DISRUPTIVE FINANCIAL TECHNOLOGY INNOVATIONS AND FINANCIAL PERFORMANCE OF QUOTED NIGERIAN BANKS

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Abstract

The work examined the impact of disruptive technology on financial performance of quoted Nigerian banks. Specifically, the study examined the extent to which disruptive technology adoption in financial payment, lending and savings channels play in enhancing the performance of banks in Lagos. Descriptive survey design was adopted, Five banks – including Wema bank, GTB, Ecobank, Access bank and First bank, were purposively selected because they were found to have adopted disruptive technology and innovations. Out of 504 questionnaires distributed to respondents from the five banks, 300 valid responses were received. The data collected was analyzed for descriptive, correlation and regression analysis using statistical package for social sciences (SPSS) version 25. The study found that disruptive innovations adopted in the areas of digitalized payment, lending and savings have positive and significant impact on bank performance. Thus, implementing the digitalization in payment, lending and savings channels arising from adoption of disruptive technology affords banks the opportunity of enhanced financial performance. Based on the findings of the study, we recommend that banks must make deliberate attempts to be technologically inclined as regards FinTech, and be technologically adept in order to prevent future losses that may arise as a result of the rise of
FinTech firms providing innovative financial services and products to bank customers. They must deliberately partner with Fintech firms in developing innovative customer-oriented channels, as well as train bank staff, in order to consciously build dynamic capabilities in them to ensure that they adapt to the dynamic nature of FinTech within the financial system.

 Keywords: Bank Staff, Disruptive Technology, financial Performance, innovations, Quoted Banks.

1.0 Introduction

The study of disruptive technology and/or innovation and their adoption by organizations has generated a field of research whose aim is to unravel its implications for performance, and establish an empirical knowledge base upon which scholars can build. This research will contribute to this ongoing effort by focusing on the effect that disruptive financial

innovation adoption has on bank performance. Financial intermediation has changed dramatically over the past decade, due to technological change (referred to as disruptive technology) arising from advances in telecommunications, information technology, and financial practice.

This technological progress has spurred innovations that have altered conventional financial products, services, production processes, and organizational structures (Bloomfield, 2016). Disruptive technology simply refers to technology with the potential to create disruptive innovation at any levels. Disruptive technologies are those that result in a significant change in the cost of, or access to, products or services, or that dramatically change how organizations gather information, make products, or interact. They are largely enabled by the dramatic increases in computing capacity and internet bandwidth that has made their diffusion exponentially faster (Muthinja & Chipeta, 2018).

The broad and accelerating availability of disruptive technologies to citizens, consumers, and businesses has been a defining feature in recent years, with new services and markets spreading rapidly across populations. Financial innovation is often the result of new technology, which introduces services and products that are under-offered by the conventional market. These innovations enable new organizations to offer products and services that are cheaper, simpler, or more convenient to use, thus, enhancing market expansion. Innovation is a

consequence of disruptive technology adoption and application. Financial innovation involves products, services or approaches that transform existing markets or create new ones by trading off raw performance through simplicity, convenience, affordability and accessibility (Razin, 2019).

There is no doubt that prior financial processes have undergone a huge transformation throughout the last decade, and the new types of financial technologies (otherwise referred to as Fintech) such as Blockchain, Big data analytics, Artificial Intelligence (AI) and Machine Learning (ML), Internet of things (IOT), Robotic Process Automation (RPA), Application Programming Interface (API), represent a currently innovative and emerging field, which has attracted attention from the media, investors, and scholars (Shen & Chen, 2018). These technologies have taken what had been largely local markets for banking services and opened them up to international competition from other banks and non-bank financial institutions (fintech firms). These technological advances according to Kalliala (2012), have seen the financial industry face increased competition. In order to respond to this threat and remain in business, banks have had to adopt these disruptive technologies to enable them innovate their products, services and processes to meet the needs of the consumers. They integrate customers experience across their branches through digital interactions, provide novel products, and offer personalized and customized financial

services to customers such as internet and web banking, telephone and mobile banking, electronic fund transfer, mobile wallets and cards, ATMs, POS, etc, depending on the nature of their financial needs (Corbet & Gurdgiev, 2017).

