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Investigating the Implications of Open Banking on Consumer Data Privacy and Financial Services Competition in Nigeria

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Abstract- This paper examines the effects of open banking on consumer data protection and the competitiveness of financial services in Nigeria through innovation, regulation, and market competition. The free sharing of customers' financial data with third parties through open banking has the potential to transform Nigeria's financial services industry by providing opportunities for both traditional banks and fintech companies. While it offers numerous advantages, it also poses significant threats to consumer data privacy, including risks from misplaced or stolen devices, hacking, and other cyber threats, as well as reduced consumer confidence. Considering risk mitigation as part of innovation, this paper reviews the literature on data protection risks and analyzes Nigeria's NDPR alongside the Regulatory Framework for Open Banking. It also examines how open banking can enhance customer access to services and advance more effective financial solutions. The study identifies several key issues, including technical hurdles, limitations in legal frameworks, and perceived risks from users. It offers corresponding guidelines for action for state authorities, financial organizations, and multinational fintech potential players based on qualitative and quantitative analysis. These include increasing the enforcement of data privacy laws, raising consumer awareness, improving coordination between regulatory authorities, and encouraging the private sector to share data within secure frameworks. The conclusion of this study suggests that open banking holds promising potential to transform the banking industry in Nigeria, provided that its implementation addresses both innovation and privacy concerns.

Indexed Terms- Banking in Nigeria, Competition, Consumer Data Privacy, Financial services, Open Banking

I. INTRODUCTION

Open banking can be defined as the process whereby banks make their data available to third parties and other service providers using API. This concept came into public awareness in 2018 after enactment of the EU second Payment Services Directive (PSD2) which required banks in the EU to share customers’ data with other third-party service providers with the express permission of the customer (Brodsky & Oakes, 2017). Likewise, the UK began its own open banking activation in 2018 and entrusting customers to manage their own financial data and thereby creating competition in the financial services industry (Deloitte, 2020).

Similarly, countries of the world including Australia, Japan and Canada have also responded by fashioning similar policies that seek to enhance financial inclusion, encourage innovation and promote competitiveness within the financial sector (World Bank, 2020). These two theories have unlike effects on customer services and market competition in these regions in the advent of open banking as they have raised great concerns on data privacy as financial information passes to third parties in this process (Zhang & Milne, 2020).

In October 2020, Nigeria, which is the largest economy in Africa with a record GDP and considered to have one of the most developed financial markets on the continent, officially launched its own regime on open banking. Nigeria’s CBN released its regulation on open banking in the country in 2021 in order to improve competitiveness and innovation, as well as promote financial inclusion (Central Bank of Nigeria, 2021). The Nigeria financial sector is on the precipice of drastic change mainly boosted by the emergence of fintech firms and the growing adoption of online financial services (Olawoyin, 2021). Becoming operational in a country that has rapidly adopted fintech services, the regulation of open banking in Nigeria will foster the interoperability between conventional banks and prominent fintech firms to increase efficiency as well as innovation in the delivery of products (Adegoke 2021).

However, based on the realities of socio economics in Nigeria such as low level of digital literacy among the population, constantly changing regulatory environment, the consequences of open banking on two key areas – data privacy of the consumers and competition among the market players needs to be reconsidered. The model of open banking may bring significant changes to Nigeria's financial services market providing fintech companies with the opportunity to target financially excluded groups, yet the mentioned change is associated with certain data privacy and security, financial stability threats (PwC Nigeria, 2020).

Nevertheless, data privacy can still be regarded as a major issue in Nigeria particularly given the country's inability to effectively enforce existing privacy laws. The Nigerian Data Protection Regulation (NDPR) was established in 2019 by the National Information Technology Development Agency (NITDA) to deal with the issues of data protection and in using this Regulation, the enforcement and the implementation have been intermittent (NITDA, 2019). Open banking using consumer financial data thereby poses a potential intensification of the already existing data privacy concerns especially in a landscape where measures put in place to protect the consumers are still in their developmental stages (Ibukun, 2021).

Also, the implementation of open banking model in Nigeria will doubtless bring deep changes into the competition environment within the FINs. This is an area where perhaps commercial banks' dominance could shift to fintech companies' courtesy of open banking and its ability to proffer customized qualities. This could lead to increase in competition amongst players within the sector forcing the incumbents to change their strategies or risk decline in their market share (Olusola & Adeleke, 2021). On the same note, the upsurge of market competition may lead to innovation of enhanced customer services, products and financial access but the downside may augment other risks like market dis-integration and regulatory evasion (KPMG Nigeria, 2020).

