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TECHNOLOGICAL DISRUPTION AND DEPOSIT MONEY BANKS FINANCIAL PERFORMANCE IN THE PRE AND POST COVID-19 PANDEMIC IN NIGERIA

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ABSTRACT

The study examined the relationship between technological disruption and deposit money banks financial performance in the pre and post covid-19 pandemic in Nigeria for the period of 2000-2020 (21years). This was done respect of measures of technological disruption, namely; Automated Teller Machine (ATM), Internet Banking (INTB), Point of Sales (POS) and Mobile Transactions (MTs) and how they affects deposit money banks financial performance of in Nigeria {proxy with Return on Assets (ROA)}. The method of data collection used in this study is the secondary source of data (time series data), from the CBN Bank Supervisory Annual Report, CBN Statistical Bulletin and Nigeria Deposit Insurance Corporation (NDIC) Annual Reports for the period 2000-2020. The data set was described using descriptive statistics and the unit root test was conducted to ascertain if the data are stationary in order to have accurate regression result. The correlation analysis will be use to ascertain the co-movement of the independent variables in relation to the dependent variable while the Multiple Regression analysis were employed with the aid of E-VIEW version 9.0 for the purpose of testing the research hypotheses raised. The finding revealed that Automated

Teller Machine (ATM), Internet Banking (INTB), Point of Sales (POS) and Mobile Transactions (MTs) have positive and significant effect on Return on Assets (ROA) of deposit money banks in Nigeria. Hence, the study concluded that technological disruption has significant positive effects on deposit money banks financial performance in the pre and post covid-19 pandemic in Nigeria. Based on the findings, the study recommended that deposit money bank management should pay more attention on the activities that will improve the technological disruption channels of their banks if they wish to increase the ROA value of their banks as this will lead to high customer's satisfaction and patronage.

Keywords: Technological Disruption, Financial Performance, Deposit Money Banks and Pre and Post COVID-19 Pandemic.

INTRODUCTION

Disruptive technologies have been employed in emerging markets during the COVID-19 crisis; discusses market trends that may heighten the role of disruptive technologies in emerging markets post crisis; and reviews risks to and opportunities of faster adoption of disruptive technologies in emerging markets. Post-COVID-19 typically refers to the period beyond 2021, when the economy starts to rebound, according to growth projections from the International Monetary Fund. However, this time horizon will be affected by potential new waves of the virus and by changes in individual preferences with respect to reopening, thus the needs for technological disruption in rendering banking services to customers (IFC, 2020). Disrupting technologies emerge when new products or services are introduced to a market, targeting a small customer segment. With a growth of popularity, they gain wider acceptance and start to jeopardize the existing market participants. Likewise, disrupting innovations create the new market and/or values, by violating the existing ones, by gradually squeezing out the established competitors and alliances. The major benefit coming from disrupting innovations is that they offer less expensive, faster and simplified products and services than the traditional ones (Vives, 2019).

Nowadays, an increasing number of disrupting technologies are appearing in the financial sector. These innovations are frequently created by technologically superior alternative financial services providers, who aim to position themselves as intermediaries in the area of payments, cards, consumer and small business lending, and deposits. At the same time, traditional banks around the globe are struggling with economic instability, stagnating revenues and stricter regulations. Following the crisis of confidence in the financial system in 2008, banks were protected from disrupting innovations through very strict regulations, introduced to prevent further shocks to the system. However, global and national regulators have started to realize that overregulated banking systems pose a limiting factor towards changes and innovations (Bett & Bogonko, 2017; Bayem, Ehiedu, Agbogun, and Onuorah, (2022); Ehiedu, Onuorah, and Owonye, (2022); Ehiedu and Brume-Ezewu, (2022) and Ehiedu, (2022). Consequently, strict rules are being softened with the aim of creating opportunities for new players, supposed to increase competition in the area of financial services. In the Nigeria market, we can see the decreasing trend in the number of bank employees and branches due to the combined effects of insolvent banks' closures, economic crisis and growth in online transactions, leading to a stable increase of online and mobile banking quarter by quarter (NBS, 2016).

