IMPACT OF FINANCIAL TECHNOLOGY ON PERFORMANCE OF GUARANTY TRUST BANK IN OGUN STATE, NIGERIA

Njogo, Bibiana O
Department of Economics, Accounting and Finance,
College of Management Sciences,
Bells University of Technology, Ota.
Ogun State, Nigeria.
Email: bibiananjogo@yahoo.com

Adekonojo Yemisi Mary
Department of Economics, Accounting and Finance,
College of Management Sciences,
Bells University of Technology, Ota.
Ogun State, Nigeria

Abstract
This paper examined the impact of financial technology on performance of Guaranty Trust Bank in Ogun State, Nigeria . Other specific objectives were to: assess the effect of mobile payments on customer satisfaction and examine the impact of artificial intelligence on competitive advantage. To achieve the objectives set for the study, questionnaires were used to elicit the needed information from the target respondents of Guaranty Trust bank, Ogun state. A study population of 168 with a sample size of 118 staff gotten through Taro Yamani sample size determination formula made up the respondents from the study. Two hypotheses were formulated and tested. The statistical technique used was correlation analysis. The result shows that a statistically strong and positive relationship exists between mobile payments and customer satisfaction (correlation coefficient = 0.885 $p < 0.05$), and that artificial intelligence have significant influence on competitive advantage (correlation coefficient = 0.716 $p < 0.05$). This result is statistically significant as the p-value of the results (0.000) is less than 0.05 level of significance set for the study. The study concluded that mobile payment has a strong and significant impact on customer satisfaction and artificial intelligence affect competitive advantage. Therefore, the study recommended that managers should encourage their customers to make use of mobile payments for their satisfaction. They should also use artificial intelligence to gain edge above competitors in the industry which in turn improves the organizational performance.

Keywords: Financial Technology, Financial Product, Mobile Payment and Performance.

1. Introduction

The improvements in technology, coupled with growing demand for digital payment methods, are increasingly reshaping the way payments are made. Recent advances in technology have opened up new ways to pay, in line with consumers' demand for payment methods that are convenient, easy to use, frictionless, low-cost and contactless. As a result, consumers have been shifting from cash to cashless payment instruments in recent years (Arner & Frost, 2020). Innovations in financial technology such as mobile money, peer-to-peer (P2P) or marketplace lending, robo advice, insurance technology (insurtech) and crypto-assets have emerged around the world which make many organizations especially financial institutions to adopt the financial technology (Fintech) in order to enhance the business performance (Acquisti, Taylor & Wagman, 2016).

The development of the Fintech industry has been a bright spot in the Nigerian economy with the potential to get brighter—even given the challenges posed by the ongoing COVID-19 crisis. The sector has been gaining momentum, as agile and innovative startups move to take advantage of increased technology penetration and high levels of unmet needs in the traditional banking sector to seize market share. In the past three years, Fintech investments in Nigeria grew by 197 percent, with the majority of investment coming from outside the country *Topsy, Mayowa,, & Tunde (2020).* Fintechs have led with innovation in product development, designing useful, convenient and affordable financial products and services for millions of Nigerians. In the process, they have created a multiplier effect across the economy, unlocking new business models beyond financial services, fueling the growth of e-commerce, increasing the STEM talent pipeline, and moving the needle on progress towards the country's development goals (Eyitope, Oyeneyin & Tunde, 2020).