II. LITERATURE REVIEW

Analysis of Global and Nigerian-Specific Literature on Open Banking

The idea of open banking has been discussed extensively in the context of financial systems across the world, particularly in regions such as Europe and the United Kingdom, driven primarily by major regulatory shifts like PSD2 and UK Open Banking rather than individual countries' initiatives (Zhang & Milne, 2020). The main goal of these frameworks has been to foster innovation in banking by providing third parties with access to customers' banking data, with their consent, to increase competition and improve customer focus (Brodsky & Oakes, 2017). Research by McKinsey & Company has shown that banking openness has led to the emergence of new companies offering niche services, leveraging customer data from traditional banks, particularly in areas such as personal financial management and lending (Brodsky & Oakes, 2017).

As for the Nigerian literature, it has not been very extensive, which justifiably relates to the profile of the country's regulation attempts. Thus, the Central Bank of Nigeria (CBN) published the Regulatory Framework for Open Banking in Nigeria in 2021, which initiated the application of open banking by the financial institutions (Central Bank of Nigeria, 2021). Own sources of literature reveal that the emergence of Fintech has stimulated the growth of open banking practices in Nigeria. Using Adegoke's (2021) reference, it is about time for Nigeria's fintech sector that is on the list of one of the fastest-growing financial sectors in Africa to embrace open banking and improve delivery of financial products and services to unserved and underserved populations.

Nonetheless, it is also critical to note that open banking is not without its problems as highlighted over and over by the Nigerian literature especially as it concerns infrastructure as well as customer trust and confidentiality. According to PwC Nigeria (2020), survey reveal that both the financial institutions and the fintech firms are ready to adopt the principle of the open banking, but issues on data privacy and the level of preparedness of the financial institutions in implementing the secure APIs are some of the issues faced. Furthermore, Olusola and Adeleke (2021) have admitted that to transit to a new open banking model where Nigeria's banked can have full control of their data, the banks, fintech companies, and the regulators will need to effectively coordinate in sharing this data.

Examination of Consumer Data Privacy Issues in Digital Banking

Technological advancements in banking through Fintechs and thanks to the new trends of Open-Banking have brought new and unprecedented issues related to the protection of information and data consumers. In countries where open banking is already in use, there are high standard rules relating to data protection. For example, in the EU, PSGD requires very rigorous ways in the handling of the customer data within the PSD2 framework as demonstrated by GDPR regulation. The UK's Information Commissioner's Office (ICO), for instance, has a critical function of regulating open banking undertakings as abettors of data protection legislation to protect the consumer from illicit access and use of their financial details (ICO, 2020).

In Nigeria, new regulation known as the Nigerian Data Protection Regulation or NDPR was launched in 2019 to lay down legal and institutional requirements for the protection of personal data (NITDA, 2019). But it is imperative to understand that enforcement has not been consistent, and there are therefore existing gaps to consumer data protection (Ibukun, 2021). It renders these concerns more acute as more financial institutions and third-party players get their hands on customer data. As noted by Olatunji (2021) most Nigerian Financial Institution does not have a strong cybersecurity system in place this make each year a potential forecast for data breach which when it happens cause devastating effect on the Finances and reputation of the financial institutions.

Consumer awareness and trust aspect are also highlighted in the literature as major factors in the open banking discussion. Eze (2020) identified that there is lack of knowledge among Nigerian consumers about how their personal financial data is being utilized and distributed in the digital banking services and thus impacts the informed consent that forms the part of open banking structures. In Nigeria, this requires enhancing the legal provisions of open data banking especially regarding to data usage, collection and protection (Olatunji, 2021).

Review of Competition Theories and How Open Banking Could Reshape Financial Markets

In principle, open banking promises far reaching changes in the structure of competition in financial markets where sources of information and access to clients allow fintech firms and other non-bank financial institution to mount serious challenges to the traditional incumbents. According to the traditional competition theory the free flow of information is perhaps the most important aspect because it empowers consumers and put pressure on producers to get cheaper and (Stiglitz, 1989). Through the provision of financial data, open banking is expected to foster the achievement of these objectives through adopting a 'customer data fairness model,' which provides a level playing ground for contenders such as banks, and fintech firms.

