking, point of sale and challenges of e-payments are found to be statistically significant at 1 per cent. Hence, the null hypothesis was rejected. The study recommends that Government and relevant authorities should formulate monetary policies aimed at encouraging and improved E-payment system so as to actualize the objective of E-payment system in adamawa state and Nigeria.*

**Keywords:** E-payments, Commercial Activities, Mobile Banking, Point of Sale, SEM, Yola Metropolis

### **1. Introduction**

E-payment system is the electronic cycles of trading monetary value between parties in business transactions and sending this money related value through information and communication technology (ICT) organizations. The normal electronic items incorporate the installment cards (charge or credit), online web-based interfaces, retail location terminals (POS), Automated teller machines, Mobile telephones, Automated clearing house, direct charge/store and ongoing gross settlement framework (Nnaka, 2009). According to Baddeley,(2004) The overall acknowledgment of Electronic exchange relies upon the accessibility of a got and confided in electronic-Payment System. The different classes of web based business incorporate Business-to-Business, deals between associations that include organizations purchasing and offering to one another; Business to Consumer, deals among associations and shoppers where labor and products are sold straightforwardly to the purchaser, Consumer to Business, deals among buyers and associations, where purchasers can set costs for the two labor and products offered (Ayo, 2009).

According to international monetary fund (IMF) and the World Bank, Nigeria has the largest economy in Africa, therefore there is need for convenient and conducive marketing channels and service delivery in the banking sector. However, According to Chibueze (2006) when new

technology, is introduced it faces so many challenges. It takes time for people to get familiar with it. Consequently, there should be so many thing invented and prepared as a base for expanding it. Thus, Most of equipment of e-transactions are expensive and not easy and simple to obtain and maintain. In addition to that , Ayodele (2014), opine that some of the challenges of E-payments system are: constant power failure, failure of links from service providers and electronic transactions at a point. According to Oladayo and Adeniyi (2014), un-reconciled interbank transactions such as cash dispense error, inability to track down fraudsters at the ATM points, computer hackers are among the challenges that hinders the effective use of various payment instruments through e-banking. Looking at the objectives for introducing e-Payment in the public sector in Nigeria, one can say categorically that only few of the objectives have been achieve because of challenges that the system faces. Adamawa State Government adopted the e-payment system its Ministries, and commercial activities in other to ease transactions particularly in Yola metropolis. However, regardless of the challenges attributed to the e-payment system, it is of paramount importance. Hence, this calls the attention of researchers to investigate its impact on different sectors of economy. Oginni , El-Maude , Mohammed , and Michael (2013). Evaluate Electronic Payment System and Economic Growth, And concluded that There is a significant and positive relationship between e-payment system, ATM and economic growth while other e-payment channels contribute negatively. Similarly Joan (2018) applied a descriptive type of survey design and concluded that mobile banking adoption positively influences SMEs growth in Nairobi County.

Most of the previous studies focus on the effect, challenges face in the adoption of e-payments as well as its impact on the performance of banking sector and customer satisfaction using primary and secondary data. In addition to that, methodology and technique of analysis used by previous studies are descriptive survey, chi-square, Friedman and Kendall ranking order test, and ordinary least square and TSLS methods with mix findings. Little or no attention is given to the effect of e-payments on performance of commercial activities such as shopping mall and super markets particularly in Yola metropolis. In addition to the affirmation of gab to be field in this study, this study used primary data and structural equation modeling(SEM) because it has been identified to be the best model for the analysis of this study under investigation. This is because, the variables used in the study does not violate the conditions and assumptions of the model (Structural Equation Model).Hence, this paper is poised to assess the effect of e-payments on performance of commercial activities in Yola metropolis of Adamawa state. Specifically to examine the effect of e-payment product such as POS, mobile banking and challenges of e-payment products on some selected commercial activities in Yola metropolis.

## **2. Literature Review**

Electronic payments refers to the trading of goods and services through electronic payment system, for example, PC network, online and digital systems to transfer money electronically or digitally between two parties (Wyllie et al, 2010:5). As indicated by CBN(2010), The general goal of the electronic-Payment framework project was to further develop the Nigerian Financial and electronic payment in accordance with the widespread prescribed procedures and to guarantee public usage and global acknowledgment appropriate in Nigeria. At the beginning phase of execution, the approach's emphasis was on the tasks of the business, banks and other monetary value comparable to payments of national government services, organizations and divisions (MDAs). At that stage, the aim was to dispose of the postponements in paying for government contracts brought about by installments through cheque and money which were

causing alienation among project workers and government organizations (Igudia, 2016). According to kulkarni (2004) e-payment system deals with electronic machines which make the exchange or transaction possible. In other, word that it is a payment or monetary transactions made over network of computers. moreover, some of the e-payments product outline by (Ojokuku and Sajuyigbe; 2012,Olanipekun et al, 2013) are Automated teller machine, Point Of Sale terminals, Mobile banking, Card System, Service quality, which are widely used in Nigeria.