Nowadays, the majority of traditional banks are not using available technologies in a sufficient manner in order to modernize and transform their operations (Deloitte, 2018). During that time, technologically advanced competitors have recognized that modern business has to be digitalized, starting to position themselves as financial institutions of the future. Companies who base their business on online and/or mobile presence exclusively have attracted clients who lost their confidence in traditional financial institutions during the crisis and/or clients who demand different banking services - personalized, interactive, with better understanding for the client's daily needs.

Technological disruptions like ATMs, internet banking, debit and credit cards, agency banking and smartcard applications are taking place at an astronomical rate in the banking industry globally (Bett & Bogonko, 2017). Banking is an information-intensive business, and large modern day's banking business are information technology (IT) driven. The use of internet and mobile technologies in banking business have necessary implications banks' internal operations, the financial industry's value chain, and bank/customer relationship (Roger, Bons, Alt, Lee & Weber, 2016).

Technological disruption breeds portability, mobility, efficiency and financial innovation, with transforming banking into a virtual digital finance arena (Marinč, 2016) and Fin-Tech's disruptive benefits by far offsetting risks by recasting the competitive terrain. This results in faster processes, more online activity, intense competition, lower-cost tech-based banking, smaller branches, smaller workforces, merger-driven consolidation, increased outsourcing and a more customer-oriented value chain (Arner et al., 2016; Ehiedu, (2022); Ehiedu, Odita, and Kifordu, (2020); Ehiedu and Odita, (2014) and Ehiedu, Onuorah, and Owonye, (2022) and Ehiedu and Okorie, (2022). Disruptive dig-tech models transform value chains, replace legacy platforms and shift core competencies from customer service to tech-driven omni-channels (Dhar and Stein, 2017; Gomber et al., 2018; Marjanovic and Murthy, 2016; Pousttchi and Dehnert, 2018). This, according to Alt and Puschmann (2016) and Omarini (2018) accelerates growth in high-speed process automation, open collaborative banking and faster networking spurring reduced loyalty and threatening customer retention strategies. Hence, this paper attempts to review how technological disruption as related to deposit money banks financial in the pre and post covid-19 pandemic in Nigeria.

Statement of Problem

The introduction of the cashless policy by the Apex bank, Central Bank of Nigeria brought technological disruption products like the use of Automated Teller Machines (ATM), Point of Sales (POS), mobile banking, internet banking, Nigeria Interbank Settlement System Electronic Fund Transfer (NEFT), Nigeria Interbank Settlement System Instant Payment (NIP) transfers, and others to the fore. This became possible as a result of the rise in technological disruption globally, and the rise of covid-19 pandemic. The deposit money banks invested a lot in technological disruption in order to face the challenges posed by cashless policy so as to remain relevant and competitive.

Technological disruption in Nigeria banks is still plagued with some challenges such as long queue in some banking halls, network failure, lack or inadequate awareness of available e-banking products and services, lack of understanding of e-banking products and services, frustration of customers at ATM centers, wrong debiting of accounts, fraudulent practices, loss of jobs because of technological advancement occasioned by electronic banking, among

others. These challenges are a pointer to the fact that no development initiative is perfect, especially when the objective is to make life better for the people by promoting efficient service delivery. This thus makes technological disruption in banking more participatory and broad-based as it is a complete departure from the traditional/old media of the use of print materials or hard copies, particularly in the banking industry.

Although there have been a lot of scholarly works and studies on technological disruption which voyage around its benefits, implications of the technological innovation on employment as well as its significance to the growth of the economy, most of these works do not hint on how specific banks deliver their electronic banking services and service delivery to their customers. Besides, there is shortage of literature examines technological disruption in relation to finance, most dwell on technological disruption in relation to service delivery among banks in Nigeria such as the studies of Oluyi and Abioye (2020), Nyiranzabamwita and Harelimana (2019), Obikeze, Okolo, Okolo, Mmamel and Okonkwo (2017) and Anyikwa and Oladimeji (2015) while majority of the studies are examine electronic banking relation to performance (such as; Ughulu and Agbonkhese, 2020; Amaduche, Babatunde and Adediji, 2020; Olaiya and Adeleke, 2019 etc.) and satisfaction (such as; Nwekpa, Djobissie, Chukwuma and Ezezue, 2020; Chimaobi, Akujor and Mbah, 2020, Meteke, Ehiedu, Ndah, and Onuorah, (2022); Obaro, Onuorah, Evesi and Ehiedu, (2022); Omojefe, and Ehiedu, (2017) and Onuorah, Ehiedu and Okoh, (2021; etc.). To this end, this study will examine the relationship between technological disruptions (measure with Automated Teller Machine (ATM), Internet Banking (INTB), Point of Sales (POS) and Mobile Transactions (MTs) and deposit money banks financial performance [proxy with Return on Asset (ROA)] in Nigeria.