An analysis of literature on open banking shows that based on global studies by for example the World Bank (2020), competition has been observed to have increased in markets where open banking has been fully developed. For example, in the UK, the firms within the fintech industry are known to have competed with traditional financial institutions in the payment and lending industries (Deloitte, 2020). A report by KPMG (2020) has also indicated that then implementation of open banking has enhanced the development of new products and enabled smaller players to better compete by offering services that are unique and will be more relevant to customers' needs. Indeed, competition has been a local affair mostly among the giants in the financial services sector especially the commercial banks in Nigeria (PwC Nigeria, 2020). Open banking on the other hand holds the promise to disrupt this consolidation of power since fintech companies could offer more customized financial services thus increasing competition. Adegoke (2021) also makes a point that the application of open banking can greatly diminish the market share of big banks since customers will seek for services in fintech including payments, credit, and deposit services. Similarly, Olusola & Adeleke, (2021) note that open banking has the potential to enhance the access to financial services in Nigeria since other Fintech firms can extend their services to the unbanked customers at a cheaper cost.

III. REGULATORY FRAMEWORK

Exploration of the Nigerian Open Banking Regulations
The Nigerian country's evolution toward open banking regulatory started with the formulation of the Regulatory Framework for Open Banking in Nigeria published by the Central Bank Nigeria CBN in February 2021. This framework defines how banking customers' information is to be processed and the relationship between banks and third-party firms or financial institutions through APIs (Application Programming Interfaces) (Central Bank of Nigeria, 2021). The implementation of the framework is expected to spur innovation, competition and financially inclusion through provision of platform to enable interoperability between financial institutions, fintech firms and other third-party players.

Key provisions of the Nigerian framework include:
- Customer Consent: The customer's prior consent remains mandatory for passing data to third parties; a condition that agrees with international standards of data protection and consumer notice.
- Data Standardization: According to the framework, the transmission of data must be in the form of an API because the format in which the data is given must be interoperable with other working frameworks.
- Security Protocols: The methods that have been put in place to ensure security to the financial information are strict security measures put in place that restrict the access of third-party providers to the banking sectors. Such measures include the encryption standards for information, manner of protecting data, an approach used in handling cybersecurity (Central Bank of Nigeria, 2021).
- Participant Categorization: Based on the classification into the participants, AISPs encompass those who provide access to a customer's account details such as name, account number, and balance details while PISPs consist of those who initiates payment from a customer's account such as NEFT. One is a licensed bank in Nigeria that acts as an AISP, another participant that is also a licensed bank is a PISP. Financial institutions are banks that participate in the open banking ecosystem while

The CBN framework is an improvement in overseeing data sharing between conventional banks and these innovative players thereby making the financial services industry more competitive. Still, as with other countries' open banking systems, the effectiveness of the framework will largely hinge on enforcement, regulatory cooperation, and routine changes reflecting new challenges tied to data leakage and hacks.

Overview of the NDPR and Its Interface with Open Banking
The Nigerian Data Protection Regulation (NDPR), promulgated by the NITDA in 2019, is Nigeria's leading law pertaining to the protection of personal data. Based on the GDPR of the European Union, the NDPR was designed to protect individuals from the abuse of their privacy rights through availing responsibilities to organizations that capture, store or process personal information (NITDA, 2019). This regulation is significant especially with the current push for open banking since the exchange of information relating to consumers' financial details is encouraged.

Key provisions of the NDPR include:
- Informed Consent: Banks and other Fintech data controllers need to notify the individuals with reasons of data collection and collection of consent from the individuals for data processing.
- Data Minimization: One is only able to capture data which pertains to a particular service hence restricting the exposure of user information.
- Right to Data Portability: Open banking can be supported by customers' rights such as rights of portability, which can be defined as consumers' right to obtain and share their own data between different services providers.
- Data Security: Companies and other institutions are obliged to use essential measures of protection of personal data against access and breach, as well as other unlawful manipulations (NITDA, 2019).

It directly interacts with Open Banking as it enacts the legal requirements for the protection of consumer's data. While the open banking framework provided by the CBN covers the sharing of data in terms of the technicality and operations, the NDPR covers for the open banking operation in terms of the appropriate data sharing practices in Nigeria. Nonetheless, there are issues with the practicality and enforcement of NDPR especially bearing in mind the issues of cybersecurity and low digital literacy rate among citizens of Nigeria. In the words of Ibukun (2021), the extent to which the NDPR will be effective or impactful in fostering open banking will therefore hinge with the level of commitment of financial institutions and third-party who require the data to comply with the regulatory rules governing the access and processing of data.

