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ARTICLE

ELECTRONIC PAYMENT PLATFORMS AND ACCENTUATION OF FINANCIAL CRIMES IN NIGERIA

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ABSTRACT

This research paper investigated the relationship between electronic payment platforms and the perceived accentuation of financial crimes in Nigeria. The ex post facto design was deployed in the study. This necessitated reliance on data obtained from the Central Bank of Nigeria (CBN) statistical bulletin and the Nigeria Electronic Fraud Forum (NEFF) Annual Report. The collected data were analyzed using ordinary least square - multiple regression method. The empirical output indicates that the deployment of the e-payment platforms has not led to significant accentuation of financial crimes in Nigeria. It is thus recommended that regulatory authorities should double their efforts at ensuring the enactment of relevant laws. Also, financial institutions should deploy more cyber security measures to block the loopholes being exploited. By the general acceptance and increased use of the electronic payment system, the infrastructure backbone required to run the system smoothly should be strengthened to minimize the incidence of failed transactions. In addition, financial service providers need to be more proactive in detecting suspicious activities on their platforms and taking preventive actions not only to mitigate specific losses to individuals, but also identify weaknesses that may be exploited by fraudsters in the future.

KEYWORDS

Financial crimes, electronic, payment system, payment platform, electronic fraud.

1. INTRODUCTION

Technological breakthroughs have continued to orchestrate various positive and negative disruptions in our socio-economic lives. These stellar developments have significantly altered the nature of human socio-economic interactions within the globe. While, these developments have their primary place of birth (the developed world), there application and therefore impact is felt across the globe, leading to a global acknowledgement of the impact of technological disruptions. The ease and seamlessness associated with deployment of these stellar outcomes, have accentuated the principle of outright adoption and adaption, instead of waiting for home-grown alternatives. The implication of this behavioural style by nations, is the massive resonation of the impact of various technological outputs across the globe, such that one area where the impact is very pervasive, is the economic sphere. This has led to the creation of a humongous electronic business world, designated as e-business, e-commence with corresponding e-payment platforms. This development led to the creation of electronic banking services and alternative payment instruments, via e-transacts. Furthermore, continuous improvement of these artificial and electronic platforms gradually ensured their acceptance, even by their greatest antagonist, including developing nations that are yet to install the complete infrastructure backbone required to ensure smooth operations.

Specifically, the financial system in the last twenty years in Nigeria, have witnessed an unprecedented increase in the level and use of electronic systems, as a platform for financial transactions. As one of the pillars of the banking sector reforms in the early 2000s, (beyond the increase in the paid-up capital and the introduction of Corporate Governance Mechanisms), electronic money transfer systems was implemented. This facilitated instant cash transfers from one point to another. This was closely followed by the introduction of Automated Teller Machines (ATMs) and Point of Sales (POS) transactions. Then, came the mobile money and full-fledged internet banking systems, in which financial transactions took on real-time disposition. These innovations not only reduced the duration of transactions, but also the cost of these transactions, in addition to reducing to a large extent the risk inherent in carrying large amount of cash, as electronic payment systems and platforms improved, and assumed wider coverage[1]. These engines also ensured greater interconnectivity amongst financial institutions, as well as ensuring wider customer coverage. The level of financial inclusion also rose astronomically.

However, the adoption and widespread use of electronic payment platforms have come with benefits and related challenges[1,2]. The side effects are primarily driven by weaknesses in the infrastructure backbone and issues of cyber security. In addition to infrastructural backbone issues and delayed services, the single most critical challenge facing electronic payment platforms is the perceived increase in size and volume of electronic accentuated frauds and other financial crimes.

