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## E-PAYMENT SYSTEM (EPS) AND EFFICIENCY OF BANKS IN NIGERIA

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### ABSTRACT

This study examines the effect of e-payment system (EPS) on the efficiency of banks in Nigeria. Specific objectives are to determine the implication of mobile payment, Automated Teller Machine (ATM) and POS on the efficiency of Nigerian banks, by collating data Central Bank of Nigeria (CBN), from the year 2012 to 2016. A linear regression analysis was used via SPSS to carry out the analysis, at a significance level of 0.05. The result of the analysis obtained a P-Value significance of 0.333 which connotes that there is no discernible effect of EPS on the efficiency of banking in Nigeria. The study recommended that Banks and other financial institutions should intensity efforts in mounting other e-payment channels to promote trade and commerce in Nigeria and the CBN should embark on intensive campaign for complete adoption of e- payments products especially at the grassroots.

**Keywords:** Electronic, Payment, System, Mobile and Efficiency.

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## INTRODUCTION

E-payment systems (EPSs) are the operating procedures, information and communication systems employed to initiate and transmit payments from a payer to a payee and for settling payments that is, transfer money (Imafidon, 2013). The E-payments channels are the apparatus used to safely and efficiently transfer monetary value in exchange for goods and services as well as financial assets (Oloruntoyin and Olanloye, 2012).

A 2007 poll of Nigerian e-banking consumers offered accurate and credible input on banks' electronic banking performance and ratings in different regions of the country. Firsthand knowledge of competitive performance, information on the major drivers of good success in ATM, POS, and cards, and direct consumer feedback on Nigerian e-banking services and products. Okafor (2008) views the ATM as electronic equipment that lets financial institution customers to use a secure way of communication to access their accounts, make cash withdrawals or cash advances using credit cards, and check their account balances without a teller or cashier. E-payments systems are becoming popular among banks and non-bank financial institutions in Nigeria, a survey conducted by Interware consulting, reveals that, ATM, Point of sales (POS), are still evolving and that various banking services rendered by Nigerian banks is mostly limited to the traditional services. Ebulu (2008); Ehiedu and Imoagwu (2022); Ehiedu, (2022); Ehiedu. (2022) and Ehiedu, (2022) asserted that in the banking industry, customers are gradually coming to terms with the arrays of products vaunted by banks in their bid to offer convenient banking services to their customers. Depositors are bombarded with service options daily to facilitate cash access and improve their relationship with banks, and the fad is working. E-banking lets customers deposit cash, transfer money, recharge GSM prepaid accounts, credit postage stamps, and more. Atteh (2012) defines payment systems as a set of tools for settling payments and transactions. Although the system work together but each of the instruments share attributes of being exchangeable with one another through substitution and convertibility mechanisms. Daily service offerings to boost cash availability and bank interactions are effective for depositors. E-banking helps clients deposit cash, transfer money, recharge GSM prepaid accounts, credit postage stamps, and more. Although, cheque is a major payment instrument in Nigeria, they are not popular for day to day payment because of high incidence of forgeries, a safe financial system is thus hedged on effective payment infrastructure which are core to the financial stability of a country (Ibrahim, 2009).

In his contribution, Tijani (2013) observes that payment systems are accessible and can be measured in terms of their reliability, transaction costs and risks. The reliability of payment system can be increased if all factors surrounding the efficiency of the electronic payments could be upgraded to prevent system breakdown and area of financial risks which may arise in form of liquidity risk, credit risk and systematic risk. EPS is one of the modern methods to facilitate the completion of transactions. The success of the EPS depends on customer satisfaction with its use. This study was aimed at examining the effect of service quality of EPS on e-payment user's satisfaction in Abu Dhabi city in UAE. The service quality in the study included six dimensions that are tangible i.e. reliability, responsiveness, assurance and security, performance, and empathy.