Technology Acceptance Model theory was created in 1989 by Fred Davis. The model was initially intended to anticipate client's acknowledgment and impression of Information Technology and use in a hierarchical setting. The models believe that client acknowledgment is dictated by two key variables or convictions, to be specific handiness of the innovation and simplicity of utilizing it. Seen helpfulness of the innovation is characterized as the degree to which an individual accepts that utilizing a specific innovation will work on her/his work execution, while simplicity of utilizing innovation manages how much an individual accepts that utilizing an innovation will facilitate his work of taking care of his work (Davis, 1989). The hypothesis contends that the customers' demeanor towards utilizing new innovation is affected by apparent helpfulness and saw convenience. The hypothesis utilizes psychometric scales to quantify helpfulness and usability. helpfulness is estimated on sizes of whether work is accomplished all the more rapidly, work execution, expanded efficiency, adequacy and handiness. Usability scales included whether the innovation is not difficult to learn, clear and justifiable, simple to become handy simple to utilize, controllable and simple to recollect. Thusly, innovation acknowledgment hypothesis is the best hypothesis to support this paper given the idea of the point

This Theory was adopted by numerous researchers which identify with appropriation of new innovation. As indicated by this Theory, a person's goal in society is influenced by his attitude toward the behavior and subjective norms of the public. In this way, an individual's conduct is controlled by his goal to play out the conduct. The disposition toward playing out the conduct is a person's positive or antagonistic conviction about playing out the particular conduct. Truth be told, mentalities are involved the convictions an individual collects over his lifetime. Subsequently, the believes are acknowledged from encounters, outside data, or from inside oneself. A couple of these convictions, in any case, really impact disposition. Abstract standard is convictions about others' opinion on the conduct. Ojokuku and Sajuyigbe, (2012)

Some of the related empirical studies have been review in other to study effect of e-payments on commercial activities in Yola metropolis. In a related study Akerejola, (2017) examine the factors that affect the adoption of Point of Sales in some selected business organizations in the banking, Oil and Gas, retail and airline industries in Lagos State..using descriptive and inferential statistics, The study concluded that availability of infrastructure, POS security, customer trust, customer education and customer motivation has significantly and positively affected the adoption of POS in the selected business organizations in Lagos State, Nigeria. In the same vain, Funmilola and Oluwatobi (2015) analyse factors affecting adoption of POS by organizations in Lagos and Ibadan metropolis, Nigeria. Using survey design with sample of 200 organizations that were using POS in Lagos and Ibadan metropolis, they concluded that subjective norms and ease of using technology have significant relationship with adoption of POS machine by the organizations. While the characteristics of the organizations, image and importance of new technology have no significant relationship with adoption of POS.

On the other hand, Oginni, El-Maude, Mohammed and Michael (2013). Evaluate Electronic Payment System and Economic Growth, And concluded that There is a significant positive relationship between e-payment system and economic growth in term of real GDP per capita and trade per capita. Meanwhile ATM was found to positively contributing to economic growth while other e-payment channels contribute negatively. Similarly Adeoti, (2013) assess the challenges of the efficient and effective use of point of sale terminals in Nigeria. His finding identifies network failure, frequent power outage; limited numbers of POS per merchant store where they are available, security of communication over the network and unavailability of the POS at all commercial centers as challenges facing adoption of POS. Also Joan (2018). Examine impact of mobile banking adoption on the performance of SMEs in Kenya. The study applied a descriptive survey design and concluded that mobile banking adoption positively affects the performance SMEs in Kenya.