No wonder, the e-payment construct has attracted various research

considerations within its short period of adoption in Nigeria. Several research efforts have been undertaken on the subject matter from various strands. For instance, Wada focused on electronic banking and cybercrime from a theoretical perspective[3]. On their path, Asaolu, Okoro examined it from the theoretical perspective of problems and prospects[4,5]. Meanwhile, the works of Adegbie, Akenbor and Edori engaged the construct from the forensic accounting solution perspective[6-8]. Similarly, Olaleye, Braimah interrogated the phenomenon from the banking fraud template[9,10]. While, others like indulged the perspective of electronic banking and the performance of the economy and performance of commercial banks[1,11-13]. However, not much of the research paid particular attention to financial crimes through electronic payment platforms. Even the work by mulled the accountants' perspective, collocating it within the framework of Nigeria's anti-graft institutions[14]. A further gap is that, even the prior study was significantly limited in scope by the then available data set[10]. Consequently, the present study was teleologically patterned to provide empirical exposure of the nexus between electronic payment platforms and the perceived accentuation of financial crimes in Nigeria, based on the last published official data. Hence, does electronic payment platforms incentivize financial crimes in Nigeria?

2. LITERATURE REVIEW

2.1 Financial crimes in Nigeria

Edori stated that financial crimes are carried out by individuals, corporate institutions, as well as organized crime groups[8]. This is with a view to obtaining criminal prosperity. Often, the victims can be individuals, government, institutions or the entire economy. Financial crimes are not peculiar to any country because it is a global problem. Thus, Nigeria being a member of the global society, has her fair share of financial crimes. The prevalence of financial crimes in Nigeria was one of the over-riding justifications for the establishment of the Economic and Financial Crimes Commission (EFCC) and Independent Corrupt Practices Commission (ICPC) and more recently the Nigeria Financial Intelligence Unit (NFIU). Edori noted that economic and financial crime in Nigeria is deeply rooted in almost all the aspects and levels of the economy, with the attendant negative effects on the economy[8].

With electronic-banking gaining ground in Nigeria and other parts of Sub-Saharan Africa, through the myriad of electronic payment platforms, customers and online buyers are facing greater risk of unwittingly passing on their personal information to fraudsters. Hackers defraud people illegally and frequently via deploying various schemes to obtain the information needed to access the peoples' accounts. Most have unwittingly disclosed their card details, as well as giving access to those who have taken a career in fleecing people. This ugly scenario has been accentuated by the absence of enabling laws, specifically dealing with card-related crimes in Nigeria. This has led to creating loopholes for criminals to operate without check, as police treat card-related crimes like any other case of fraud[3].

The extant literature recognizes that financial crimes negatively affect both the economy, organisations and individuals. Criminals are known to target all economic entities, as long as they exhibit weakness in their structure that can be exploited. As noted by Adegbie, economic and financial crimes are the greatest obstacles to national economic development considering its effects on revenue[6]. Akenbor further noted that financial crimes in any organisation leads to economic loss, loss of goodwill, loss of staff and in extreme cases - business failure. It is also noted that financial crimes can also result in loss of livelihood to individuals[7].

Most studies on the subject matter of financial crimes tend to avoid attempting to define the concept as a result of the difficulty in concisely capturing the phenomenon within the limits of a single definition. For the purpose of this study, the definition of financial crimes will be limited to those crimes committed directly against or through banking and its related payment systems. Thus, financial crimes as used in this study involves the crime committed against property. This entails the illegal conversion of ownership of the property specifically committed through electronic payment systems. These include fraud, embezzlement, forgery, counterfeiting, and identity theft, electronic accounting high-jacking, payment fraud, scams or confidence tricks, among others. Financial crimes in Nigeria, has been perceived to have greatly increased in volume and quantum, since the introduction of the electronic payment system.

As noted, with the growth in the use of electronic payments, criminals have found yet another means to increase their nefarious ways of fleecing innocent victims of their money[9]. They employ methods such as counterfeiting, cloning, malware attack, identity theft, card trapping, and phishing, among many other methods to defraud and steal from users of electronic payment platforms.

2.2 Electronic payment systems and platforms

According to Biago, a payment system implies any system that is used to settle payments in financial transactions through the transfer of monetary value[15]. This includes the instruments, institutions, people, standards, rules, procedures and technologies that make the exchange possible. Summers described a payment system as an operational network governed by laws, rules and standards that link bank accounts and provides the functionality of monetary exchange, using bank deposits[16]. Thus, an electronic payment system is one that is designed and operated through the use of electronic / computing devices for financial and monetary transactions and exchanges. The electronic payment system, in addition to being guided by the inherent technological rules and procedures of its development, also adheres to the basic rules that govern the non-electronic payment system.