Moreover, FinTech, a portmanteau of financial and technology, is growing rapidly. More than USD 12 billion has been invested in the sector (Accenture, 2015). In the US, FinTech transaction has amounted USD 7 trillion, while in China, it has passed USD 4 trillion (PricewaterhouseCoopers, 2016). Previous research shows that FinTech industry, which is only 3 years old, has achieved financial and operational performance on a 3.1 of 4.0 scale (Alimirruchi & Kiswara, 2017). Thus, FinTech can be defined as the implementation and utilization of technology to increase banking and financial services. The rise of FinTech inevitably leads to change the role of technology, consumer behavior, the ecosystems, as well as the industry and regulation itself (Puschmann, 2017). Some novel studies on FinTech even predicted that such technological innovations provide the opportunity to disrupt the market and fundamentally change the business landscape which would in turn improve the organizational performance (Gomber, Koch, & Siering, 2017)

The banking sector globally is witnessing a potential disrupt in terms of digital technology and FinTech evolution in the recent past. This change was driven by a host of factors including financial globalization, technological advancement, need for innovative business models, and the competition among service providers thrust to satisfy the rising customer expectations. The rapid rise of financial technology is driving the banking sector towards operational innovation in gaining a competitive sustainable advantage (Zhao, Tsai & Wang, 2019). However, firms that fail to adopt financial technology will not be able to utilize the benefits of mobile payment and artificial intelligence such as automated teller machine (ATM) and chatbots which will lead to problems such as decrease in customer satisfaction and lack of gaining edge above rivals in the industry. Thus, this study is designed to examine the impact of financial technology on organisational performance a study of Guaranty Trust Bank, Ogun state.

2. LITERATURE REVIEW

2.1 Conceptual Literature

2.1.1. Concept of Financial Technology

Financial technology (FinTech) is a hot business topic in recent years, however its concept is not new. It can be traced back to July 1866 when the first communication through the Trans-Atlantic transmission cable occurred on 16 August 1958. The connection was not only reducing the communication time between North America and Europe from ten days (i.e. delivered a message by ship) to 17 hours, it also facilitated the development of the global telex and then improving related financial services, which is also considered as FinTech 1.0. In brief, the development of FinTech is closely related to the development of enabling technologies (Nicoletti, 2017).

Financial technology is "a cross-disciplinary subject that combines Finance, Technology Management and Innovation Management." It is defined as any innovative ideas that improve financial service processes by proposing technology solutions according to different business situations, while the ideas could also lead to new business models or even new businesses" (Kelvin & Anna, 2018). The emergence of FinTech in banking industry has in store a wide array of best possible opportunities for banks to remain stable and sustain the high competition.2.1.2 Handro (2018) argues that the adoption of FinTech should be considered as an alarm for traditional financial institutions that need to adapt by further collaboration with the FinTech and regulatory bodies to better serve the customers. Banking institutions are required to adopt technologies in providing world-class automated digital banking experience to their customers in terms of product design and delivery. Tech firms in the global market place are competing with each other in developing the existing technologies that could transform how the banking services are offered today (Handro, 2018).

2.1.2 Concept of Mobile Payment

A mobile payment is a money payment made for a product or service through a portable electronic device such as a tablet or cell phone. Mobile payment technology can also be used to send money to friends or family members, such as with the applications PayPal and Venmo. Many banks have recently adopted technology into their banking applications that allow customers to send money instantly to friends and family members directly from their bank accounts. Mobile payments are also made on site at stores by scanning a barcode on an app on your phone, accepting payments from convenience stores to large, multi-national retailers. The most obvious benefit of mobile payments is the elimination of a physical wallet.

2.1.3. Concept of Automated Teller Machine

An automated teller machine (ATM) is an electronic banking outlet that allows customers to complete basic transactions without the aid of a branch representative or teller. Anyone with a credit card or debit card can access cash at most ATMs. ATMs are convenient, allowing consumers to perform quick self-service transactions such as deposits, cash withdrawals, bill payments, and transfers between accounts. Fees are commonly charged for cash withdrawals by the bank where the account is located, by the operator of the ATM, or by both. Some or all of these fees can be avoided by using an ATM operated directly by the bank that holds the account. ATMs are known in different parts of the world as automated bank machines (ABM) or cash machines (Kagan, 2020).