These financial innovations are crucial for the survival of banks, because they bring positive effect on their performance indicators (Damanpour et al., 2019). Frimpong (2010) argued that innovations provide an impetus for banks to improve their market performance by recovering from palpable inefficiencies prevalent in the banking industry, as is the case in Nigeria and other emerging countries. Bank innovations have the potentials to increase the volume of retail transactions through increased usage of electronic transfers and payment systems which encourage bank viability, and results in increased revenue for banks. This implies that the advent of financial innovation driven by disruptive technology has revamped banking operations, with wider client reach, which has facilitated greater sales revenue for banking firms (Oira & Kibati, 2016). Again, by innovating products, services and processes, customers can perform financial transactions from their mobile phones and computer systems in the comfort of their homes and other remote places without the need to drive to banking halls. This consequently improves bank processes and operations efficiency at low cost and risk (Agbolade, 2011; Suoranta & Mattila, 2004; Tsai et al., 2010).

This paper consequently examines financial innovations that have appeared in recent decades that were specifically driven by disruptive technologies, and their effect on bank financial performance. Particular attention is paid to innovations that may provide insights into the prospects for certain widely discussed fintech applications in the areas of payments, lending and savings, anchored on disruptive technology or innovation theory of Clayton (1997).

The paper establishes the following specific objectives:

To examine the impact of disruptive payment channels on banks' returns on assets in Nigeria

To examine the impact of disruptive lending channels on banks' returns on assets in Nigeria

To examine the impact of disruptive savings channels on banks' returns on assets in Nigeria

The remainder of the paper is divided into the following sections: section 2 reviews literature and develops the hypotheses of the study. Section 3 provides the methodology and data. Section 4 provides the results, and section 5 provides the conclusion and recommendations.

2.0 Literature and hypotheses development

2.1 Disruptive technology

Disruptive Financial technologies (fintech) refer to a combination of new technologies and innovations that offer a wide spectrum of financial services, such as mobile payments, ewallets, marketplace lending, robo-advisory and digital currencies (KPMG, 2018). The adoption of disruptive technology and financial innovations by organizations (especially banking firms) has spawned greater interest in researchers and practitioners whose aim is to provide the empirical effects of such adoption on organizational performance. Current technological changes in the financial industry are disruptive because they have completely changed the way traditional

banking systems operate, with new opportunities and challenges for adopters. This means that disruptive technology brings with it both benefits and costs, which must be analysed by those adopting them (Tongur & Engwall, 2014). Technological changes in the banking sector that have accounted for the shift in banking operations, from dependence on human conjecture to automated analysis, include blockchain technology, big data analytics, artificial intelligence, and machine learnings.

In the commercial banking sector, digitalization has improved banks' capability of reaching potential customers and helped them to improve their services. In the modern world, the biggest channel of reaching customers is the online and mobile banking (Forest & Rose, 2015). Online banking refers to any banking transaction that can be managed through the internet, generally via a bank's website under a private profile, using a desktop or laptop computer. While mobile banking allows a user to carry out many of the same activities using a mobile app on a smartphone or tablet, instead of using a desktop computer (Black, et al., 2002). Mobile banking is considered to be more competitive than other forms of electronic banking. The high penetration of mobile phones has an influence on all social levels, also expanding the advantages of mobile banking over the other types of electronic banking since mobile applications can be used anytime-anywhere removing the limitations of electronic banking. Financial transactions which can be performed through the internet or mobile banking include

services traditionally offered at local branches, such as paying bills or transferring money from one account to another, viewing account balances, viewing or printing statements, viewing images of checks and applying for loans or credit cards, as well as making deposits and savings (Laukkanen, 2007). As online and mobile banking provides an outstanding convenience to customers, allowing them to manage their finances and conduct business operations from outside a banking facility, it is, nowadays, one of the biggest technological advances influencing the current banking industry. The main advantages of digitalization in the banking sector include low fees, time savings and freedom from time and place, easiness-to-use of the service, speed of service delivery, convenience and compatibility with life-style (Gerrard, & Cunningham 2003).