Asaolu stated that in the context of Nigeria, electronic payment (also referred to as e-payment) involves effecting payments from one end to another, through the medium of the computer without manual intervention, beyond inputting the payment data[4]. Through the adoption of electronic payment systems, the delays and other inefficiencies associated with the traditional (offline) payment system has been largely eliminated. For example, business transactions involving monetary exchanges are no longer bound by banking hours. In essence, transactions can be carried out at any-time of the day or night without recourse to constraints imposed by banking hours.

Okifo asserted that electronic payment systems, (in addition to their convenience and safety) also boasts of a number of economic benefits[1]. These include efficient mobilization of savings and ensuring most of the cash available in the economy are controlled by banks. This allows for the efficient and effective transmission of monetary policy by the Central Bank, whenever necessary. Furthermore, an electronic payment system has the ability to track individual spending, to facilitate the design of financial system and investment products by the banks. This information is also useful to the government, when making decisions in such areas as, financial deepening and inclusion. Electronic payment systems also have the ability to reduce cash handling and printing costs[1].

Kalakota in Balogun described electronic payment as an exchange of digital financial instruments between buyers and sellers, which takes place online, as payments by direct credit, electronic transfer of payment card details or through other electronic channels[17,18]. They opined that electronic payment system is one in which monetary value, as represented by a claim on the issuer, is stored on an electronic device and accepted as means of payment by undertakings other than the issuing authority. Thus, the use of electronic means for financial transactions has greatly accelerated the emergence of the much-touted cashless society, as it accentuates transactions, via speed and ease of payments.

The foregoing development has greatly improved financial services by the institutions involved, in terms of reduced costs of operations, increased volume of transactions, faster services and fostered more financial liberalization in the economy. Wada further asserted that electronic banking has enabled banks to overcome borders, adopt strategic outlook, and bring in new possibilities[3]. Thus, electronic payment systems adopted by banks have reduced the cost of processing and facilitating the transmission of information, leading to drastic changes in the banking business.

Even though the adoption of electronic payment systems is fairly recent in Nigeria, there has been unprecedented growth in its usage. For example, the CBN statistical Bulleting shows that volume of ATM transaction recorded in 2009 was 109.16 million with a total value of transaction of N548.6 billion. By 2017, the volume of ATM transactions

had increased to 800.55 billion, with value of transaction of N6.438 trillion. This phenomenal growth is also witnessed across all other electronic payment platforms. Thus, total value of transactions across all platforms grew from N645.05 billion in 2009 to 99.292 trillion in 2017. An interesting trend in the growth of the use of electronic payment platforms is the fact that ATM which constituted about 85.05% of the total value of transaction in 2009 had dropped to a mere 6.5% by 2017. This is indicative of the coming on-stream of several other alternatives, which is inclusive mobile (wallet) money transfer and Remita® among others.

In essence, electronic payment system is operationalized in this study as denoting all forms of technology aided payments, either via the internet and mobile telephone systems.

2.3 Hypothesis premise

The proliferation of electronic payment platforms has had considerable impact on the Nigerian financial system by expanding financial services, improving speed of transactions and reducing cash handling and its attendant costs. However, several adverse outcomes have also been recorded. Thus, Wada in research on theoretical policy perspectives and causation of E-banking and cybercrimes in Nigeria concluded that the use of electronic payment system has also brought unintended consequences, such as spamming, credit card frauds, ATM frauds, phishing, identity theft and other related cybercrimes[3]. Also, Ibanichuka investigated the relationship between electronic frauds and financial performance of commercial banks in Nigeria[13]. They asserted that the desire to reduce banks' operating costs and improve financial performance led to the deployment of electronic banking channels. The study which employed the ex post facto research design and collected data from secondary sources, concluded that there is no significant relationship between the electronic fraud and financial performance of commercial banks in Nigeria and thus recommended improved collaborations between banks and CBN via NEFF to tackle frauds. Also, that service providers should leverage on the Bank Verification Number (BVN) platform, to improve security of transactions on electronic banking channels through biometric authentication.