2.1.4. Concept of Competitive Advantage

Competitive advantage refers to factors that allow a company to produce goods or services better or more cheaply than its rivals. These factors allow the productive entity to generate more sales or superior margins compared to its market rivals. Competitive advantages are attributed to a variety of factors including cost structure, branding, the quality of product offerings, the distribution network, intellectual property, and customer service. Competitive advantages generate greater value for a firm and its shareholders because of certain strengths or conditions. The more sustainable the competitive advantage, the more difficult it is for competitors to neutralize the advantage. The two main types of competitive advantages are comparative advantage and differential advantage (Alexandra, 2021).

2.2. Theoretical Literature Review

2.2.1. Technology Acceptance Theory

The Technology Acceptance theory (TAT) was first proposed by Davis, Bagozzi & Warshaw in 1989 to examine the conceptual model of the intention of user or the degree to which information system or new technology has been done. Technology Acceptance theory is designed on the basis of perceived ease and usefulness of the new technology. Perceived usefulness of technology implies to a person's belief to enhance the level of job performances through the use of information systems or new technologies. Perceived ease of use of new technology implies how easy an individual learns how to use or operate new information system and technology (Baker, Bloom & Davis, 2015).

Ajibade (2018) pointed out two limitations of Technology Acceptance theory. The first, concerns the variable which pertains to the behavior of users, which is inevitably evaluated through subjective means such as behavioral intention (BI) such as interpersonal influence. He further stated that, interpersonal influence as the subjective norm is explained to mean when a person is influenced by words of mouth from a colleague, or a friend. While a superior can influence employee by directing a subordinate to perform a specific task with the use of technology, based on their IT policy, but a friend has no directive influence over staff who is a subject to the line manager. Another limitation is that, underlines of behavior cannot be reliably quantified in an empirical investigation, owing to a number of different subjective factors such as the norms and values of societies and personal attributes and personality traits.

2.2.2. Theory of Diffusion of Innovation

This theory is widely pronounced and was advanced by Rogers in 1995. The founder describes diffusion of innovations as the process by which an innovation is communicated through certain channels over time among the members of social systems. It is a special type of communication, in that the messages are concerned with new ideas (Rogers, 1995). One limitation of the theory of diffusion of innovation is that It works better with adoption of behaviors rather than cessation or prevention of behaviors and this does not take into account an individual's resources or social support to adopt the new behavior.

2.3. Empirical Literature Review

Wika, Nurwiyanta, Sungkono & Tia (2019), examined the emerging fintech and financial slack on corporate financial performance in Indonesia. The study focused on companies that have launched FinTech products and published their financial reports. The study sample consisted of 17 FinTech products from 16 companies in Indonesia. The limited number of the sample was caused by not all of them having published its financial reports, while we have checked 157 FinTech companies. A paired sample T- test was applied for the period of 4 years, The results show that there was a significant influence on return on assets, but no significant difference on return on equity.

Nguna (2018) examined the effect of fintech firms on financial performance of the banking sector in Kenya. The study employed a causal research design. The target population was all the licensed forty four commercial banks in Kenya. Secondary sources of data were employed. The study applied correlation analysis and multiple regression equation. The study concluded that uptake of mobile payments and the bank's financial performance have a significant positive relationship. The study recommended that the regulator, the Central Bank of Kenya, should recognize the role that fintech plays in the economy and try to incorporate it in the financial system and develop a regulatory framework for it. At the same time, Davis, Bagozzi and Warshaw (1989) in their

investigation of user acceptance of computer technology found out that peoples' computer use can be predicted reasonably well from their intentions. And secondly, perceived usefulness is a major determinant of people's intentions to use computers. They also submitted that perceived ease of use is a significant secondary determinant of people's intentions to use computers.

Summarily, based on the few empirical studies we could lay our hands on, it was discovered that the resultant effect of mobile payment to customers was not discussed in detail. Also, the novel forms of customer's communication through artificial intelligence was equally not discussed. To close this gap, this paper will concentrate on stated gap.