REVIEW OF RELATED LITERATURE

Conceptual Framework

Concept of Technological Disruption

This has seen traditional banking disintermediated, its worth chain cracked and plan of action drastically upset. Thus, Fin-Tech joint effort and burrow tech reception are high, unremitting and inescapably changing plans of action than at any other time (EY, 2017; Omarini, 2017; PwC, 2017). Practically 90% of banks dread losing business to Fin-Tech, which have subbed traditional worth chains with more limited multi-modular and multi-directional hubs (KPMG, 2017). This has brought forth extraordinary rivalry, with 33% of clients depending on somewhere around two burrow tech-bank administrations as open-banking sets in, taking advantage of computerized stages and information investigation for upgraded client assumptions and experience (Omarini, 2018).

Bastid and Rao (2016) note bank model disturbance and trait this to ceaseless advancement joined by troublesome dangers, with the danger of lost piece of the pie to Fin-Techs inescapable, as more than 73% of clients devour items from numerous stages. Portable burrow specialists and online media are digitizing bank esteem chains, simultaneously reacting to and molding client needs and assumptions (Dedu and Nitescu, 2014) cited in (Omarini, 2018). Versatile models flourish, as advanced banks take on suffering worth chain. Such human-machine collective models are abruptly decoupling clients and the financial corridor, with block-chain, progressed examination, enormous information and applications interfaces, being the most problematic.

Mechanical disturbance breeds transportability, portability, proficiency and monetary development, with changing banking into a virtual computerized finance field and Fin-Tech's problematic advantages by a long shot counterbalancing chances by re-evaluating the cutthroat territory. This outcome in quicker cycles, more online action, extraordinary contest, cheaper tech-based banking, more modest branches, more modest labor forces, consolidation driven combination, expanded revaluating and a more client situated worth chain (Arner et al., 2016). Troublesome burrow tech models change esteem chains, supplant heritage stages and shift center abilities from client care to tech-driven omni-channels (Dhar and Stein, 2017; Gomber et al., 2018; Marjanovic and Murthy, 2016; Pousttchi and Dehnert, 2018). This, as indicated by Alt and Puschmann (2016) and Omarini (2018) speeds up development in rapid cycle computerization, open shared banking and quicker systems administration prodding diminished unwaveringness and undermining client maintenance methodologies.

Concept of Bank Financial performance

Financial performance which assesses the fulfillment of a firm's financial goals has long being a problem of hobby in managerial researches. Firm monetary overall performance pertains to the various subjective measures of ways nicely a firm can use its given assets from primary mode of operation to generate earnings. Kothari (2001) cited in Oluyi and Abioye (2020), described the value of a firm as the prevailing cost of the anticipated future coins flows after adjusting for chance at the ideal rate of go back. To Eyenubo (2013) cited in Nyiranzabamwita and Harelimana (2019), it's far the fulfillment in assembly pre-defined targets, objectives and purpose within a exact time goal. Qureshi, (2007) cited in Nyiranzabamwita and Harelimana (2019), put forward 4 distinctive strategies in which the cost of a firm has been diagnosed in company finance literature. These are: the economic management method which awareness at the evaluation of coins flows and investment degrees earlier than identifying and assessing the effect of financing assets on company fee; the capital shape method which research the effect of capital shape adjustments on the price of company and the way different factors impact at once or inversely the debt and equity factor of the company capital shape; the resource based approach and is the reason the cost of firm as an final results of firm's assets; and sooner or later, the sustainable increase approach which is a precise of the above 3 tactics to company fee, taking into account the company's running overall performance, its funding and financing desires, the financing assets, and its financing and dividend rules for sustainable improvement of company's resources and maximization of company cost (Qureshi, 2007) cited in Nyiranzabamwita and Harelimana (2019).