### **3. Methods, Study Area and Data**

The study covers Yola metropolis which comprises of two local governments namely: Yola North and Yola South in Adamawa state, Nigeria. The area comprises of important towns like Jimeta, and Yola. Yola metropolis is the heart and capital city of Adamawa state. Yola is the capital city of Adamawa State, Nigeria. Is Located on the Benue River, it has a population of 336,648 (2006). Yola is divided into two parts, Yola north and Yola south. The Yola south is where the Lamido resides, while Yola north is known as Jimeta the administrative and commercial centers. Generally the term Yola is now used to mean both. In this study, the researcher used primary data mainly because it provide firsthand information needed to achieve the objectives of the research. The study used questionnaire in collecting primary data from staff and customers of some selected commercial activities (shopping malls, shopping complex ). Likert five point scales on the basis of (5=strongly agree, 4= agree, 3=undecided, 2= disagree 1=strongly disagree) were used as a basis of the questions to collect information including the confidentiality and anonymity of respondents. population of the study comprises of staff(sales attendant & owners) and customers of some selected commercial centers (SAN-Hussain Mall, Kefas shopping plaza, Adda Manga super market, Yakubu shopping Plaza, Luka shopping Plaza, TOP-10 Plaza, Tasty menu super market) in Yola metropolis of Adamawa State. The population are taking as follows; San Hussein 1820 Adda manga super market 486, yakubu shopping 850, luka shopping plaza 550,, TOP-10 289, Tasty menu 450, Kefas shopping plaza 756. Fesare super Market 182 making a total of (5383) having their branches spread across Yola metropolis of Adamawa (field survey). Number of staff(sales attendant and owners) and customers of some selected commercial activities are much such that sample has to be drawn. However, to get the sample out of the population of study (Yamane, 1967) formula was taken in to consideration. Thus formulae is :  $n = N / (1 + N\alpha^2)$ . Where, n = sample size, N = a population size,  $\alpha$  = the level of precision ( A 95% confidence level or 5% per cent level of precision). Thus, the sample size is calculated as follows:

$$n = N / (1 + N\alpha^2).$$
$$n = 5383 / (1 + 5383(0.05)^2)$$
$$n = 373$$

Structural Equation Modeling (SEM) was adopted in analyzing the data collected. Structural Equation Modeling (SEM) is a statistical techniques developed for analyzing the inter-relationship among variables in the model. Structural Equation Modeling employs the

combination of quantitative data and the correlation or casual assumptions into confirmatory factor analysis for assessing and modifying the measurement models as well as a structural model.

**Model specification**

$$Y^* = X^* \beta^* + \square^* \dots\dots\dots 1$$

The SEM model can therefore be expressed further as:

$$Y = X_1\beta_1 + X_2\beta_2 + X_3\beta_3 + \square_1 + \square_2 + \square_3 + \dots\dots\dots 2$$

The Structural Equation Model (SEM) can also be specified as :

$$PFC = POS\beta_1 + MBK\beta_2 + CLH\beta_3 + \square_1 + \square_2 + \square_3 + \dots\dots\dots 3$$

Where:

$Y^*$  = performance of commercial activities(i.e. dependent variables, which include, PFT,PRI,SLV,CMPT,CSTR)

$X^*$  = E-payment (i.e. independent variable proxy by POS, MBK, CHLG)

$\beta^*$  =  $\beta_1, \beta_2, \beta_3$ , (parameter estimates)

$\square^*$  =  $\square_1, \square_2, \square_3, \square$  (Error Terms)

PFT = profitability, PRI = prices, SLV = sales volume, CSTR = customer relation, CMPT= competitors, POS = point of sale, MBK = mobile banking, CHL= challenges of e-payments

**4. Results and Discussion**

**4.1. Normality test and assumption**

The normality assumption is one of the fundamental assumptions in multivariate analysis which is characterized by the assumption that the data distribution in each item and in all linear combination of items is normally distributed (Hair, 2006). It assumed that if the variation from the normal distribution happens to be large, all resulting statistical test are invalid. The study revealed that Kurtosis values for all the latent constructs and measured variables in table 4.3.1, were < 1.5. This is indicated by the Kurtosis for all items which ranges from maximum of 1.372 to minimum of 0.102 which all falls within the values of less than 1.5. also, multivariate Kurtosis = 46.34 implies that the sample is normally distributed because is less than 50 as recommended by Zainudin (2012).

On the other hand, skewness should be within the range of -1.0 to 1.0 to indicate normal distribution However, from table 4.2.1 in appendix1. The result reveals that all the latent constructs satisfied all the conditions for normality, because none of the skewness values is greater than +1.0 or less than -1.0. Hence, the data are normally distributed.