3. METHODOLOGY

3.1. Research Design

This study will employ survey research design because it takes into account all the steps involved in a survey concerning a phenomenon to be studied. Also, this survey design will be used to examine the Fin-tech and trends in financial products, services and technology in Guaranty Trust Bank in Ogun state, Nigeria.

3.2. Population of the study

The population of this research work is finite. It focuses on the total staff of Guaranty trust bank in Ogun state, Nigeria. According to the report of Guaranty Trust Bank zonal head office Sango Ota branch Ogun state, the total number of branches in Ogun state is 5 which are (university of agriculture Abeokuta, Abeokuta Asero branch, IBB Boulevard, Ibara branch Abeokuta, Sagamu branch and Sango Ota branch) and the total number of staff in Ogun state is 168 excluding some marketers who are on contract.

3.3. Sample and Sampling Techniques

The paper used a simple random sampling techniques to select the respondents and were achieved using online sample size calculator gotten from www.hotjar.com. Sample Size Calculator is presented as a public service of Creative Research Systems survey software. You can use it to determine how many people you need to interview in order to get results that reflect the target population as precisely as needed. You can also find the level of precision you have in an existing sample. Before using the sample size calculator, there are two terms that you need to know. These are: confidence interval and confidence level.

The confidence interval (also called margin of error) is the plus-or-minus figure usually reported in newspaper or television opinion poll results. For example, if you use a confidence interval of 4 and 47% percent of your sample picks an answer you can be "sure" that if you had asked the question of the entire relevant population between 43% (47-4) and 51% (47+4) would have picked that answer.

The confidence level tells you how sure you can be. It is expressed as a percentage and represents how often the true percentage of the population who would pick an answer lies within the confidence interval. The 95% confidence level means you can be 95% certain; the 99% confidence level means you can be 99% certain. Most researchers use the 95% confidence level.

When you put the confidence level and the confidence interval together, you can say that you are 95% sure that the true percentage of the population is between 43% and 51%. The wider the confidence interval you are willing to accept, the more certain you can be that the whole population answers would be within that range.

For example, if you asked a sample of 1000 people in a city which brand of cola they

preferred, and 60% said Brand A, you can be very certain that between 40 and 80% of all the people in the city actually do prefer that brand, but you cannot be so sure that between 59 and 61% of the people in the city prefer the brand.

For the purpose of this paper, a sample size of one hundred and eighteen respondents were chosen from the population of staff in Guaranty Trust Bank Nigeria PLC in Ogun State, Nigeria.

3.4. Data Collection Method

Data was generated through primary sources. A structured questionnaire is the main research instrument. One hundred and sixty- eight (168) questionnaire that were administered to the staff of Guaranty Trust Bank Nigeria PLC in Ogun state Nigeria, one hundred and eighteen (118) responded.

3.5. Model Specifications

For the model specification of this study, the researcher adapted the model from the work of Medyawati, Yunanto, and Hegarinin (2021), which was specified as follows;

(i)

Where;

ROA = Return on Assets

ATM = Number of ATM

Mobile = Mobile banking transactions

IB = Internet Banking

= Intercept

= Partial regression coefficient of slope

= Error time

i = identity (Banks)

t = Time

Given the objectives of the current study, the above model was modified by removing internet banking transactions (IB), ATM banking transactions, and ROA, which is the dependent variable. While mobile banking transaction (mobile) was retained in the model, other independent variables were expunged. In addition, the dependent variable (ROA) was replaced by customer satisfaction (CS) and competitive advantage (CA). The inclusion of CS and CA as dependent variables were premised on the expectation of the bank's customers, which is satisfaction. Further, while competitive advantage was used to capture the non-financial performance of the banks, Artificial intelligence was used to capture the application of higher technology in the banking sector. The model for the study thereby becomes;

(ii)

(iii)

Where;

CS = Customer satisfaction (Dependent variable)
CA = Competitive Advantage (Dependent variable)
Mobile = Mobile banking transactions (Independent variable)
AI = Artificial Intelligent (Independent variable)
= Constant
, = Slope
= Error time
t = time trend i = identity; > 0 (A priori Expectations)