Due to the growth of technological applications to financial services, many technology-based firms have now resorted to providing financial services. This is referred to as a financial technology, abbreviated as "fintech". These fintech companies provide customers with user- friendly platforms for more convenient and cost-effective financial transactions. One of such platforms is the "marketplace lending application" which provide borrowers with an easy loan application process. It employs credit scoring tools to analyse the creditworthiness of each applicant, connects successful applicants with finance providers (such as banks, and other finance houses), and uses machine learning and/or artificial intelligence to

improve the measurement of credit risk through marketing and monitoring account activity in lending environments. Blockchain technology is also used for issuing and transferring crypto- currencies as well as early-stage funding for fintech companies using coin offering. This suggests that the advent of fintech has facilitated the creation and deployment of new financial products, services, production processes and organizational forms (Schiavi & Behr, 2018). The traditional banking industry is experiencing changes due to the rapid development and spreading of technology. (Nicoletti, 2017). The new catchword 'FinTech' is integrating into the processes managed by the commercial banks with the progressing corporate and customer focus. It creates the need for the financial institutions to keep pace with both the technological advancements and upgraded user experience across the board. The FinTech companies, which are emerging and entering the market, are increasing the competitiveness within the sector. FinTech is changing the approach of performing the traditional financial operations such as payments, transactions, borrowing, lending, saviong and investing (Chishti, et al, 2016). The development of FinTech affects the commercial banks operations, because they are starting to integrate financial technologies into their operations, and externally, through the appearance of new FinTech companies, which provide services that traditional banks do less efficiently or do not do at all, as the competitors for traditional banks (Navaretti, et al, 2017).

2.2 Disruptive innovations in payment channels

Disruptive payment channels (DPC) refer to the cashless payment methods (Kagan, 2018). These methods include payments made using a credit or debit card, loyalty program points, bank transfers, direct debits, e-wallets, mobile, local card schemes, pre-pay, post-pay, einvoices or cryptocurrencies. In some of the cases, such as credit or debit card usage, banks serve as financial intermediaries, and in some cases, such as payments via e-wallet or in cryptocurrencies, there is no need for a third party between payer and receiver. The transactions are usually conducted in real-time. DPCs offer customers a more streamlined, user-friendly and cost-effective experience, making the payment execution better, faster and cheaper (Dortfleitner et al. 2017).

Cryptocurrencies are defined as a type of electronic money that can be used in financial transactions as a means of payment or as a means of transport, which are carried out through computers (Maese, 2016). Bitcoin, which was introduced into the market in 2009, is the most striking example. This currency is not subject to any control and therefore all transactions can be carried out independently, sometimes even without the need to bear additional costs in terms of their completion (Carrick 2016). It is worth pointing out that this digital currency mitigates inflationary risk, since it is designed in such a way that the quantity available on the market is finite (Franco, 2014). In addition, according to Carrick (2016), Bitcoin is a global virtual currency that is not subject to government control, thus reducing the risk of its collapse. Undeniable is the convenience, immediacy and effectiveness it gives to financial transactions in particular to P2P payment models.

Some traditional financial institutions have found a solution to be part of the digital revolution in collaborating with FinTech firms. Nowadays, there is a number of

enhancements in the existing payments ecosystem that have the potential to improve the effectiveness and efficiency of the environment. They represent real opportunities to lower costs and minimize risks with minimal disruption to current operations. Faster Payment Service2 and Popmoney3 are among these solutions. These services are being offered by many banks to reduce the customer expectation gap of real-time payment experiences. Firms like PayPal4 are creating innovative user interfaces to facilitate instant and faster payments, improving the customer experience (Canaday, 2016).