Comparative Analysis with Other Global Open Banking Regulations

- Nigeria's open banking is one in a series of banking reforms which have taken part across the globe with regards to the sharing of data and more emphasis on financial clarity. Analyses of the approach adopted by other regions of the world which have adopted the open banking model including the European Union, the United Kingdom and Australia provides an understanding of the opportunities and weaknesses in Nigeria's regulations in this area.
- European Union (PSD2): The EU's PSD2, which went into operation in 2018, is considered by many as the best example of open banking regulation. Per PSD2, banks are required to share customer's account data and payment initiation services with third party providers provided the customer gives his or her consent (Zhang & Milne, 2020). PSD2 is specifically strong on security, especially the strong customer authentication (SCA) component and its rigid approaches to risk management. Though the Nigerian framework also requires customer authorization and security measures, it does not have a specific safety requirement as PSD2 especially in a way of authentications.
- United Kingdom (Open Banking Standard): The UK initiated the Open Banking together with PSD2 setting up the Open Banking Implementation Entity (OBIE) for managing the procedures regarding the open banking (Deloitte, 2020). The UK's model is characterized by prescriptive norms on the API usage, and it is oriented on providing safe and efficient data transfer. Similarly, Nigeria's open banking regime also focuses on data sharing via APIs while it can do with a stronger central authority for handling open banking related issues and cases, hence the need to learn from OBIE in the UK.
- Australia (Consumer Data Right - CDR): Australia's open banking regime, rolled out in 2020 as one of the components of the CDR regime, lets consumers exercise more control over their data and use the latter with certified third parties (World Bank, 2020). Of all the countries, Australia stands out because the consumer protection and privacy are inarguably its primary driving forces and the legislation and rules associated with data protection are quite clear and complementary to the CDR. In the same regard, Nigeria's NDPR is intended to afford such protections; however, the lack of improved enforcement measures and consumer sensitization remains a major concern (Olatunji, 2021).

Impact on Consumer Data Privacy

Data Sharing Practices in Open Banking

Data sharing is the key enabler in the context of the open banking ecosystem since it is inherent to the functioning of the system. By implementing harmonized APIs, financial institutions, fintechs and third-party service providers can obtain and transmit consumers' banking information inclusive of records of transactions and balances with the express approval of the consumer. This process is supposed to help to stimulate an innovation and to deliver greater levels of personalized services in the financial sector, including tools for financial management, payment services, and others including loan services (Brodsky & Oakes, 2017). However, these relatively more common practices escalate the number of agents who process the financial data, thereby posing a threat to the security of consumers' data.

According to the Regulatory Framework for Open Banking in Nigeria, every financial institution working in the country must gain consumers' permission before sharing any data (Central Bank of Nigeria, 2021). This is in line with trends in open banking across the globe, where consumers' rights over data usage dominate the concepts of open banking (Zhang & Milne, 2020). However, it can be noted that the regulation does help to protect the data from risk and insecurity but the technical and operational practicality of it remains an issue as most of the consumers in this market may not have adequate knowledge or concerns on data privacy.

In addition, Nigerian banks and fintechs are bound by the NDPR, which spells down certain standards that must be met for the processing, storage, and sharing of personal data (NITDA, 2019). This means that the NDPR complements the goals of open banking as it promotes the sharing of data in a controlled manner while availing data in an open manner. Yet, the evidence suggests that its enforcement and supervision are unsystematic and lack proper compliance and random checks, making consumers' data protection a loophole.

Key Privacy Risks and Vulnerabilities for Nigerian Consumers

Open banking entails the sharing of data, and this puts the following privacy risks and their associated vulnerabilities in Nigeria. Some of the privacy issues that arise as consumers turn to DFCs include Sharing; As the customers transact through electronic money, their account details, transaction history and identity are exposed to all manner of service providers.