Presenting the Pearson Product Moment Correlation (PPMC) model we have;

$$r = \frac{Cov(x,y)}{\sqrt{s_x^2 * s_y^2}}$$

$$Cov(x,y) = \frac{\Sigma(X-\overline{X})(Y-\overline{Y})}{n-1} \qquad s_x^2 = \frac{\Sigma(X-\overline{X})^2}{n-1} \quad \text{and} \quad s_y^2 = \frac{\Sigma(Y-\overline{Y})^2}{n-1}$$

Where:

R = Correlation

X = independent variable (Fin-tech)

Y = dependent variable (financial products)

3.6. Research hypotheses

In order to achieve the objectives of the study, the following hypotheses are stated in null form:

i. Mobile payments do not have any significant effect on customer satisfaction of Guaranty Trust Bank
ii. Artificial intelligence does not significantly affect competitive advantage of Guaranty Trust Bank.

4. FINDINGS AND DISCUSSIONS

Table 1 below presents the result of correlation analysis for hypothesis 1 which depicts the relationship between mobile payment and customer's satisfaction. As shown in Table 1, since the correlation significance of .000 is less than the alpha level of 0.05, hence the null hypothesis is rejected and the alternate hypothesis is therefore accepted. This indicates that mobile payment has significant effect on customer's satisfaction. This implies that mobile payment will certainly result in large amount of customer's satisfaction. Also, the correlation coefficient of .885 reveals that there is a strong positive relationship between mobile payment and customer's satisfaction.

Mobile payment does not have significant impact on customer's satisfaction

Table 1: Correlation Matrix

Pearson Product Moment Correlation Coefficient			
		MOBILE PAYMENT	CUSTOMERS SATISFACTION
	Correlation coefficient	1	.885**

MOBILE PAYMENT	Sig. (2-tailed)		.000
	N	115	115
CUSTOMERS SATISFACTION	Correlation coefficient	.885**	1
	Sig. (2-tailed)	.000	
	N	115	115

**. Correlation is significant at the 0.05 level (2-tailed).

Source: SPSS output Version, No 25

Table 2 presents the result of correlation analysis for hypothesis 1 which depicts the relationship between artificial intelligence and competitive advantage. As shown in Table 2, since the correlation significance of .000 is less than the alpha level of 0.05, hence the null hypothesis is rejected and the alternate hypothesis is therefore accepted. This indicates that artificial intelligence has significant effect on competitive advantage. This implies that artificial intelligence will certainly result in large amount of competitive advantage. Also, the correlation coefficient of 0.716 reveals that there is a strong positive relationship between artificial intelligence and competitive advantage.

Artificial intelligence does not have significantly effect on competitive advantage.

Table 2: Correlation Matrix

Pearson Product Moment Correlation Coefficient

		ARTIFICIAL INTELLIGENCE	COMPETETIVE ADVANTAGE
ARTIFICIAL INTELLIGENCE	Correlation coefficient	1	.716**
	Sig. (2-tailed)		.000
	N	115	115
COMPETETIVE ADVANTAGE	Correlation coefficient	.716**	1
	Sig. (2-tailed)	.000	
	N	115	115

**. Correlation is significant at the 0.05 level (2-tailed).

5. CONCLUSION AND RECOMMENDATIONS

From the findings of this study, it can be concluded that mobile payments have a strong and significant effect on customer satisfaction and, automated teller machine allows organizations to gain edge above its rivals. Thus, for organizations to enhance performance and remain competitive; forming collaborations with fintech companies is mandatory.

Based on the above conclusion:

i. Organizational managers should encourage their customers to make use of mobile payments in order for their satisfaction.
ii. They should also make sure they have functional automated teller machine at their establishment with the aim to gain edge above competitors which in turn improve the organizational performance.