2.3 Disruptive innovations in lending channels

The biggest change brought about by Fintech - mainly because of the innovations they have introduced into the world economy - lies in the lending industry (Conner, 2013). Until recently, banks had absolute control over this sector, which often made it difficult to provide credit mainly to small businesses or private individuals who had poor economic effects and conditions to obtain loans. In addition, even if this was feasible, the complexity of the procedure discouraged several potential creditors (Conner, 2013).

Credit and loan applications that required local presence of applicants and risk managers, with high underwriting and compliance costs, are now evaluated using 'credit scoring tools' designed using the information collected from comprehensive historical credit registry databases (big data), that is leveraged to mitigate credit risks (Muthinja & Chipeta, 2018). Fintech has

succeeded in countering the above-mentioned barrier by introducing innovative technology applications as well as support services, thereby achieving more efficient customer satisfaction as well as creating a completely new lending market.

The major innovation observed in the field of lending was the Peer to Peer lending (P2P) model, which could be described as a fundraising model with the help of high-security computer networks. In this way users who are willing to contribute to raising funds essentially lend to users who are applying for a loan by simply completing an online application. At this point, it is worth noting that extensive documentation or pledging of assets is not required in order to ensure the provision of financing. In addition, the borrower can withdraw funds in the form of a loan from multiple lenders at the same time, securing a lower interest rate than he would get from the traditional banking network (Milne & Parboteeah, 2016).

2.4 Disruptive innovations in savings channels

Mobile wallets use technology tools to achieve the storage of digitized financial assets such as debit or credit cards, which allows users to make speedy and security-sensitive deposits and investments (Parker, 2016). In order to use this service, the customer must download the provider's mobile application and store the card information in their unique digital account as a user. With the advent of a new generation of evermore sophisticated mobile money apps, people can have savings goals, check how much they are spending, allocate money

to different accounts and monitor their savings account. Savings apps have made investing convenient, available any time, engaging using gamification and seamless through round-up technology.

With the development of artificial intelligence (AI), some apps now have built-in functionality which can personalize savings advice and nudge users into making behavioural changes or switching to more competitive deals. For example, apps such as Chip and Plum use AI to analyse spending and can reduce bills. OpenMoney gives personal financial advice to help you save for the future and manage your money better (Carrick 2016).

As a result of the gig economy, many people have irregular income. These apps, which sweep spare money into virtual savings pots, provide greater flexibility than traditional savings accounts which weren't designed for our modern working life (Umana, 2022). Victor Trokoudes, chief executive and co-founder of Plum said that "Savings apps are the solution to the problems caused by modern saving patterns. Many people have fluctuating incomes and less predictable and more hectic lives. One big appeal for millennials using these apps is the ability to allocate money to specific life goals. Millennials want to see specifically what their savings are going towards rather than arbitrary savings accounts".

In Nigeria, disruptive technology has introduced innovative savings apps which include

PiggyVest, Cowrywise, Vestpay, Kolopay, Vbank, Kuda Bank, Sumo Bank (Sumo Trust), Trove, Carbon, Alat and Kudi, which have been used by various banking customers to track their spending habits, save more, and make the right financial decisions (Umana, 2022).

2.5 Disruptive innovations and financial performance

The primary function of a financial system is to facilitate the allocation and deployment of economic resources - both spatially and across time - in an uncertain environment. This function encompasses a payments system with a medium of exchange; the transfer of resources from savers to borrowers; the gathering of savings for pure time transformation; and the reduction of risk through insurance and diversification. Therefore, new or improved financial (i) production processes, and (ii) products and services, that can better satisfy financial system participants' demand and reduce costs and risk processes should generally be welcomed. Viewed in this context, Frame and White (2012) define a financial innovation as "something new that reduces costs, reduces risks, or provides an improved product/service/instrument that better satisfies financial system participants' demands."