1. Cybersecurity Risks: Regarding the security of consumers' data in the environment of open banking in Nigeria, it is an important concern that personal data may be stolen, and stolen information may be misused. Banks in Nigeria have particularly over the years not escaped the brunt of cybercrime and have severally been attacked (Olatunji, 2021). Open banking gives power to the third parties to hold and process data which as shown by the above analysis may not be as secure as the traditional financial institutions. This increases the probability of the susceptibilities being exploited through hacking and access to the consumer identifiable data.
2. Unauthorized Data Use: As existing laws require that the consumer must give prior consent to sharing of data, there is potential that data may be utilized in ways which consumers had not consented to. For instance, the third-party service providers may employ the data for advertising, segmentation or even reselling consumers' information to other interests without permission (Eze, 2020). This is even worse in a country like Nigeria having a weak enforcement of the laws protecting data.
3. Phishing and Social Engineering: As financial services move to the internet, such scams as phishing and other social engineering tricks have turned very complex. Like any other country in the world, Nigerian consumers are most vulnerable due to their ignorance of these risks (Olatunji, 2021). It could get worse especially with the open banking models where consumers can provide consent to fraudulent third-party providers to access their financial data.

Review of Nigerian Consumer Attitudes Toward Data Privacy and Sharing

Impacts on Nigerian consumers' attitude towards data sharing and protection in the financial services include Awareness, trust in institutions and exposure to digital financial products and services. There is a lack of awareness of Nigerian consumers as to how their data is being collected, shared, and utilized by the financial institutions and Third parties. In a survey carried out by PwC Nigeria (2020), it was revealed that many customers in Nigeria's banking industry lack adequate understanding of the consent terms they sign when employing digital financial services hence they are exposed to high privacy risks.

According to the work done by Eze (2020), consumers' trust in Nigeria is weak when it comes to giving out their personal financial information to players in finance technology and third-party providers. This skepticism is mainly due to previous experiences with such things as data leakages, as well as general Presque over fraud issues within the financial service industries. In the case of data, the consumer remains wary due to the opacity of how the data is handled and perceived weakness of the regulatory measures.

But there is also some data that Nigerian customers are becoming more concerned with the data privacy as the digital banking services are growing. The report by McKinsey & Company (2021) shows that more Nigerian consumers want to have an ownership right over personal data and are ready to be more careful while choosing the services they are willing to protect personal data. Such a change in consumer perception could exert pressure on the incumbent financial players and fintechs to enhance protection and management of data as well as enhance disclosure.

Due to these concerns, there are now financial literacy campaigns through which Nigerian consumers are encouraged to learn about their data privacy. Other bodies like the Nigerian FinTech Association have also emphasized the need to increase awareness of the population on the protection of their data as well as the need to provide consent when engaging in open banking services (Ibukun, 2021). The essence of these initiatives is to enhance consumer's trust with financial institutions, which are important for the implementation of open banking in Nigeria.

Impact on Competition in Financial Services

Analysis of the Current Competitive Landscape in Nigeria's Financial Services Sector

Financial services sector represents the main type of focus in Nigeria, where numerous numbers of traditional banks exist, which are mostly big players and hold a major market share. The country is highly concentrated in the banking sector where the top five banks command over 60% of the total assets according to the central bank of Nigeria (CBN, 2021). These banks, over the years, have been able to benefit from factors such as technological benefits, big number of branches and goodwill. Yet, in the last few years, fintech companies entered the steering wheel and began to compete with traditional banks for dominance in the market by offering unconventional business models.

The fintech industry in Nigeria is already diversified with actors providing various services including digital payments, lending solutions and person-to-person transfers. Prominent examples include Paystack, Flutterwave, Carbon and among others have revolutionized how consumers and commercial players interact with financial products and services (KPMG, 2020). Of course, these fintechs primarily work in the virtual realm, which enables them to have significantly lower overheads and more advanced technological systems. This enables them to offer the services in the shortest time at low cost and especially to the less privileged individuals.

However, the ever-increasing popularity of fintech firms does not reduce the importance of conventional banks because of their proximity to government agencies and customer base. It is a common observation that the shares of the banks get better treatment of the regulatory measures, access to customer deposits, and optimum relationship with the regulatory agencies such as the CBN as compared to other forms of financial institutions. Therefore, while it is commonly stated that the competition between the FinTechs and the traditional banks was evening out, the reality is that the latter have retained the lion share in the large-scale retail and corporate segments that the FinTechs still do not successfully enter.