The study followed a quantitative approach. The population was selected among e-payment users in Abu Dhabi through a random sampling technique. Primary data was gathered from 233 respondents by using close-ended questionnaires based on the Likert scale. A descriptive statistical analysis was employed to analyze the data. The findings illustrated that the service quality of e-payment had a positive impact on e-payment users' satisfaction. Possible recommendations were proposed to decision-makers to help them to enhance the EPS to meet customer expectations and thus their satisfaction.

Over the last decade, the EPS has grown increasingly because of increased use of internet-based banking and online shopping websites. E-payment is a mechanism used to transfer money electronically or digitally between two entities, which could be a bank, business, government, or an individual customer. The transfer of money is due to many reasons, such as obtaining services or goods or as compensation. An e-payment transaction includes any payment in which paper instruments have not been used. In some nations, cheques are e-payment instruments due to technological improvements (Tan, 2004; Al-hosani& Tariq, 2020).

The latest communication and information technology has changed people's daily life, including their social and professional activities. New, cheap technologies are connecting people worldwide. These advancements raise global awareness of this technology. Acceptance of new technologies has made it easier for businesses to grow nationally and internationally. Technology is now essential to market survival (Roobahani et al. 2015). Internet and technology have eliminated time, distance, and geographical obstacles, helping firms grow abroad and form long-term partnerships.

### **Statement of the Problem**

Over the years, the use of EPSs in Nigeria has been increasing considerably but its impact hasn't been adequately translated to the economy. One of the main reasons for this is the reluctance and ignorance of Nigerian's to use the 4 internet for transactions due to the fear of fraud. Some payment systems are too tech-savvy to reach most people. Banking and finance's capacity to attract most people to these platforms is another big obstacle to payment systems. ATMs, POS, mobile banking, and other mediums must dramatically grow to cover at least 80% of Nigeria before efficient financial intermediation can be realized by Nigeria's banks. ATM and network outages frustrate customers. Implying the network and ATM machines must be greatly enhanced to facilitate financial transactions.

### **REVIEW OF RELATED LITERATURE**

Technology-based payments systems have made bank clients, staff, and society more convenient (Obi and Ifelunini (2019); Kelvin, 2012). In Nigeria, the fast increase in technological improvement, coupled with the growing acceptance of digital lifestyle and the world becoming increasingly addicted to business, the trend of cash transactions is now giving way to electronic payment system. Today's business environment is extremely dynamic and experience rapid changes as a result of technological development, increased awareness and demands that banks serve their customers electronically. Banks have long used technology to better their products and services (Steven, 2002).

IT has revolutionized Nigeria's payment business. Digital cash and wallets have replaced cash. After barter, currency, cheques, and digital cash, this is the fourth stage of progression. According

to CBN reports, Nigerian banks have rapidly used ICT to improve e-payments. The quest for Banks in Nigeria to have an efficient customer service delivery and also maintain global relevance in the system has led to the exploitation of the many advantages of ICT through the use of automated devices imperative in the industry. Many studies have also been conducted to establish the relevance of ICT to the operations and performance of Deposit Money Banks (DMBs). The banking sector is generally coming up in term of efficient service delivery especially in the area of payments to customers. This was not the case many years ago when the use of cheques, bankers drafts, bills of exchange and open account methods of payment were more rampant than the use of electronic payments systems. E-Payment employs cash substitutes such as debit cards, credit cards, electronic funds transfer, direct debits |credits, internet banking and e-payments systems. This world is now considered as a global village with the development of technology. Smart banking and e-commerce are becoming new ways to achieve success in this competitive era around the globe (Taghizade & Seephri, 2013). The acceptance of E-banking has made it easier both for businesses and customers to make and receive payments without the hassle of delaying and waiting around the world (Afsharpour & Pahlevani, 2013). A country needs to have a developed E-commerce sector in order to sustain in this competitive world (Ghasemi & Radgozar, 2010). Using the latest technologies in a business can help to develop the country economically (Roobahani et al. 2015; Alhosani & Tariq, 2020). EPSs offer security, acceptability, perceived delight, perceived quickness, simplicity of payment, convenience, cost, anonymity, control, and traceability (Abrazhevich, 2001). E-payment also faces user ignorance, bad banking culture, lack of confidence, and illiteracy (Obi (2014); Obi and Edeme (2016) and Tella & Abdulmumin, 2015). There are several e-payment methods used, such as bank cards including credit cards, debit cards, and prepaid cards, electronic websites, E-walled, mobile banking, and bank transfer. In the UAE, most people use at least one of these methods. At present, the popularity of commercial websites has increased. Shopping from global stores around the world is now available through online stores. Besides, most government organizations become e-government, which enables customers to pay services fees through government websites or applications. This study examines how EPS service quality affects e-payment customer satisfaction. Next, literature reviews on e-payment quality determinants are shown. Framework and hypotheses follow. Research methods, data analysis, and discussion follow. Conclusion, limitations, and future study appear in the final section.