Recent retail banking service innovations primarily relate to enhanced deposit account access and new methods of payment – each of which better meets consumer demands for convenience and ease. Debit cards, which bundle ATM access with the ability to make payment from a bank account at the point-of-sale, became ubiquitous in the 1990s. In the 2000s, online banking, which allows customers to monitor accounts and originate payments using "electronic bill payment," became widely used. Notably, besides improving convenience and ease, retail payment innovations may also improve access to the banking system for unbanked consumers (e.g., Hayashi 2016). With respect to online bank performance, DeYoung, Lang, and

Nolle (2007) report that internet adoption has the capacity to improve bank profitability – primarily through deposit-related charges. In a related study, Hernando and Nieto (2007) find that, over time, online banking was associated with lower costs and higher profitability for a sample of Spanish banks. Both papers conclude that the Internet channel is a complement to – rather than a substitute for – physical bank branches. Additional evidence is offered by Ciciretti, Hasan, and Zazzara (2009), who also found that banks that offered Internet-related services for payment had higher profitability (and stock returns) relative to their peers.

Banking practices in Nigeria appeared to be crude that customers could spend a whole day in the banking hall just to make deposit or withdrawal, even sometimes had to return to the same bank the following day for the same transaction because of a long queue. Banking operations as at that time were so designed in form of "arm-chair brick and mortal" approaches that those customers could not make transactions in another branch of the same bank on the same street. Banking services during conventional banking era in Nigeria were very poor because they were manually carried out owing to lack of technology innovation (Oluwatolani et al., 2011; Okoye et al., 2019). However, the advent of technology and its application in recent time of speedy service delivery has undoubtedly refurbished the system, though with its hiccup. New technologies have transformed organizations by providing innovative ways of adding values to both existing and new markets, creating

opportunities that can expand the scope of firms beyond the boundary of organizations (Zott et al., 2011). Banking has been transformed by technology, and the clients are more satisfied than before through e-transactions thereby generating more sales revenue for banks in Nigeria and other parts of the world (Oira and Kibati, 2016). Bank customers can now perform financial transactions such as payment, lending and saving, without seeing the four pillars of the branch of the bank. That is why it is possible in Nigeria today to see people enjoying banking services with their smart phones without even being an account holder of the bank (Okoye et al., 2019). Therefore, technology has become a centre of global change and its adoption in the banking system has changed the tone of the music and copiously improved service delivery (Agbolade, 2011; Suoranta and Mattila, 2004; Tsai et al., 2010). Thus, we hypothesize that:

H1: Disruptive payment channels of banks have significant effect on bank performance in Nigeria

H2 Disruptive lending channels of banks have significant effect on bank performance in
Nigeria

H3: Disruptive savings channels of banks have significant effect on bank performance in Nigeria

3.0 Research methodology

This study adopted a descriptive research design. This design facilitated the examination of observations of technological disruption adopted by banks in the financial services of payment, lending and savings, and therefore allowed the researcher to identify the implications of these findings on the financial performance of deposit money banks in Nigeria (Creswell, 2013).

The population of the study include employees of Commercial banks in Nigeria. More specifically, the sample is composed of employees of banks that have adopted fintech innovations in their banking services in Lagos. These banks include First bank, Guaranty Trust bank, Ecobank, Access bank and Wema bank.

The survey instrument used was designed to capture the four constructs of the study, namely, disruptive payment channels (DPC), disruptive lending channels (DLC), disruptive savings channels (DSC) and bank performance (BPF). About 505 questionnaires were administered on the sample respondents, out of which 300 valid responses were received, representing 59.4 percent. Forty five percent of the respondents were senior and middle level managers, and 55 percent were operational employees. This sample fits the study well as it captures the perspectives of both managers and operational employees across a range of organizational departments. For greater credibility and validity, a 5-point likert scale to measure each item was employed, with scores ranging from 1 (strongly disagree) to 5 (strongly agree).