Similarly, Manisha focused on cybercrimes related to online banking and new tricks and techniques used by cyber criminals and hackers in India[19]. Using data from several sources, including the annual reports of National Crime Record Bureau (NCRB) in Indian, the study observed that information technology usage and online banking in India, had led to increase in fraud and financial crimes in the country. Consequently, it recommended that law enforcement agencies need to be adequately equipped to overcome and prevent the cybercrime.

Braimah in their study titled: statistical monitoring of electronic fraud occurring in Nigerian banks[10]. The study interrogated the reported actual lost amount due to fraud in Nigeria in the year 2013 and 2014. The data was extracted from the 2014 Nigeria Electronic Fraud Forum (NEFF) Bulletin on POS, Web, Across Counter, Internet Banking, MOB and Cheques. The data was analyzed using the Standard Cumulative Sum (CUSUM) technique. The findings of the research revealed that there was an increasing trend in the occurrence of fraud in Nigerian banks. Based on the findings, they recommended; the implementation of fit-for-purpose fraud monitoring solutions; overhauling of internet security infrastructure, weeding out insider collaborators, intensifying anti-fraud awareness campaigns, and implementing a formidable e-fraud detection-prosecution process.

Also, Olaleye explored the effects and controls of electronic banking fraud in Nigeria[9]. The research examined the nature of electronic banking related fraud on deposit money banks in Nigeria, its effects and the controls put in place to prevent financial loss. It focused on Nigerian Electronic Fraud Forum (NEFF) Annual Report of 2016. It was observed that the year 2016, witnessed a significant increase in electronic fraud cases. However, there was a marginal reduction in attempted fraud value and actual loss. The study revealed that there is a significant relationship between e-banking practices in Nigeria and the rate of increase in the security of banking transactions. The practice of e-banking has significantly increased the volume of banking transactions. Based on the findings, the study recommended that; government through CBN should provide adequate security measures for various electronic banking channels, review the BVN framework and sensitize customers on electronic banking operations, among others.

Maitanmi used structured questionnaire as a means of data collection (which were analyzed using simple percentage procedure) to study the drivers and challenges of adoption of cashless society in Nigeria, The results indicate that: majority of Nigerians are already aware of the policy and majority agree that the policy will help fight against corruption/ money laundering, and reduce the risk of carrying cash. This is in addition to fostering economic growth[2]. They enumerated the major problems that can hinder the implementation of the policy to include: cyber fraud, limited POS, numeracy and illiteracy. Based on the findings, they recommended that the government should adopt a different strategy to educate the non-literate Nigerians about the cashless economy; and enact a Cybercrime Law. In addition, Umanhonlen appraised the impact of e-banking and cashless society on the Nigerian economy[20]. The study explored various aspects of e-banking and cashless economy. It articulated empirical opinions that highlight the possible ways these policy measures can have direct links to beneficiaries and the weighted outcomes. Furthermore, that when divergence is noticed and how to bring back the soundness, sustainable and rebranding policy that ensures economic growth. The study concluded by highlighting the implicit needs and benefits behind the cashless economy.

Oteh investigated the possibility of improving financial deepening in Nigeria through electronic banking channels, and her potential to guarantee greater financial access across the financial access divide[21]. The major channels identified in the study were Debit card, video banking, e-payments, fund transfer, and mobile transfer. The study therefore recommends multi-sectoral approach of integration among the government agencies, financial institutions, and telecommunication firms, with a view igniting greater consumer awareness.

The foregoing interrogation of the existing research outputs forms the backbone for the hypothesis of this study, as espoused below:

H_1 The reliance on electronic payment platforms has significantly accentuated financial crimes in Nigeria.