Nowadays, buyers and sellers often exchange money in other ways besides just plain cash. Such payments may be done through e-payment tools including ATMs, the internet, POS terminals, mobile money services, and so forth. The advancement of various EPSs has improved the ability of bank customers to deposit and withdraw cash up to a daily limit of N500,000 for individual customers and N3,000,000 (Three Million Naira Only) for corporate customers without incurring fees, unless the withdrawal exceeds the stated limit. Additionally, the payment has improved the effectiveness of the CBN financial instrument clearing process between the banks (2010). Despite the difficulties associated with using electronic payment devices, the technology has in fact relieved and facilitated banking activities for the public, fostering trade and commerce and advancing several economic sectors.

## Conceptual Framework

ATMs, the outward manifestation of electronic banking, first entered the commercial market in 1968, claims Kondabagil (2007). The ATM, later evolved from being a mere currency dispenser into a multifunctional device that enables customers to conduct a whole range of transactions from account management, fund transfer, to bill payments.

With the e-banking system, settlement of transactions either at the national or international level is speed up; thereby bridging the gap between the customer and the bank. Most of the services are being offered through several distribution e-channels with activities ranging from balance inquiry, cash withdrawals, bill payments, funds transfer, electronic payment, and loan applications, among others (Agwu and Carter, 2014; Agbogun, and Ehiedu, (2022); Bayem, Ehiedu, Agbogun, and Onuorah, (2022); Ehiedu, and Obi, (2022) and Ehiedu and Imoagwu (2022).

In the latter half of the 1990s, but with the advancements with Internet banking, customers could bank from the comfort of their homes (Salehi and Alipour, 2010), the banks has been undergoing changes, in form of innovative use of information technology and development in electronic commerce. Thus, e-banking is one of the benefits of e-commerce for businesses that need simple, fast, and accurate financial operations (Hoseini and Dangoliani, 2015). Nevertheless, e-banking system can broadly be classified into the Mobile/telephone banking Internet banking and Smart card banking. Hossain, et al (2013); Okechi and Kepeghom (2013) explain these three classes as follows:

i. **Mobile/Telephone Banking:** “Mobile banking is an innovation that has progressively rendered itself in pervasive ways cutting across several financial institutions and other sectors of the economy” and with this facility any person having a mobile number is able to use his/her number as a bank account. This service uses an automated phone answering system with instructions passing via voice or short messages service (SMS) to the remote computer. The computer decrypts the message and executes the instructions through a highly coded device, and then the response is given back to the customer. SMS services are operated using both the push messages (wherein banks chooses to send information to a customer's mobile phone without the customer initiating a request for the information) and pull messages (in this case, the customer initiates the request). Customers are privileged with services like funds transfer, utility bill payment, air time top-up, balance inquiry, etc. Despite being offered by Nigerian banks, this service has not yet caught on with the banking public and is far from being used as intended.