Data collected were analyzed using statistical package for social sciences (SPSS) version 25. The reliability of the items was tested using Cronbach alpha, while the convergent and discriminant validity were tested using the Average variance Extracted (AVE) obtained from factor analysis. Descriptive statistics and correlation analysis were performed on the data used to measure the constructs or variables of the study. Multivariate Ordinary least Square (OLS) regression technique was used to test the study hypotheses. The regression model is specified as:

$$BPF_t = \beta_0 + \beta_1 DPC_t + \beta_2 DLC_t + \beta_3 DSC_t + e_t$$

Where:
BPF = bank performance (dependent variable)
DPC = disruptive payment channels
DLC = disruptive lending channels
DSC = disruptive savings channels

A priori Expectation
It is expected that the adoption of disruptive technology in financial products, service, and/or channels innovation by banks will improve bank performance, as more bank customers and clients are likely to rely more on the fintech applications and services provided by the banks.
Hence, it is expected that β_1, β_2 and β_3 will be positive and statistically different from zero.

4.0 Results and discussions

Table 1: Reliability and Validity Measures

Variables	Number of items	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
DPC	10	0.92	0.93	0.93
DLC	10	0.91	0.90	0.90
DSC	10	0.93	0.92	0.88
BPER	10	0.96	0.97	0.92

DPC denotes disruptive payment channels, DLC denotes disruptive lending channels, DSC denotes disruptive savings channels, BPF denotes bank performance.
Source: Researchers' Computation, 2022

The reliability measures are tested in table 1. The Cronbach alpha of each scale ranged from 1.91 to 0.96. the values are greater than the recommended value of 0.70, indicating that the scales are reliable, and the items internally consistent. The composite reliabilities of each scale ranged from 0.90 to 0.97, which exceed the 0.70 threshold for acceptable reliability. Thus, the measures employed in the study demonstrate high internal consistency and reliability.

The average variance extracted (AVE), which is a test of validity of scales measured the variance captured by the indicators relative to measurement error. The data in table 1 revealed that the AVE ranged from 0.88 to 0.93, with a satisfactory threshold value of 0.50. In addition, the study constrained the correlation between each pair of constructs, to be equal to 1. The AVE of each construct was compared with the square of correlations among the constructs.

The study demonstrated that the AVE values exceeded the square of correlations among then constructs. Therefore, these results indicate that the constructs demonstrate both convergent and discriminant validity.

Table 2: Mean, SD and Correlations

Variables	Mean	SD	1	2	3	4
DPC	3.78	0.41				
DLC	3.51	0.53	0.32*			
DSC	3.46	0.66	0.34*	0.35*		
BFP	3.94	0.72	0.41*	0.44*	0.48*	

DPC denotes disruptive payment channels, DLC denotes disruptive lending channels, DSC denotes disruptive savings channels, BPF denotes bank performance.
*denotes significance at 0.05 level.
Source: Researchers' Computation, 2022

Table 2 presents the mean, standard deviation and the correlation matrix of the research variables. The mean data demonstrated that all constructs and variables had mean values ranging from 3.46 to 3.94, with standard deviations ranging from 0.41 to 0.72. The descriptive statistics revealed that the response rate on the variables is high. Specifically, the sampled banks had adopted innovative payment channels, lending channels and savings channels. The correlations revealed that disruptive payment channels have a positive and significant relationship with disruptive lending channels (r=0.32). Disruptive payment channels also have a positive and significant relationship with disruptive savings channels (r=0.34). Disruptive lending channels have a positive

and significant relationship with disruptive savings channels (r=0.35). This indicates that banks adopting disruptive payment channels in their financial innovation also adopt and implement disruptive lending and savings channels.

The correlations further revealed that disruptive payment channels have positive association with bank performance, revealed by a correlation coefficient of 0.41. Disruptive lending channels have positive association with bank performance, revealed by a correlation coefficient of 0.44. Similarly, disruptive savings channels have positive association with bank performance, revealed by a correlation coefficient of 0.48.