How Open Banking Fosters Innovation and Competition Between Traditional Banks and Fintech Companies

Open banking is a new model of the Nigerian financial system in which customers of traditional banks and fintech firms can securely share their financial data. The fact that consumer data was previously at the disposal of only banks, through this data-sharing framework, fintechs can harness the consumer data in emerging new products and solutions that are more suitable and in line with the needs of the consumers (Central Bank of Nigeria, 2021). Consequently, open banking encourages competition and distinguishes financial technology companies as key players in the financial market.

Keyways open banking fosters competition include:

- Leveling the Playing Field: Before open banking, banks hold a monopolistic position on their customer's data, thus making it challenging for fintech firms to create similar services. Open banking brings this data into the public domain, enabling FINTECHs to develop solutions such as budgeting applications, credit worthiness, payment links, and others. This creates competition because consumers are able to select from a decent number of financial services with sometime lower charges.
- Improved Customer Experience: Through improved access to consumer information, they are in effect in a better position to create more innovative and consumer-oriented solutions. Most of the time, fintechs are nimble to get hold of innovative and advanced skills like AI and machine learning to provide custom financial

services, manage risk factors more efficiently, and enhance customer experience. This forces the old generation banks to shift up their practices to meet the demands of their customers hence improving the quality of financial services companies in the country (PwC Nigeria, 2020).

- Partnerships and Collaboration: While open banking is competition for the incumbent financial institutions, it also promotes partnership between the banks and fintech firms. Some of the major strategies that have been observed in the current market is that many banks have begun to form strategic alliances with fintech firms to incorporate their innovative offerings in the set of services offered by the banks. For instance, online payment and loans services together with the fraud detection systems developed by fintech, are integrated into the infrastructure used by traditional banks to support their varied services without necessarily fully changing their technology structures. Both the parties benefit from these partnerships in the sense that it helps the banks to pivot and for fintechs to expand their offerings successfully.

Case Studies Showing Changes in Market Dynamics

1. Paystack and the Digital Payments Revolution Paystack – Nigeria's leading fintech startup company that was bought by the American payments company, Stripe in 2020 exemplifies how Nigeria's financial system has been revolutionized by Fintechs. When Paystack started the operations of the platform in Nigeria, the market was initially monopolized by banks that provided challenging and costly digital payment services. Paystack entered this space and made standard payment APIs that would help businesses to accept payment online easily and in a way that would be friendly to the developers. Because open banking enabled Paystack to access the data that banks' systems maintained about their customers and their transactions, commercial entities received real-time information on customers' activities (KPMG, 2020). This has therefore led to more competition in the payments space as new entrants such as Paystack exist and put pressure on traditional banks to innovate and upgrade. Some of the banks currently embrace fintechs to advance in payment services; this shows how open banking can fuel cooperation between both traditional and innovative participants.
2. Carbon and Digital Lending Carbon – a Nigerian fintech – has also stepped into the consumer lending market using open banking. Specified with the help of open banking customer's financial data, Carbon built algorithms to predict credit risk and extended its offering with instant unsecured lending for individuals and SMEs. Uniquely, the Carbon financial product offering works with open banking APIs and employs the use of transaction data and digital footprints to make credit decisions meaning credit facilities are more open and accessible as compared to traditional banking systems (Carbon, 2021). Is there an effect on the banking space? Carbon's emergence has changed lending strategies in traditional banks by offering digital services and credit-scoring evaluation. This case shows how open banking encourages the creation of new business and competition within sectors that were exclusive to banks and make the financial products more accessible and cheaper to the consumers.

Summary of the Competitive Impact

The area of open banking has unveiled a new form of competition of financial services in Nigeria from traditional firms and new ages fintechs. The power of obtaining consumers' data and the possibility of creating new products' offers have given more options for customers' choices and competitive pressure in such fields as payments, credit, and personal finance. As the Bank of Thailand's report shows, a threat of cooperation with fintechs changes the competitive picture for traditional banks, although they retain substantial market power; these shifts in the industry lead to enhanced customer services.

Challenges and Opportunities

Implementing Open Banking: Issues at Stake

1. Technical Challenges: The following are the technical challenges that include; Some of them include; The most important one is the absence of unified API and interoperable systems among the financial institution. Although, in line with the needed Open Banking implementation by larger players and under the Regulatory Framework for Open Banking, there are standard requirements for the use of APIs (Central Bank of Nigeria, 2021), it

becomes challenging to achieve standardization in technology adoption, especially among smaller banks and FIs that cannot afford the required upgrades to their system.