**4.2. Model Measurement**

For the purpose of this study point of sale (POS), Mobile banking (MBK), and Challenges of e-payment (POS) were used as independent variables. While the performance of commercial activities in Yola metropolis (PFC) is dependent variable. thus, six (6), six (6), five (5) and five (5) relevant questions were theoretically raised as a latent construct of the point of sale (POS), Mobile banking (MBK), and Challenges of e-payment (CHL) and performance of commercial activities (PFC). However, the latent constructs satisfied the series of pre estimation test such as model fitness, reliability and validity as shown in Table 4.1, and from appendix 1, and 4.2.

below, The entire factor loadings are significantly higher than 0.5. This shows that all the factor loadings fall within the acceptance range based on the decision rule.

**Table 1: Individual Confirmatory Factor Analysis CFA (Model Fit) and Reliability Test**

<b>Variables</b>	<b>Rmsea</b>	<b>Gfi</b>	<b>Agfi</b>	<b>Cfi</b>	<b>Tli</b>	<b>Nfi</b>	<b>Chisq/df</b>	<b>Pv</b>	<b>Cronbach's Alpha</b>
<b>Performance of commercial activities</b>	0.047	0.991	0.942	0.966	0.968	0.999	2.352	0.001	0.712
<b>Point of sale</b>	0.050	0.941	0.917	0.952	0.910	0.913	3.651	0.003	0.720
<b>Mobile banking</b>	0.051	0.959	0.907	0.902	0.994	0.989	2.302	0.000	0.772
<b>Challenges of e-payment</b>	0.064	0.987	0.905	0.911	0.948	0.919	2.569	0.002	0.770