Table 3: Regression Result

Intercept	a	**0.715**
	(p-value)	(0.000)
	[t-stats]	[8.63]
DPC	a	**0.702****
	(p-value)	(0.000)
	[t-stats]	[8.13]
DLC	a	**0.511****
	(p-value)	(0.000)
	[t-stats]	[4.01]
DSC	a	**0.449****
	(p-value)	(0.000)
	[t-stats]	[3.82]
R-Squared		.71
F-statistic		73.7
F(*Prob*)		0.000
Dependent variable		BFP

DPC denotes disruptive payment channels, DLC denotes disruptive lending channels, DSC denotes disruptive savings channels, BPF denotes bank performance. **denotes significance at 0.01 level.
Source: Researchers' Computation, 2022

Table 3 of the regression coefficient indicates that innovative or disruptive payment, lending and savings channels have positive and significant effect on bank performance. The findings of the study specifically indicated that disruptive payment channels adopted by banks improve bank performance by a coefficient of 0.702, which is statistically significant at the 0.01 level of significance (t=8.13). Disruptive lending channels and methods adopted by banks also enhance bank performance by a coefficient of 0.511, which is statistically significant at the 0.01 level of significance (t=4.01). Disruptive savings products also influence bank performance positively by a coefficient of 0.449, which is statistically significant at the 0.01 level of significance (t=3.82).

The regression coefficients of the study accept the formulated hypotheses H1, H2 and H3. Therefore, it is upheld that disruptive payment channels of banks have significant effect on bank performance in Nigeria (H1), disruptive lending channels of banks have significant effect on bank performance in Nigeria (H2) and disruptive savings channels of banks have significant effect on bank performance in Nigeria (H3). Overall, disruptive technology adoption by banks improves bank performance in the Nigerian financial sector.

The findings of the study agree with Oira and Kibati (2016) and conclude that banking has been transformed by technology, and clients are more satisfied than before through etransactions in the areas of payment, lending and savings, thereby generating more sales revenue for banks in Nigeria. Bank customers can now perform financial transactions such as payment, lending and saving, without seeing the four pillars of the branch of the bank. The findings are similar to Ibekwe (2021), Nwankwo and Agbo (2021) and Akani and Tony-Obiosa (2020) who found that financial innovations such as automated teller machine, point of sale, mobile banking, electronic fund transfer, and internet banking have positive effect on the profitability of commercial banks in Nigeria through enhancing the return on asset of the commercial banks in Nigeria. Furthermore, Almulla and Aljughiman (2021) found a negative relationship between fintech services and bank performance, indicating that the growth of fintech firms negatively influences banks financial performance. He recommended that for banks performance to improve, banks must adopt innovative initiatives and channels to provide fintech services to their customers and clients. The findings of this study therefore agree with the

recommendation of Aljughiman (2021). The findings therefore conclude that the adoption of fintech innovation in payment, lending and savings enhance banks performance significantly, as customers are not taken away by fintech firms, but rather enjoy a wide-range of fintech channels provided by their banks. This agrees with the findings of Kyari and Akinwale (2020) and Agboola et al (2019) who concluded that Fintech innovation adoption, financial service digitalization implementation, and financial software technology acquisition by banks have positive and significant impact on the banks' financial performance at 5% level of significant.

5.0 Conclusion and contributions
5.1 Conclusion

The emergence of disruptive technology is affecting the behaviour of bank consumers, because they give their preference to the digital channels over visiting of financial intermediaries physically when dealing with financial transactions. Consumer financial operations are shifting from physical locations to digital channels. According to World Payments Report (2018), global non-cash transaction volumes increased to 10.1% in 2016 reaching 482.6 billion and are estimated to accelerate at a compound annual growth rate (CAGR) of 12.7% globally, including emerging markets growing at 21.6%, from 2016–2021. The rapid technology development puts pressure on the traditional financial services providers forcing them to transform their corporate strategies and invest more capital into the development of both their IT and human resources departments. These changes are a way for the banks to hold their competitive advantage in the payments business and make incremental changes to their systems, processes and business models in order to

reduce operational cycle times and improve their consumer digital experience across channels.