3. MATERIALS AND METHOD

The ex-post facto research design was adopted for the study. This is considering the fact that the phenomena under study has already occurred. Thus, data was obtained from the CBN Statistical Bulletin and the NNEFF Annual Report for the period 2011 to 2017. The choice of period is restricted as a result of the paucity of data on the volume and value of financial crime through electronic platforms. There is no published data for 2018 to 2019 from the official data source. Thus, data for the study consists of the aggregate values of fraud - FCRIME - perpetrated through electronic platforms for the period as reported. The specific e-payments platforms are; ATM; POS; WEB and MOB. The objective is to determine the nature of the relationship between total value of FCRIME, through electronic platforms and the actual value of transactions using ATM; POS; WEB and MOB. Data for the study was analysed using the ordinary least square (OLS) regression technique.

3.1 Empirical model

The relationship between the variables is stated functionally as:

FCRIME = f (ATM, POS, WEB, MOB)

Fitted into the OLS regression model, we have that:

$FCRIME = a + \beta 1ATM + \beta 2POS + \beta 3WEB + \beta 4MOB + \mu t$

4. RESEARCH DATA AND INTERPRETATIONS

The data presented below details the annual aggregate value of documented instances of financial crimes and four dimensions of e-payment platforms or engines.

As depicted clearly in table 1 above, the transactional values of ATM are highest for each year-increasing on a steady note. This is indicative of the acceptance rate of ATM transactions as opposed to the earlier skepticism associated with its introduction. This is followed from a distance by POS transactions and Mobile operations. The least is WEB

pay. One clear general trend is the stead rise in volume for each variable on annual basis. For financial crime index, it is informative to note that the year with least incidence value was 2013 and the highest was 2014, where it rose to 2.85961 and declined sharply to 0.66757. In other words, there was a sharp decline in 2013 from the 2012 figure, immediately accompanied by an astronomical rise in 2014, then a decline in 2015. Thereafter, a steady growth till the last published date of 2017.

The absence of published data for 2018 and 2019 did impair and limit the leverage for a more up-to-date trend diagnosis. Clearly, the cyclical movement was only noticed in the financial crime variable, as all other dimensions exuded a steady rise in volume of operations. From the behavioural disposition of the financial crime data set, it can be inferred that while 2013 was the best year for financial crime mitigation, 2014 was the worst, almost exceeding the cumulative aggregate of previous years.

Table 1: Distribution table of incidence of financial crimes per platform.

Period	Financial crime	Atm	Pos	Webpay	Mobile
2011	0.43007	1561.74000	31.02000	59.61000	18.98000
2012	0.58816	1984.65882	48.00831	31.56736	31.50933
2013	0.06764	2828.93900	161.01633	47.31633	142.79714
2014	2.85961	3679.87760	312.07174	74.04363	346.46729
2015	0.66757	3970.25241	448.51255	91.58129	442.35376
2016	0.94301	4988.13340	758.99651	132.36033	756.89748
2017	0.98627	6437.59240	1409.81309	184.59663	1101.99897

(Source: CBN Statistical Bulletin, 2019 Edition; Nigeria Electronic Fraud Forum Annual Report, 2017.)

Table 2: Descriptive statistics.

	Fcrime	Atm	Pos	Web	Mob
Mean	0.934714	3635.885	452.7770	88.72500	405.8576
Median	0.668000	3679.878	312.0720	74.04400	346.4670
Maximum	2.860000	6437.592	1409.813	184.5970	1101.999
Minimum	0.068000	1561.740	31.02000	31.56700	18.98000
Std. Dev.	0.904314	1706.442	492.6706	53.46115	402.4328
Skewness	1.532687	0.382267	1.108458	0.799647	0.695741
Kurtosis	4.183451	2.094499	3.015989	2.439550	2.200904
Jarque-Bera	3.149145	0.409630	1.433534	0.837622	0.750976
Probability	0.207096	0.814798	0.488329	0.657829	0.686954
Sum	6.543000	25451.19	3169.439	621.0750	2841.003
Sum Sq. Dev.	4.906701	17471660	1456346.	17148.57	971712.8
Observations	7	7	7	7	7