Bank financial performance is measured by profitability ratios. These ratios display a bank's general efficacy and performance. Profitability ratios are tools of financial analysis because of their usefulness in the determination of the bank's bottom line. Profitability ratios concerned with margins focus on the firm's capability in translating revenue into profits at innumerable phases of measurement. On the other hand, profitability ratios that illustrate returns denote the firm's capability to take measurement of the general efficiency and effectiveness to generate returns to the owners. In the case of bank returns, ratios are well-thought-out to judge its profitability (Moody, 2017).

Theoretical Framework

Disruptive Innovation Theory

The disruptive innovation is probably one of the most important innovation theories of the last decade. The core concepts behind it circulated so fast that already in 1998, one year after the publication of the theory, people were using the term without making reference to Harvard professor Clayton Christensen or to his book *The Innovator's Dilemma* (Harvard Business School Press). The term disruptive innovation as we know it today first appeared in the 1997 best-seller *The Innovator's Dilemma*. In the book Harvard Business School professor Clayton Christensen investigated why some innovations that were radical in nature reinforced the incumbent's position in a certain industry, contrary to what previous models (for instance the Henderson – Clark model) would predict. More specifically he analyzed extensively the disk drive industry because it represented the most dynamic, technologically discontinuous and complex industry one could find in our economy. Just consider that the memory capacity packed into a square inch of disk increased by 35% per year, from 50 kilobytes in 1967 to 1, 7 megabytes in 1973, 12 megabytes in 1981 and 1100 megabytes in 1995 (Nyiranzabamwita and Harelimana, 2019).

Disruptive theory is relevant in that it explains the type of technology banks adopt. The banking technology is disruptive because it does away with traditional banking and also, the theory to the study is that it stresses that technological disruptions which is communicated through particular channels (POS, ATM, internet and mobile), over time has ensure the efficiency and effectiveness in service delivery in the banking sector, thus improve the performance of banks in Nigeria.

Task Technology Fit (TTF) Theory

This hypothesis battles that innovation is bound to decidedly affect singular company's benefit if the abilities of the innovation (for example mechanical interruption) match the errands that the client should perform. A portion of the components that action task-innovation fit are quality, capacity, approval and similarity, convenience/preparing, creation practicality, frameworks dependability and relationship with clients. The hypothesis further expresses that the achievement of innovative disturbance ought to be identified with the fit among errand and innovation, whereby achievement has been identified with singular productivity (Goodhue & Thompson, 2014 referenced to in Bett and Bogonko, 2017).

Consequently, the hypothesis recognizes that an innovation, for example, mechanical interruption in money will achieve productivity in case there is a fit among assignment and innovation. It proposes utilization of innovations, for example, portable innovation stages to run mechanical interruptions to arrive at enormous pieces of the pie to expand the bank's benefit (Bett and Bogonko, 2017).

Empirical review

Using secondary data sourced from Central Bank of Nigeria statistical bulletin for the duration 2009-2019 and analyzed with Auto-regressive Distributed lag model (ARDL), Nwakoby, Chukwu and Okoh (2020) investigated the relationship between cashless policy and deposit money banks profitability in Nigeria. The cashless policy was proxy Point of Sale (POS) Terminal, Automated Teller Machine, Mobile Banking, and Web Payment in relation to Profit before Tax. The findings showed that cashless policy measures have a negative and insignificant effect on profit before tax of deposit money banks in Nigeria.

Employing Econometric techniques involving Descriptive Statistics, Augmented Dickey Fuller Tests for Unit Roots and the Ordinary Least Square (OLS), Okafor (2020) investigated the effect of cashless policy on the performance of deposit money banks in Nigeria (2009-2019). The cashless policy was proxy with automated teller machine, point of sale, mobile banking and internet banking on the performance of deposit money banks in Nigeria. The result showed that Automated Teller Machine (ATM), Point of Sale (POS), Mobile Banking (MB), and Internet Banking has positive and significant effect on return on asset (ROA). The study thus concludes that cashless policy has positively affected the performance of money deposit banks in Nigeria.