Furthermore, cybersecurity threat acts as a technical obstacle that is hard to overcome. Communicating financial information to different media channels poses a risk as there is increased vulnerability to cyber criminals and hackers. In a country where capacities for cybersecurity are relatively nascent, guaranteeing the proper encryption of and the appropriate transfer as well as storage of consumers' data is still a major challenge (Olatunji, 2021). Concerning this, players within the financial industry together with Fintechs need to incorporate credible security enhancements including encryption, multi-factor authentication, and real time fraud solutions.

2. Regulatory Issues While the CBN has established guidelines concerning Open Banking regulation is still an issue in its ongoing process. That is why compliance with data protection legislation, including the NDPR, as well as the obligation to apply open banking rules, still lacks adequate regulatory supervision (Ibukun, 2021).

Furthermore, on the aspects of legal environment there are questions about the continuance of such regulatory clarity. As the fintech firms join forces with conventional banking organizations, issues related to risks and especially irresponsibility for data breaches or fraud appear. What is their responsibility—is it the fintech provider's, the bank's or both? Policies concerning such issues are still open in Nigeria as well as the lack of structures for the resolution of any arising disputes may keep new entrants or relatively smaller fintech firms out of the market (Eze, 2020).

3. Consumer aspects are one of the most significant concerns that stakeholders have to overcome These issues include the following: The consumer is a dyed-in-the-wool worry for stakeholders Pull Factors Another major problem area that stakeholders face is pull factors. Open banking means that consumers must share their data with other third-party providers that they may not understand or trust, something that majority of Nigerians have not engaged in. A survey carried out by PwC Nigeria published in February 2020 showed that majority of Nigerian consumers are worried about how and whether their personal data will be protected.

The construction of consumer trust goes beyond the establishment of the legal structures; it also entails enhancing the consumers' financial literacy as well as enhancing their awareness of the gains of open banking, and Open banking data use. Most of Nigeria consumers are still ignorant of their data protection rights, this has made them reluctant to disclose any financial information, especially to up-and-coming fintech firms that may not have the same level of credibility as those of standard banks (Olatunji, 2021).

Opportunities for Fintech Companies and Other Non-Traditional Players in Nigeria

1. Opportunities of Open Banking for Fintech Companies and Non-Traditional Players: Innovation as a Capability Open banking also offers big opportunities for fintech companies and non-tradition players to innovate in the financial sector in ways which were not feasible before. In this case, we foresee the following personal financial management services Availing consumers' financial data, the following services can be offered by fintechs; thereby; Automated budgeting services, Savings application, Peer to Peer lending. Not only do they offer the consumers a better-suited financial products portfolio but also opens new sources of revenue for the fintech firms.

Also, fintechs are utilizing the machine learning concepts along with artificial intelligence to enhance the credit scoring and the risk management data. This is especially important in Nigeria, where millions of clients are unscored, meaning they don't have the traditional credit score that would allow them to be scored via transaction history and digital footprints, opened by open banking (Eze, 2020: 70–71).

2. Opportunities for growth of financial inclusion: The application of open banking principles can seriously expand financial inclusion in Nigeria by offering fintech businesses the opportunities to serve segments of non-served and hardly served consumers. In this way, using financial data of the consumers who have previously had no or very limited access to the financial services, the fintechs can provide micro loans, saving products, and payment services that can be cheaper and more accessible (EFInA, 2021).

For example, fintechs are ready and capable of offering services to SMEs, which belong to the category of customers that are often ignored by incumbent banks. Specific value can refer to customized financial products which include small business loans and cash flow management based on transactional data of SMEs. Real-time behavioral insights about their respective consumers enable fintechs to provide contextual and affordable solutions that enhance entrepreneurship and, in the process, advance economic development (McKinsey & Company, 2021).

3. Opening of New Business Models and Generation of New Revenue Streams The idea of open banking makes provision for new business models that are informed by data-driven financial services. For instance, a fintech company can provide a banking as a service (BaaS) to third parties to offer banking services with minimal legal requirement of the banking license. This creates an opportunity for firms that are not part of the financial industry per se such as telecom companies, traditional retailers, tech firms, among others to offer financial services using open banking APIs (Deloitte, 2021).