References

Ajibade, P (2018) Technology Acceptance Model Limitations and Criticisms: Exploring the Practical Applications and Use in Technology-related Studies, Mixed method, and Qualitative Researches. *Library Philosophy and Practice (e-journal).* University of Nebraska-Lincoln. 1-14.

Arner, D, Auer, R & Frost, J (2020).Stablecoins: risks, potential and regulation, *BIS Working Papers*, pp 905,

Acquisti, A, C Taylor & L Wagman (2016). The economics of privacy. *Journal of Economic Literature,* 54(2).

Accenture, (2015). *Future of FinTech and Banking*. Retrieved from http://www.accenture.com/us-en/ insight-future-FinTech-banking.aspx (accessed on December 24, 2018).

Alexandra, T (2021).Competitive Advantage Definition *https://www.investopedia.com/terms/c/competitive_advantage.asp*.

Alimirruchi, W., & Kiswara, E. (2017). *Analyzing operational and financial performance on the financial technology (FinTech) firm*. Case Study on Samsung Pay. Unpublished.

Baker, S. R, Bloom N, & Davis S.J. (2015). Measuring Economic Policy Uncertainty. *NBER Working Paper* No. 21633.

Davis, F, Bagozzi, R, & Warshaw, P (1989) User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. Management Sciences. 15(8) 982-1003.

Eyitope, K & Mayowa, K (2020) Nigeria's Banking Industry: Thriving in the face of crisis. *https://www.mckinsey.com/featured-insights/middle-east-and-africa/nigerias-banking-sector-thriving-in-the-face-of-crisis*

Topsy, K., Mayowa, K., & Tunde O. (2020). Harnessing Nigeria's fintech potential: *How stakeholders could position the fintech sector for growth now and beyond the crisis*. Copyright © McKinsey & Company www.mckinsey.com.

Gomber, P., Koch, J. A., & Siering, M. (2017). Digital Finance and FinTech: current research and future research directions. *Journal of Business Economics*, 87(5), 537-580.

Handro, P, O. (2018). The Role of Customer Experience in Retail Banking and the Rise of Fintech. *Annals-Economy Series*, (1), 175-185.

Kagan, J (2020). Financial Technology – Fintech. Investopedia, 28 August. Available at www.investopedia.com/terms/f/fintech.asp.

Kelvin L. & Anna S. (2018). FinTech (Financial Technology): What is It and How to Use Technologies to Create Business Value in Fintech Way? *International Journal of Innovation, Management and Technology,* 2(9), 74-78.

Medyawati, H, Yunanto, M, & Hegarini. E (2021) Financial Technology As Determinants of Bank Profitability". *Journal of Economics, Finance and Accounting Studies* 3, no. 91–100.

Nguna, K (2018) Effect of Fintech Firms on Financial Performance of the Banking Sector in Nigeria. A Research Project Presented in Partial Fulfilment of the Requirement for the award of the Degree of Master of Science in Finance, School of Science in Finance, University of Nairobi. 1-65.

Nicoletti, B. (2017). *The Future of FinTech*, 1st ed. Palgrave Macmillan. Price water

house Coopers (2016). FinTech. Retrieved from http://www.pwc.com/us/en/financialservices/FinTech.html (*accessed on December 24, 2018).*

Puschmann, T. (2017). FinTech. *Business & Information Systems Engineering*, 59(1), 69-76.

Rogers, E.M. (1995) *Diffusion of innovation*. 4th Edition, the free Press, New York.

Wika, H, Nurwiyanta, N, Sungkono, S & Tia, W (2019) The Emerging FinTech and Financial Slack on Corporate Financial Performance. *Investment Management and Financial Innovations*, 16(2) 348-354.

Zhao, Q., Tsai, P. H., & Wang, J. L. (2019). Improving Financial Service Innovation Strategies for Enhancing China's Banking Industry Competitive Advantage during the Fintech Revolution: *A Hybrid MCDM Model. Sustainability*, *11*(5), 1-29..