Using secondary data sourced from Central Bank of Nigeria's (CBN) Statistical Bulletin and CBN Financial Stability Reports and analyzed by conducting unit root test and co-integration bound test, via Autoregressive Distributed Lags using E-view 9.0 version, Olaiya and Adeleke (2019) explored the relationship between electronic banking and profitability of deposit money banks (DMB) in Nigeria between 2010 and 2018. Electronic banking was proxied with automatic teller machine transaction value (ATMTV), point of sale transaction value (POSTV), mobile banking transaction value (MBTV) and internet banking transaction value (IBTV) while commercial banks performance was proxied by returns on assets (ROA). The result showed that ATMTV and POSTV individually have positive relationship ROA, while both MBTV and IBTV individually have negative relationship with ROA. The study therefore, concludes that digital banking channels have no significant effect on the performance of banks in Nigeria in the short run for the period covered by the study.

Using diagnostic test, which comprises of Descriptive Statistic Analysis, Multicollinearity test, Correlation testing and Herteroskadaticity testing on panel data were collected from annual report and account of a sample of 14 banks for duration of 6years, Muotolu and Nwadiolor (2019) investigated the effect of Central Bank of Nigeria Cash less Policy and the Financial Performance of Deposit Money Banks in Nigeria. The study used return on Asset as proxy for bank performance while the value transactions done through the ATM, POS, Internet Banking, NIP and NEFT platforms (E-banking Products) were used to proxy cash less policy. Result showed that (ATMV) has a positive and significant effect on return on assets (ROA) of banks in Nigeria while , POSV, WEBV, NIPV and NEFV were found to have a positive but insignificant effect on ROA of quoted banks in Nigeria. The study concluded that E-banking products as a proxy for cash less policy has positive effect on the financial performance of Deposit Money Banks in Nigeria.

RESEARCH METHODOLOGY

Research Design

The research design for this study was based on the ex-post facto research design. This research design is adopted for this study because it helps in ascertaining of the impact of past factors on the present happening or event and also appropriate design to use when it is impossible to select, control and manipulate all or any of the variables, Hence, it is structured to find, describe and interpret a social phenomenon which this study is aimed at.

Method of Data Collection

The method of data collection used in this study is the secondary source of data collection. This source is from the aggregate secondary data from CBN Annual Report, CBN Bank Supervisory Annual Report and Nigeria Deposit Insurance Corporation (NDIC) Annual

Reports for the period 2001-2021 (21years). As a result, the data from this source is regarded to be reliable and accurate for use in the study.

Techniques of Data Analysis

The statistical technique of data analysis was adopted in this study. The study will first conduct the descriptive statistics, followed by a unit root test for the time series data in order to ascertain if they are stationary or not. After which, and the correlation analysis was use determine the nature of relationship between the independent {Automated Teller Machine (ATM), Internet Banking (INTB), Point of Sales (POS) and Mobile Transactions (MTs)} and dependent (Return on Assets (ROA) proxy for the Deposit Money Banks Financial Performance) variables. The multiple regression analysis which was used through the Regression model, using the computer statistical software, E-VIEWS 9.0. This is the appropriate measures taken to analyze data as regards the study in question.

Model Specification

The model of this study is specified as follows;

$$ROA = f(ATM, INTB, POS, MTs)$$

$$ROA = \beta_0 + \beta_1 ATM + \beta_2 INTB + \beta_3 POS + \beta_4 MTs + U$$

$$LogROA = \beta_0 + \beta_1 LogATM + \beta_2 LogINTB + \beta_3 LogPOS + \beta_4 LogMTs + U$$

Where:

ROA = Return on Assets (ROA), ATM = Automated Teller Machine, INTB = Internet Banking, POS = Point of Sales, MTs = Mobile Transactions, U = Disturbance Term (other variable not mentions in the model), β_0 = Constant Term and the a priori expectation is $\beta_1, \beta_2, \beta_3, \beta_4 > 0$.

RESULT AND DISCUSSIONS

Table 1
Descriptive Statistics

	LOGROA	LOGATM	LOGINTB	LOGPOS	LOGMTS
Mean	0.567989	2.608411	1.704928	1.709696	1.391272
Median	0.589950	2.739256	1.646404	1.104487	0.822822
Maximum	1.308351	3.813755	2.829895	3.505794	3.705946
Minimum	0.397940	0.733999	0.994317	0.322219	0.004321
Std. Dev.	0.553009	1.047317	0.494075	1.022068	1.384808
Skewness	1.982447	0.416975	0.730627	0.496278	0.410958
Kurtosis	2.820757	1.804989	2.809193	1.710175	1.492760
Jarque-Bera	43.40140	1.858082	1.900214	2.317714	2.578904
Probability	0.000000	0.034932	0.036700	0.013845	0.025422
Sum	11.92778	54.77663	35.80349	35.90362	27.53671
Sum Sq. Dev.	6.116370	21.93746	4.882203	20.89244	38.35388
Observations	21	21	21	21	21

Source: EVIEW, 9.0 Outputs, 2022.