Conventional financial system players, which have no direct interaction with the consumers, may also complement their business with fintech firms – this approach is used by telecom operators and e-commerce firms. What this does is open possibilities for inter-sector learning and the generation of new ways and means of engaging the customer. For instance, while there is a possibility that telecom firms could grant microcredit facilities in consideration of figures generated from subscribers' dormant lines; another example could be e-commerce firms having payment solutions as part of their check out procedures (PwC Nigeria, 2020).

Conclusion and Policy Recommendations

As it has been described in this paper, open banking has challenged the privacy of consumer data and competition in Nigeria's financial services industry. Open banking is known to have much prospect for the transformation of financial service considering that it can bring changes at the consumer level, allowing other players, particularly fintechs the access to information concerning customers.

However, several privacy issues are identified in the analysis as discussed as follows. Different sharing practices put the Nigerian consumers at risk of unwarranted loss of privacy due to access of the shared data by unauthorized individuals, cyber criminals and wrong use of the consumers' personal information. Policies like Nigerian Data Protection Regulation (NDPR) and the Regulatory Framework for Open Banking by the Central Bank of Nigeria are there to safeguard the consumers' interests. However, enforcement and consumers' awareness continue to be enormous challenges.

From the competition viewpoint, the open banking has made the ground between traditional and new age banks which are the fintech firms rather even. Through sharing of the customer data, the framework allows the growth of fintechs, which in turn provides new and better solutions to consumers and increases financial inclusion. However, challenges such as the technical barriers, regulatory complexities and issues relating to the placement of consumer trust may slow down the sector to effectively unlock these opportunities.

Policy Recommendations

To balance the twin objectives of innovation and privacy protection, the following policy recommendations are proposed: To balance the twin objectives of innovation and privacy protection, the following policy recommendations are proposed:

1. Enhancing the Data privacy laws and regulations in enhancing the data privacy laws, regulators should ensure that the laws are enforced strictly especially the NDPR on the American financial institutions and third-party providers to adhere to strict data protection measures. The CBN and other regulatory bodies ought to perform constant compliance and monitoring to eliminate privacy threats in open banking. Besides, clearer rules concerning the data-sharing arrangements between the incumbent financial institutions and the newcomers should be contributed, including the rules of liability and accountability if the data are used unlawfully or leaked (Brodsky & Oakes, 2017).

Further, information privacy should be constantly revised through changes in legal framework to reflect on the changing social technological environment. Regulators have to guarantee that some level of flexibility is maintained by such frameworks and that we can adapt to new threats adequately (Ibukun, 2021).

2. Open banking is set to benefit Nigeria's consumers, and for this to become a reality, consumers need to be made aware of the opportunities that come with it as well as gaining their trust. There is a need to increase the awareness levels of the consumers on the advantages of open banking as well as the existing data protection laws. This would help to mitigate the issues and concerns regarding data sharing and thus increase take up.

Another effective activity is the use of clear data use and protection modalities through indicating credit and financial institutions as well as the fintech company's clients' rights to privacy among other components. Thus, there are much more ways of increasing the trust, for example, through such elementary mechanisms as opt-in/opt-out for consumers.

3. Enhancing the Role of CBN and Other Prescribed Agencies The central regulators involved in the formulation of policies regarding open banking include CBN, NITDA, and NCC which must combine their efforts and work as a single regulatory authority. It includes coordinating data protection laws, cyber-security laws and norms regulating operations in the financial markets to ensure that they are not duplicated, conflicting or contradictory. These complex regulatory issues could be handled through joint task forces or inter-agency committees that would assist in a proper implementation of the open banking throughout the relevant sector (PwC Nigeria, 2020).
4. Promoting Innovation Through PPPs: To enhance innovation while at the same time ensuring privacy's safety, the regulatory authority ought to encourage collaborations between the conventional banks, emerging fintech challengers and the authorities. Fintech startups, using regulatory sandboxes that allow the launching of new products under the watchful eyes of the regulators, will come in handy in the evaluation of the possible privacy risks that might arise in the future before the complete deployment of these solutions. It can be said that such programs are aimed at the development of innovation, as well as their creation in a controlled environment where the issue of protection of the rights to personal data is not violated.

Another area important for future P2P partnerships should be delivery of the standardized open banking APIs and unified security model for data exchange among different banking institutions. This would address issues to technical affinity and open up the possibility for open banking for any player involved including smaller financial institutions (Deloitte, 2021).

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