ii. **Internet Banking:** This service simplifies e-commerce, among other transactions. Internet banking allows customers of a financial institution to conduct financial transactions on a secure website operated by the institution, which can be a retail or virtual bank, credit union or building society. To access the online banking facility, customers have to register with the institution for the service, and set up some password (under various names) for customer verification. Though, some banks do experience high patronage of this service, reports by banks' staff shows that the general patronage of this service is somewhat between low and medium.

iii. **Smart Card Banking:** E-banking (value card, verve card, naira credit card, visa card, master card etc). Bank users can withdraw cash, transfer funds, and inquire about their accounts using smart cards. The Verve card is the first chip card accepted on all available payment channels in Nigeria; allowing holders to conveniently pay for goods and services on all ATMs, Point of Sale

(POS) machines, Web, etc connected to the Inter-Switch network. The chip technology guarantees that information stored is not accessible to unauthorized persons. The ATM still remains the most widely used form of e-banking service because of its convenience, ease of use, time saving ability for customers' transaction needs.

**Conceptual Review:** Agboola, 2003, Obaro, Onuorah, Evesi and Ehiedu (2022); Obi, and Ehiedu, (2020); Oditia, Ehiedu and Kifordu (2020); Oditia, and Ehiedu, (2015) and Onuorah, Ehiedu and Okoh (2021) observed that as good as the cashless policy may be made to look; the system will come at some costs. The concept of EPS and its development could be viewed and explained in different ways. It is in recognition of this, that this section is devoted to explicitly conceptualize it, as used in this study. In what follows, the concept is conceptualized.

**EPSs:** EPSs refer to the automated processes of exchanging monetary value among parties in business transactions and transmitting this value over the ICT networks (Nnaka, 2009 as cited in (Ayo and Ukpere, 2012). It also refers to making of transactions or paying for goods and services through an electronic medium, without the use of cash or cheques. E-payment in Nigeria is electronically paying suppliers, vendors, and personnel at the stroke of a computer button (Asaolu et al, 2011). This study covers EPSs like: [1] Internet/Web is type of EPS involves transactions carried out over the Internet. It is a simple way of paying for online purchases directly from the customer's bank. It also offers the possibility of enjoying banking services from their homes or offices. [2] Mobile Banking is one of the latest ways of making payments through mobile phones. This involves sending a payment request through a text message (USSD) or banks mobile application. Mobile banking reduces the time and stress of using the credit card or cash as account details are already linked with the banks software. [3] ATM is an electronic banking outlet which allows members to complete transactions without the assistance of a member service representative or teller. Anyone with a credit card or debit card can access an ATM as long as they are all on the same network. An ATM communicates through the ATM network so members can access their account information. [4] POS is a terminal that enables buyers make payments using payment cards such as (Visa, MasterCard, verve, etc) issued to them by any bank in or outside Nigeria directly into other accounts.

### **THEORETICAL REVIEW**

This section provides an overview of the adoption of information system, the factors determining customers' acceptance of e-banking and its products and it also introduces the concept of customer loyalty. The impact of EPS choices on customers' purchasing decisions in the retail establishments in the Ilorin metropolitan was examined by Adebayo et al. [1]. This study focuses mostly on the purchasing and payment experiences of consumers and comes to the conclusion that e-payment has a big impact on how consumers in Nigeria shop at retail establishments. Adedokun [2] used the multiple regression method to analyse the data as he investigated if EPSs like mobile banking and POS services have a substantial impact on the financial performance of SMEs in the Zaria metropolitan. The study by Adedokun came to the conclusion that the performance of SMEs in Zaria is significantly impacted by these cutting-edge payment methods. Adeoti and Oshotimehin analyzed using the probit model the variables that affect the adoption of POS terminals in Nigeria. According to the report, there are several variables that affect how POS terminals are used in Nigeria, including convenience, usability, security, intention to use, and availability.