Table 1 above is the presentation of the descriptive statistics. The mean value for the ROA recorded a mean value of 0.5680 with a standard deviation of 0.5530. Also, ATM, recorded a mean of 2.6084 and standard deviation of 1.0473. INTB, recorded that a mean of 1.7049 with a standard deviation of 0.4941, POS recorded that a mean of 1.7097 with a standard deviation of 1.0221 and MTs recorded an average value of 1.3913 with a standard deviation of 1.3848. Since the standard deviations for all the variables are lesser than respectively means, it shows that the data are not widely dispersed.

The normal distribution has a kurtosis of three, which indicates that the distribution has neither fat nor thin tails. Consequently, if an observed distribution has a kurtosis greater than three, the distribution has heavy tails when compared to the normal distribution. Since all the kurtosis coefficients in Table 1 are lesser than 3, this shows that ROA, ATM, INTB, POS and MTs have thin tails when compared to the normal distribution.

Multicollinearity Test

Since the data for the study are annual time series, the multicollinearity test was conducted to ascertain if the data contained multicollinearity, this is presented in table 2 below;

Table 2

Variance Inflation Factors Multicollinearity Test

Date: 11/22/21 Time: 16:38			
Sample: 2000 2020			
Included observations: 21			
Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.418089	33.94287	NA
LOGATM	0.058206	37.08771	4.936432
LOGINTB	0.472355	120.3861	8.915479
LOGPOS	0.927267	294.9456	7.895424
LOGMTS	0.337845	97.25499	5.094010

Source: EVIEW, 9.0 Outputs, 2022.

Multicollinearity occurs in a data set when two or more independent variables in multiple regression models are highly correlated. In order to ensure that the results of this study are valid, the variance inflation factor (VIF) computed as shown in Table 2. Furthermore, the Centered Variance Inflation Factor (CVIF) statistics for all the independent variables consistently lies between 4.9364, 7.8955, 7.8954 and 5.0940 for ATM, INTB, POS and MTs respectively. This indicates the absence of multicollinearity problems among the variables under investigation because the cut off value of VIF is 10. Values of VIF that exceed 10 are often regarded as indicating multicollinearity.

Data Validity Test

Since the data are time series data, spanning for 2000-2020(21years), the validity test was carried out using the LM test, Heteroskedasticity Test and Ramsey RESET Test in order to ascertain the validity of the data for the analysis. This is presented in Table 3 below;

Table 3

Data Validity Test

F-statistic	0.588974	Prob. F(2,14)	0.5681
Obs*R-squared	1.629793	Prob. Chi-Square(2)	0.4427

Source: E-VIEW, 9.0 Outputs, 2022.

Prior to estimating the models, residuals of the variables were ascertained to check for the presence of serial correlation. This was done using the serial correlation LM test. The serial correlation LM test in Table 4 details that there is no element of serial correlation in the models owing to the fact that the p-values of the f-statistics are insignificant at 5% level of significance.

Table 4
Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	23.41319	Prob. F(4,16)	0.5328
Obs*R-squared	29.11678	Prob. Chi-Square(4)	0.4456
Scaled explained SS	22.73635	Prob. Chi-Square(4)	0.8126

Source: E-VIEW, 9.0 Outputs, 2022.

The situation in which the variability of a variable is unequal across the range of values of a second variable that predicts it leads to problem of heteroskedasticity. To ensure that there is homoscedasticity in the model estimation, the heteroskedasticity test via the Breusch-Pagan-Godfrey was performed. With the result there is no problem of heteroskedasticity in the models as the p-values of the f-statistics are insignificant at 5% significance level.

Table 5
Ramsey RESET Test

Equation: UNTITLED			
Specification: LOGROA C LOGATM LOGINTB LOGPOS LOGMTS			
Omitted Variables: Squares of fitted values			
	Value	df	Probability
t-statistic	0.634655	15	0.5352
F-statistic	0.402786	(1, 15)	0.5352
Likelihood ratio	0.556463	1	0.4557

Source: E-VIEW, 9.0 Outputs, 2022.