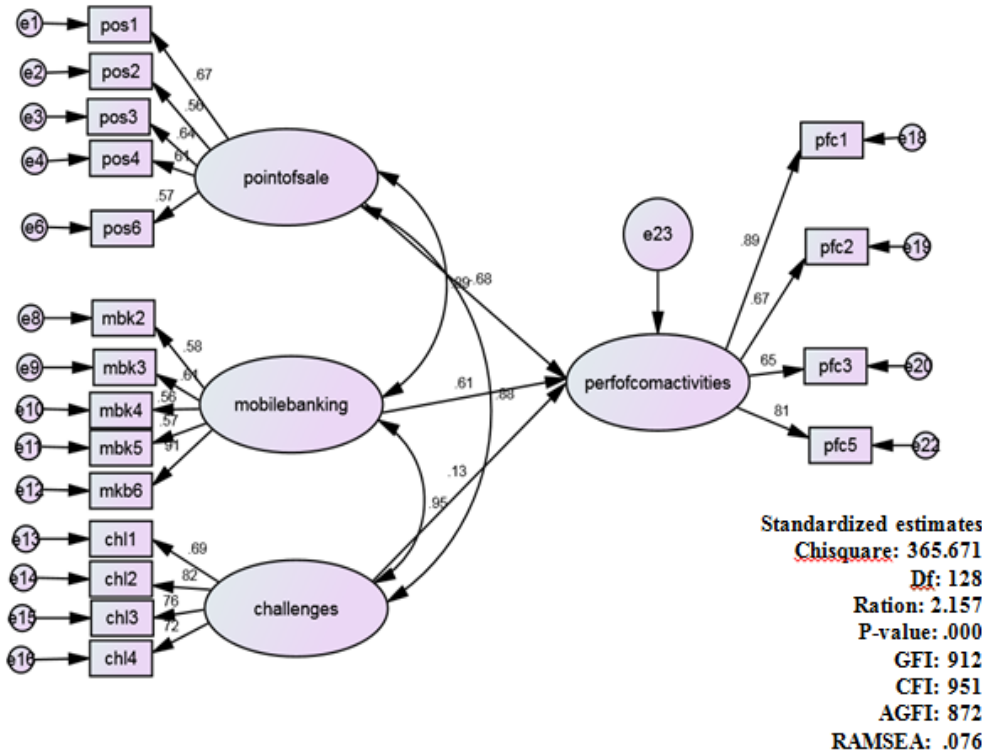
**Source: Author’s Computation, 2021**

Table 1 reports the results that are obtained through Confirmatory Factor Analysis (CFA) to justify the issue of validity and internal reliability. The result for the Confirmatory Factor Analysis reveal a good fit for the four (4) model on the basis of a number of fit statistics. The table shows that the models has a good fit: the ratio of Chi-square to degree of freedom, Root Mean Square Error of Approximation (RMSEA), The Adjusted Goodness-of-Fit (AGFI), Goodness-of-Fit (GFI), Comparative Fit Index (CFI), Tucker–Lewis Index and Normed fit index(NFI) all falls within the acceptance range. The Cronbach Alpha for PFC, POS, MBK, and CHL were 0.712, 0.720, 0.772 and 0.770. All the Cronbach Alpha were found to be > 0.7. Model fitness results were also clearly indicated in Table 4.5 showing RMSEA of PFC(0.047), POS(0.050), MBK, (0.051),CHL(0.064). Similarly GFI of PFC, POS MBK CHL are 0.991, 0.941, 0.959 and 0.987 respectively. While the AGFI for all the variables are 0.942, 0.917 and 0.907 and 0.905respectively. The CFI for all the variable are as follows 0.966, 0.932, 0.902, and 0.911. The TLI for the all variables were 0.968, 0.910, 0.994, and 0.948. The NFI also for the variables under investigation were 0.999, 0.913, 0.989 and 0.919. Finally, the (CHISQ/DF) results also satisfy the requirement of acceptance level as indicated in the Table 4.1. The results were 2.352, 3.651, 2.302 and 2.569 for all variables.

**4.3. Structural equation Model**

This study adopted Structural Equation Modeling to analyse the effect of E-payment on the performance of commercial activities in Yola metropolis of Adamawa. Thus, the analysis of Structural Equation Modeling using AMOS in Figure 4.1, reveals the following Goodness-of-Fit indices; Chi – Square  $\chi^2$  (CMIN) = 365.1671 (df = 128), Relative  $\chi^2$  (CMIN/df) = 2.157, p = .000, Adjusted Goodness-of-Fit (AGFI), = .872, Goodness-of-Fit (GFI) = .912 and Root Mean Square Error of Approximation (RMSEA) = .076. According to Hair et al., (2010) if any 3 or 4 of the Goodness-of-Fit indices are within the threshold then the entire model is fit. Hence, based on this reason the Structural equation Modeling for this study fits the data. Thus, the proposed hypothesis  $H_{01,2,3}$  are retained. Therefore, the structural equation model is employed to capture and analyse the hypothesis of the study.

**Figure 1: Structural equation Model on the Relationship between the dependent and independent Variables,**



Source: Designed by the Researcher using SPSS AMOS Version 21

where: point of sale(POS), mobile banking(MBK) challenges of e-payments (CHL) ,  
Performance of commercial activities (PFC)

**Discussion of Convergent Validity test for the Effect of e-payment on the performance of commercial activities in Yola metropolis**

Table 1 in appendix 1 contains the first and second order Comfermatory factor analysis of the construct's . CFA was applied in testing the convergent validity of the individual constructs in the questionnaire administered by assessing the factor loadings, Average Variance Extracted (AVE) and Modification Index (MI). All items that do not meet the required bench mark of factor loading >0.50, AVE>0.50 and MI < 15 will be deleted. thus, Some items were deleted from the path diagrams of CFAs, because they are <0.50 As shown in Table 4.10. from the beginning, point of sale (POS) has 6 items and after the first order CFA the items were cut down to 5 items, Mobile banking (MBK) also has 6 items, after conducting first order CFA 1 item was deleted which reduced the items to 5 Items. Similarly, challenges of e-payment (CHL) has 5 items, after conducting first order CFA 1 item was deleted which reduced the number of items to 4. Also performance of commercial activities (PFC) has 5 items and after the first order CFA 1 item was deleted which reduced the number of items to 4.



**4.4. Standardized Regression result**

**Table 2: Standardized Regression Weight in the Hypothesized Path Model**

Hypothesized relationships			Coefficients	S.E	CR	P-Valu
PFC	<---	MBK	.433	.257	1.684	0.001
PFC	<---	POS	.454	.109	4.165	0.000
PFC	<---	CHL	-.121	.106	-1.139	0.001

**Source: Standardized Structural Equation, 2021**

**Note:** PFC- Performance of commercial activities; POS:- Point of sale; MBK:- Mobile banking, CHL: Challenges of e-payments on commercial activities, S.E.:- Standard Error; CR:- Critical Ratio.