### **EMPIRICAL & GAP**

Fenuga & Oladejo (2010); Ehiedu, Onuorah, and Mbagwu (2022); Ehiedu, Onuorah, and Owonye, (2022); Ehiedu and Olannye, (2014); Ehiedu and Brume-Ezewu, (2022) and Ehiedu, Odita, and Kifordu, (2020) examined how electronic payment affects customer service in Nigerian banks, which struggle to meet client needs. To achieve this, four Nigerian commercial banks—UBA, First bank, Zenith bank, and Intercontinental bank—were analysed. They surveyed Nigeria's four DMBs' populations. A random questionnaire stratified 100 bank customers proportionally. Chi-square and regression analysis were used to determine if automation banking services improve service to Nigeria's many consumers. Their study found that electronic payment enhances customer service, management efficiency, profit, customer satisfaction, and sustainability in Nigeria's banking system.

Okifo & Igbunu (2015), Meteke, Ehiedu, Ndah, and Onuorah, (2022); Ehiedu, (2021); Ehiedu, (2021); Ehiedu, (2020) and Ehiedu, (2020) discussed EPS's economic benefits and drawbacks in Nigeria. They said the internet had accelerated electronic payments and transactions. Online shoppers could email unencrypted credit card numbers and buy products and services. As consumers became more privacy-conscious, many innovative secure network payment solutions were developed. E-payment would transform Nigeria into a cashless society and eliminate uncertainty. Though e-payment has problems like public acceptance, lack of a standard platform controlled by banks, lack of infrastructure, and security, EPS can comprehensively eliminate government corruption, a disease.

Abdulmumin, (2020), Ehiedu, Odita, and Kifordu, (2020); Ehiedu Onuorah, and Owonye, (2022); Ehiedu, Onuorah, and Owonye, (2022); Ehiedu. and Okorie, (2022) and Ehiedu and Okorie, (2022) investigated the role of EPSs on economic growth in Nigeria over the period of 2010-2018. Specifically, the study analyses the role of EPSs on economic growth using value of e-payment transactions and volume of e-payment transactions. The study used quarterly time series data for value of POS, ATM, mobile, Internet transactions and real GDP for model 1 and volume of POS, ATM, mobile, internet transactions and real GDP for model 2. The multiple regression analysis, Johansen cointegration test, Granger causality test and Vector error correction model (VECM) were employed in this study. The results of the multiple regression analysis for model 1 and 2, shows that ATM and internet transactions is positive and insignificantly related to economic growth while there is a negative and insignificant relationship between POS transactions and real GDP in Nigeria. The result also shows that volume of mobile transactions is positive and significantly related to economic growth while value of mobile transactions is positive but insignificantly related to economic growth in Nigeria. The Granger causality test for model 1 shows the existence of a unidirectional causal relationship between value of POS, ATM and mobile transactions and real GDP. The granger causality test for model 2, shows there is a unidirectional causal relationship from volume of POS, mobile and internet transactions to real GDP. The Johansen cointegration test for both model 1 and 2, establishes the existence of a long run equilibrium relationship between EPSs and economic growth in Nigeria. The vector error correction model (VECM) results for model 1 and 2 shows the existence of a short run relationship between EPSs and economic growth in Nigeria. The study recommends the government invest in communication and internet infrastructure, internet security as well as awareness campaigns in

order to capture a higher percentage of the population on these e-payment platforms and increase the number of banked in the population which will boost aggregate consumption, employment, trade and increase government revenues which would lead to an increase in economic growth. Therefore, the study seeks to investigate the effect of EPS on Nigerian banks efficiency.

### METHODOLOGY

The study adopted the secondary data from CBN collating data of E-payments volume which invariably represents the effect of EPS and the value which represents the efficiency of banks in Nigeria from 2012-2016. The data collated was analysed using SPSS, with a model of linear regression. This is to ascertain if the massive turnout of EPS affects the efficiency of banks in Nigeria. However, given the objective which is to determine the effect of EPS on the efficiency of Nigerian banks, a P-value of 0.05 significant.