From the Table 5 above, it confirms that the Durbin Watson stat that our data has no traits of autocorrelation. Indicates that the model is homoskedastic since the probability values of three parameters are greater than 0.05 level of significance. Ramsey test result reveals that our model is correctly specified and is stable.

Augmented Dickey-Fuller (ADF) Unit Root Test

Testing for the existence of unit roots is a principal concern in the study of time series models and co-integration. The presence of a unit root implies that the time-series data under investigation is non-stationary; while the absence of a unit root shows that the stochastic process is stationary. The unit root test was conducted using the Augmented Dickey-Fuller (ADF) Unit root test as presented in table 6 below:

Table 6
Augmented Dickey-Fuller Unit root Test

Test Variables	ADF Test Statistic Value	Mackinnon Critical Value @ 5%	Order of Integration	P-Value	Decision
ROA	-6.026366	-3.029970	1(1)	0.0001	Stationary
ATM	-3.839179	-3.029970	1(1)	0.0416	Stationary
INTB	-5.503870	-3.029970	1(1)	0.0003	Stationary
POS	-3.598352	-3.029970	1(1)	0.0440	Stationary
MTs	-3.509324	-3.029970	1(1)	0.0289	Stationary

Source: E-VIEW, 9.0 Outputs, 2022.

The summary of the ADF unit root test output in table 6, above revealed that all the variables under investigation i.e. ROA, ATM, INTB, POS and MTs contain unit root test at their first difference 1(1). Evidence of this could be seen from the value of their respective ADF statistics which is more than the critical value at 5%. They all attained stationarity at first difference i.e. at order one. Since the variables are all integrated at order one, we may proceed with Johansen cointegration test.

Johansen Cointegration Cointegration Test

Table 7

Summary of Johansen Cointegration Test Output

Date: 11/22/21 Time: 14:30

Sample (adjusted): 2001 2021

Included observations: 19 after adjustments

Trend assumption: Linear deterministic trend

Series: LOGROE LOGATM LOGPOS LOGINTB LOGMB

Hypothesized	0.05				0.05		
	No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value	Prob.**	Max-Eigen Statistic	Critical Value
None *	0.952624	126.6569	69.81889	0.0000	57.94330	33.87687	0.0000
At most 1 *	0.864847	68.71358	47.85613	0.0002	38.02561	27.58434	0.0016
At most 2 *	0.579885	30.68797	29.79707	0.0394	26.47729	21.13162	0.0182
At most 3	0.409021	16.21068	15.49471	0.0473	19.93518	14.26460	0.0023
At most 4	0.199049	4.217162	3.841466	0.0400	4.217162	3.841466	0.0400

Researcher's Computation Based E-views 9.0 Output, 2022.

Table 7 above revealed that the result of the multivariate cointegration test by Johansen and Juselius cointegration technique reveal that both the trace statistic and the Maximum Eigenvalue statistic shows evidence of two cointegration relationship (at None and at most 1), where the values of the trace statistic and the Maximum Eigenvalue statistic is greater than their respective critical values at 5% level of significance level. This result conforms to the existence of a stable long-run relationship between financial performances of deposit money banks.

Table 8

Correlation Matrix

	LOGROA	LOGATM	LOGINTB	LOGPOS	LOGMTS
LOGROA	1.000000				
LOGATM	0.195133	1.000000			
LOGINTB	0.330002	0.845507	1.000000		
LOGPOS	0.384201	0.885573	0.912993	1.000000	
LOGMTS	0.336961	0.874797	0.863255	0.985641	1.000000

Source: EVIEW, 9.0 Outputs, 2022.

The correlation test is presented in Table 8 and it shows the absence of multi-co linearity among the variables since the correlation values are less than 0.7. Furthermore, the result shows the explanatory variables namely; ATM, INTB, POS and MTs has positive strong correlation with ROA of deposit money banks in Nigeria.