Table 2 shows the descriptive statistics for the variables of the study consisting of: Total value of Fcrime perpetrated through electronic platforms designated as Atm, Pos, Web and Mob. From the table, we observe that FCRIME, ATM, POS, WEB and MOB had mean values of 0.935, 3635.885, 452.777, 88.725 and 405.857 with minimum values of 0.068, 1561.740, 31.020, 31.567 and 18.980 and maximum of 2.860, 6437.592, 1409.813, 184.597 and 1101.999. Furthermore, all variables display positive skewness and kurtosis. Finally, the probability of the Jarque-Bera statistic indicates that all the variables are normally distributed around their means as the null hypothesis of normal distribution of data is accepted. This is shown in the probability of Jarque-Bera statistics of 0.207, 0.815, 0.488, 0.658 and 0.687 respectively for Fcrime, Atm, Pos, Web and Mob.

Table 3: Statistical test output.

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	-2.173117	9.354205	-0.232314	0.8379
ATM	0.101184	0.003414	0.946766	0.7619
POS	-0.033730	0.007267	-0.513290	0.6588
WEB	0.013388	0.089318	0.349892	0.8946
MOB	0.201714	0.025954	0.766047	0.4533

R-squared	0.364719	Mean dependent var	0.934619
Adjusted R-squared	0.205843	S.D. dependent var	0.904240
S.E. of regression	1.342984	Akaike info criterion	3.603474
Sum squared resid	3.607215	Schwarz criterion	3.564839
Log likelihood	-7.612160	Hannan-Quinn criter	3.125945
F-statistic	9.180012	Durbin-Watson stat	2.216898
Prob(F-statistic)	0.042924		

(Source: Computational output.)

Dependent Variable: Fcrime, Method: Least Squares, Date: 03/23/20, Time: 18:38, Sample: 2011 2017, Included observations: 7.

The regression result above indicates that there is a positive but weak relationship between financial crime perpetrated through electronic platforms and the actual value of transactions performed via ATMs, WEB, and MOB. The regression result for the above variables gave values of 0.101184 for ATMs; 0.013388 for WEB services; and 0.201714 MOB, as depicted by their respective coefficients. These values imply that increased use of these platforms (ATM, WEB and MOB) will lead to a commensurate increase in FCRIME carried out through these electronic payment platforms. However, POS had a negative relationship with financial crimes with a regression value of -0.033730, implying increased use of point of sales platforms has actually been associated with reduced fraud in that channel.

The findings also indicate that none of the four electronic payment transactions has a statistically strong relationship with electronic platforms financial crime. The Adjusted R-square clearly supports the above result. With a value of 0.2058 implying that activities in all four payment platforms vis-à-vis; ATMs, POS, WEB, and MOB accounts for about 20.58% of the variations in financial crimes through electronic payment platforms. Therefore, electronic payment system does not incentivize or accentuate FCRIME in Nigeria. In essence, the hypothesis did not pan out.

5. CONCLUSION

This research paper investigated the relationship between the electronic payment platforms and the phenomenon of financial crimes in Nigeria. Results from the data analysis showed that there is a positive but weak relationship between e-payment platforms and accentuation of financial crimes.

Based on the output of the empirical test, it is concluded that e-payment platforms do not accentuate financial crimes. More specifically, the increased use of these platforms (ATM, WEB and MOB) has not led to significant increases in the volume of financial crimes. Meanwhile, the use of POS actually reduces the incidence of financial crimes. It does seem that POS is a more secure form of payment, that is less susceptible to manipulation by cyber financial criminals.

The basic and overriding implication of this conclusion is that there is absence of empirical evidence to support the perceived incentivization of FCRIME via reliance on the e-payment engines, but rather a steady growth in volume of e-based transactions. Against this backdrop, it is suggested that regulatory authorities should double their efforts at ensuring the enactment of relevant laws. Also, financial institutions should deploy more cyber security measures to block the loopholes being exploited. By the general acceptance and increased use of the electronic payment system, the infrastructure backbone required to run the system smoothly should be strengthened to minimize the incidence of failed transactions. In addition, financial service providers need to be more proactive in detecting suspicious activities on their platforms and taking preventive actions not only to mitigate specific losses to individuals, but also identify weaknesses that may be exploited by fraudsters in the future.

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