Table 2 reports the standardized structural equation results of effect of E-payment on the performance of commercial activities in Yola metropolis of adamawa state. The dependent or outcome variable is performance of commercial activities (PFC), while the predictors or independent variable are point of sale (POS), mobile banking(MBK) and challenges of e-payments (CHL). The coefficient of mobile banking and point of sale are positively related to performance of commercial activities. This implies that one unit increase in mobile banking transaction will increase the performance of commercial activities in Yola metropolis by 0.433 units. Also one unit increase in point of sale transaction will increase the performance of commercial activities in Yola metropolis by 0.454 units. On the other hand there is negative relationship between performance of commercial activities in Yola metropolis and challenges of e-payments in Yola metropolis. This implies that one unit increase in challenges of e-payments transaction will decrease the performance of commercial activities in Yola metropolis by -.121 units.

Moreover, The coefficient of mobile banking, point of sale and challenges of e-payments are found to be statistically significant at 1 per cent as indicated by probability values of 0.001, 0.000, 0.001 respectively ,hence the null hypothesis are rejected.

The finding of this study corroborated with study of Funmilola and Oluwatobi (2015) who investigated the factors affecting adoption of point of sale by organizations in Lagos and Ibadan metropolis, Nigeria using the Technology Acceptance Model as the theoretical framework. The results reveal that subjective norms and perceived ease of use have significant relationship with adoption of POS machine by the organizations. Also, it conform with Study by Davidson (2015) who Examine the effect of e-payment facilities towards an efficient cashless policy in Nigeria. His study revealed that bank customers are faced with several challenges such as online frauds, insecurity of personal data. Again, operator’s network/service fluctuation and poor interconnectivity of banks network servers is still a major challenge impeding the efficient use of mobile banking services. In the same vain, it supports the findings of Joan (2018) who examines effect of mobile banking adoption on the performance of small and medium enterprises in Nairobi County who revealed that mobile banking adoption positively influences SMEs performance in the county of Nairobi.

Contrary to the previous studies this study concluded that POS, and mobile banking transactions are significantly and positively affecting the performance of commercial activities in Yola

metropolis. Implying that using POS and mobile banking as a means of payments has improved performance of commercial activities in Yola metropolis of Adamawa state. Similarly the study found that network failure, illiteracy, high bank operational charges, cyber security crime and lack of uniform platform operated by commercial centers are among challenges that significantly affect the performance of commercial activities in Yola metropolis of Adamawa state. Also structural equation modeling was used as a technique of analysis.

## **5. Conclusions and Recommendations**

This study investigated the effect of E-payments on the performance of commercial activities in Yola metropolis adamawa state, Nigeria. The Result of the study concluded that POS, and mobile banking transactions are significantly and positively affecting the performance of commercial activities in Yola metropolis by improving their services to customers, sales volume, product quality, patronage, revenue and profit margin respectively. Implying that using POS and mobile banking as a means of payments are highly recommended to commercial activities in other to improve their performance in Yola metropolis of adamawa state. Similarly the study found that network failure, illiteracy, high bank operational charges, cyber security crime and lack of uniform platform operated by commercial centers are among challenges that significantly affect the performance of commercial activities in Yola metropolis of Adamawa state. hence, there is urgent attention by government, commercial banks, monetary authorities and service providers to proffer solution to the challenges in order to secure and improve the performance of commercial activities in Yola metropolis of Adamawa state and Nigeria as well.

Base on the finding of the study the following recommendations were made.

- i. Government and relevant authorities should formulate monetary policies aimed at encouraging and improved E-payment system so as to actualize the objective of cashless policy in adamawa state and Nigeria.
- ii. Government, commercial banks, monetary authorities (CBN) and service providers (MTN,GLO, 9MOBILE AIRTEL) should collaborate to proffer solution to the challenges facing E-payment system (network failure, illiteracy, high bank operational charges, cyber security crime and lack of uniform platform operated by commercial centres ) in order to secure and improve the performance of commercial activities in Yola metropolis of Adamawa state and Nigeria as well
- iii. Giving the importance of POS as a payment system in commercial centres, it is recommended that relevant authorities (CBN, NCC,) should make sure it is secured, utilize effectively, and as well provide services constantly in other facilitates it smooth usage in other to improve the performance of commercial activities in Yola metropolis.
- iv. The study also recommended that Mobile banking should be strictly secured and monitored in order reduce the risk of fraud. Also service providers should improve the quality of services needed by the mobile banking users in Yola metropolis.
- v. Government, monetary authorities and commercial centres owners should educate and enlighten the people on the advantages of using E-payment product (POS, Mobile banking) in buying and selling goods and services in Yola metropolis and adamawa state in general.

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