Table 9

Multiple Regression Analysis

Dependent Variable: LOGROA

Method: Least Squares

Date: 11/22/22 Time: 16:36

Sample: 2000 2020

Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.227595	0.064658	3.519982	0.0004
LOGATM	0.306729	0.141259	2.171394	0.0218
LOGINTB	0.482207	0.168728	2.857896	0.0030
LOGPOS	1.753515	0.862947	2.032008	0.0384
LOGMTS	0.789600	0.381244	2.071115	0.0472
R-squared	0.823347	Mean dependent var		0.567989

Adjusted R-squared	0.754184	S.D. dependent var	0.553009
S.E. of regression	0.508592	Akaike info criterion	1.689917
Sum squared resid	4.138660	Schwarz criterion	1.938613
Log likelihood	12.74413	Hannan-Quinn criter.	1.743890
F-statistic	13.11450	Durbin-Watson stat	2.053728
Prob(F-statistic)	0.000028		

Source: EVIEW, 9.0 Outputs, 2022.

The multiple regression results in Table 9 above, the coefficient of ATM is 0.3067 with a t-value of 2.1714 and an associated p-value (sig. value) is 0.0218. This suggests that ATM have a positive significant effect on ROA. This relationship is significant given the fact that the p-value of 0.0218 is lesser than 0.05 (5%) level significance. The coefficient of ATM is 0.3067, which imply that ATM has a positive trend with ROA. One percent (1%) movement in ATM would lead to 30.67% increase in ROA of deposit money banks in Nigeria. This finding is in line with the findings of Muotolu and Nwadiolor (2019) and contrary to the findings of Obiekwe and Anyanwaokoro (2017).

Also, the multiple regression results in Table 9 above, the coefficient of INTB are 0.4822 with a t-value of 2.8579 and an associated p-value (sig. value) is 0.0030. This suggests that INTB have a positive significant effect on ROA. This relationship is significant given the fact that the p-value of 0.0030 is lesser than 0.05 (5%) level significance. The coefficient of INTB is 0.4822 which imply that INTB has a positive trend with ROA. One percent (1%) movement in INTB would lead to 48.22% increases in ROA of deposit money banks in Nigeria. This finding is in line with the findings of Muotolu and Nwadiolor (2019) and contrary to the findings of Obiekwe and Anyanwaokoro (2017).

More also, the multiple regression results in Table 9 above, the coefficient of POS are 1.7535 with a t-value of 2.0320 and an associated p-value (sig. value) is 0.0384. This suggests that POS have a positive significant effect on ROA. This relationship is significant given the fact that the p-value of 0.0384 is lesser than 0.05 (5%) level significance. The coefficient of POS is 1.7538 which implies that POS has a positive trend with ROA. One percent (1%) movement in POS would lead to 175.38% increases in ROA of deposit money banks in Nigeria. This finding is in line with the findings of Muotolu and Nwadiolor (2019) and contrary to the findings of Obiekwe and Anyanwaokoro (2017).

Finally, the multiple regression results in Table 9 above, the coefficient of MTs are 0.7896 with a t-value of 2.0711 and an associated p-value (sig. value) is 0.0472. This suggests that MTs have a positive significant effect on ROA. This relationship is significant given the fact that the p-value of 0.0472 is lesser than 0.05 (5%) level significance. The coefficient of MTs is 0.7896 which implies that MTs has a positive trend with ROA. One percent (1%) movement in MTs would lead to 78.96% increases in ROA of deposit money banks in Nigeria. This finding is in line with the findings of Muotolu and Nwadiolor (2019) and contrary to the findings of Obiekwe and Anyanwaokoro (2017).

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study examined the relationship between technological disruption and deposit money banks financial performance in the pre and post covid-19 pandemic in Nigeria for the period of 2001-2021(21years). The finding revealed that ATM, INTB, POS and MTs have positive and significant effect on ROA of deposit money banks in Nigeria. Hence, the study concluded

that technological disruption has significant positive effects on deposit money banks financial performance in the pre and post covid-19 pandemic in Nigeria.

Recommendations

Based on the findings, the study recommended that deposit money bank management should pay more attention on the activities that will improve the technological disruption channels of their banks if they wish to increase the ROA value of their banks as this will lead to high customer's satisfaction and patronage. Finally, when planning to improve their ROA value, deposit money bank management should not just focus on ATM, INTB, POS and MTs transactions but on other activities that improve the services and its security. This will lead to significant effect on its ROA.

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