Retail loan applications are now routinely evaluated using credit scoring tools built using comprehensive historical credit registry databases. Central payment systems have enhanced the efficiency and speed of fund transfer at lower costs, blockchain ledgers have enhanced clients' identity verification, making it easy to deliver broad range of banking services without need to re-verify the identity of the client. The current disruptive approach eliminates the need to have a local presence to make a payment, apply for a loan, or use other banking services, which substantially reduces operating, underwriting and compliance costs, improves bank risk measurement and management, and enhances their profitability and efficiency.

The paper thus concludes that disruptive technology adoption by banks in the areas of payment, lending and savings significantly improves the performance of banks in Nigeria.

It is recommended that deposit money banks in Nigeria should properly, and adequately implement the digitalization processes, by working on the challenges that hinder the successful operation of fintech channel inclusion in their financial services. Moreover, the number of innovative products and services should be increased and made available with easy accessibility to the users. This will ensure greater coverage and attract a myriad of customers. The paper also recommends that banks must make deliberate attempts to be technologically inclined as regards FinTech, and be technologically adept in order to prevent future losses that may arise as a result of the rise of FinTech firms providing innovative financial services and products to bank customers. They must deliberately partner with Fintech firms in developing innovative customer-oriented channels, as well as train bank staff, in order consciously build dynamic capabilities to ensure that the firms adapt to the dynamic nature of FinTech within the financial system.

However, such partnerships and experiments with FinTech products and services require careful and attentive management to maintain safety and soundness. The collaborations of financial institutions and FinTech firms demand responsible innovation research and development and third-party risk management practices. Both partners should use the risk- aware approach, to maintain and control speed and agility. Moreover, cybersecurity is another important condition for partnership, because the sensitive data sharing within the distributed network poses new questions around ownership of data, customers and liability. Finally, in the collaborations for the performance of the key business functions for a payment institution such as funds transfer or cross-border payments, elements of fourth-party business continuity risk exposure need to be identified and managed, as FinTech companies often leverage other third parties to support their business.

5.2 Contributions and limitations

The Financial Services sector is transforming with the innovative products and solutions, and customer expectations have primarily driven those innovative ideas. If banks must stay viable and achieve high performance, then it is imperative that they partner with fintech firms in providing products, service es and channels that will meet customers' expectations and needs in a tech driven society. Therefore, the study provides some contributions. First, bank managers should clearly adopt disruptive technology and initiatives that can enhance their financial performance. Disruptive technology provides a competitive edge to banks and helps in maintaining a balance between banks' economic progress and satisfaction of customers. Thus, conducting a study in this area presents bank managers the opportunity to adopt innovative technology needed to boost performance and meet customers' needs in a tech crazy society. Second, the study bridges the gap between fintech and banking firms. It proposes a collaboration, and strategic partnership and alliance between fintech and banks in order to make customer-and tech- driven products. The literature and theory is also boosted by the findings of the study, which will add knowledge to existing literature.

Few limitations for future researchers are presented in this study. First, due to time-constraint, the responses were gathered from a survey based on cross-sectional analysis; therefore, the interpretation of fundamental relationships should be done carefully. To overcome it, future studies should collect data from longitudinal studies for further validation of the model by obtaining data through surveys and observations. Second, this study is conducted in Lagos, Nigeria; hence the findings would be limited to this particular region of the country. Therefore, future studies should target the banks from other regions of the country to enhance the generalizability of outputs. The third limitation was the measurement and estimation of the variables of the study using survey instrument. It is pertinent that future studies be conducted using secondary data, especially in the measurement of bank financial performance.

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