### DICUSSION OR RESULTS & ANALYSIS

Table 1

*Data of E-payment channels from 2012-2016*

	E-payment channels	Volume	Value
<b>2012</b>	Cheque	12,161,694	7,487,411,604,335
	ATM	375,513,154	1,984,990,636,830
	POS	2,587,595	48,461,883,431
	NEFT	28,941,559	13,753,178,360,585
	WEB	2,276,464	31,567,364,087
<b>2013</b>	Cheque	14,211,078	7,708,669,754,031
	ATM	295,416,724	2,830,533,105,570
	POS	9,418,427	161,212,840,665
	NEFT	29,834,317	14,367,950,496,617
	WEB	2,900,473	47,316,331,494
<b>2014</b>	Cheque	15,283,933	7,269,079,332,311
	ATM	400,269,140	3,681,980,955,458
	POS	20,817,423	312,071,736,903
	NEFT	29,690,765	14,563,804,544,654
	WEB	5,567,436	74,205,599,261
<b>2015</b>	Cheque	13,466,461	6,195,461,481,268
	ATM	433,695,748	3,971,651,486,420
	POS	33,720,933	448,512,548,727
	NEFT	28,935,605	13,087,085,484,769
	WEB	7,981,361	91,581,292,533
<b>2016</b>	<b>Cheque</b>	11,719,847	5,829,549,268,629
	ATM	590,238,934	4,988,133,401,544
	POS	63,715,203	758,996,505,702
	NEFT	29,754,182	14,584,802,657,086
	WEB	14,088,247	132,360,333,369

Source: CBN data of E-payment statistics from 2012-2016



Table 2  
*Pearson Correlation*

		Value	Volume
Pearson Correlation	Value	1.000	-.091
	Volume	-.091	1.000
Sig. (1-tailed)	Value	.	.333
	Volume	.333	.
N	Value	25	25
	Volume	25	25

Table 2 represents the correlation analysis from linear regression model. Since the P-Value which is 0.333, is greater than 0.05, it there is no significant relationship between EPS and efficiency of Nigerian banks

Table 3  
*Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.091 <sup>a</sup>	.008	-.035	541632454440 4.75700	.008	.191	1

Given **R-squared (R<sup>2</sup>)** is a measure that represents the proportion of the variance for a dependent variable that's explained by an independent variable or variables in a regression model. The research is an investigation to determine the effect of EPS, using cross sectional data, **values** of 0.10 which typical for R-squared data. The R-squared gotten from the analysis is 0.008, it therefore means that there is no significant effect of EPS on Nigerian banks efficiency.

The study has massively identified that there is no significant effect of EPS on the Nigerian banking system. Therefore EPS have not in any way altered the financial turnout, input, volume, values, and customer care services and banking operation. Hence this can be considered as a contribution to the knowledge

### CONCLUSION

E-banking in Nigeria has improved the banking and payment systems. Electronic banking is the platform on which cash-less policy sails. Even though some of the fees are not entirely their revenue, this study has demonstrated that a cashless policy will have a positive effect on banks' financial standing. It was also learned that certain fees, including as transaction costs and over-the-counter fees, which are connected to a cash-based economy, will no longer exist. Bank client bases will grow as the unbanked join the banking system. A decrease in the amount of currency in

circulation will allow banks to access more deposits to do business, which will boost their profitability. Additionally, the expense of running banks will drop significantly.

The cashless policy should not be viewed as having no implications, though. For instance, as mentioned in the data analysis section, using POS in a setting without cash will result in special fees that do not apply to cash transactions. It is advised that infrastructures for power and electricity be put in place to enable electronic banking technology in order to lessen the difficulties of the cash-less regime.

### **Recommendations**

The positive contributions of e-payment channels to National Development can never be overemphasized. Therefore, to sustain and improve on the current height the following recommendations are proffered.

1. Banks and other financial institutions should intensify efforts in mounting other e-payment channels to promote trade and commerce in Nigeria.
2. The CBN should embark on intensive campaign for complete adoption of e- payments products especially at the grassroots.
3. The government should provide good and reliable capacity utilization to promote business growth and national development

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