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# Effect of Financial Technology (Fin Tech) on Financial System Development in Nigeria: 2005 – 2018

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*Abstract:*
*This study investigated the effect of financial technology (fintech) on the financial system development in Nigeria. The specific objectives are to examine the effect of mobile phone transactions on the financial system development in Nigeria, Point of sales transactions and online transactions on financial system development in Nigerian. The study adopted Ex-post facto research design as it is used to project future outcomes with past events. The dependent variable is financial system contribution to GDP (FSCGDP) while the independent variables are mobile phone transactions (MPT), point of sales transactions (POS) and online transaction (ONLT). Data analysis was done using the Vector Error Correction and system Equation Estimation Technique. The study found that there is a positive and significant impact of ATM transactions, POS and Online transactions on financial system development in Nigeria; also, a long run relationship was found to exist among the variables used. The study therefore, recommends that; There is need for Government to ensure that the relevant agencies make significant efforts toward ending frauds committed through online transactions since it impacts financial sector development positively, financial service industry especially banks should try and sensitized their customers about the use of mobile phone to carry out their financial transactions. From the analysis conducted it was observed that many have little or no knowledge of the tool, emphasis should also be made on the use of POS since it is one of the easiest ways of carrying out financial transactions without carrying cash around, bank customers should also be encouraged to use the ATM machines for most of their transactions, as it will boost the financial system development as shown in the analysis conducted.*

*Keywords: Financial technology, financial system*

## 1. Introduction

*1.1. Background of the Study*

The financial system of any country can be ascribed to a set of institutional and other arrangements that transfer savings from the surplus units (those who generate them) to deficit units (those who ultimately use them for investment or consumption) (Anyanwu, 1993).  It is made up of a mechanism for organizing and managing the payments for current and capital transactions; a mechanism for the collection and transfer of savings by banks and other depository institutions covering the activities of capital markets. The industry has passed a lot of changes following many transformations over the years, by different countries; due to changes in legislation, political and geographic regimes (Berger, 2003).

The financial system includes all financial intermediaries that operate in the financial sector in the economy.  It is made up three major components; they are the regulating bodies such as the federal ministry of finance, CBN, The security and exchange commission (SEC), The Nigeria Stock Exchange (NSE), NICOM and FMBN. The banks, these include all the banks that work within the industry and the non-banking financial institutions.  The financial system provides enabling environment for economic growth and development, productive activities, financial intermediaries, capital formation and payments (Bankole, 2019). According to CBN report (2019), the Nigerian financial system has been through remarkable changes, ranging from their ownership structure, the length and breadth of financial instrument used to the number of institutions established. Commercial banks are the most relevant financial institutions in Nigeria that encourage and mobilize savings and also channel savings into productive investment units.

Commercial banks have a lot of functions they perform ranging from accepting deposit, financial intermediation to financial services. Banks perform these functions with traditional banking method with the use of cheques, deposit slip, withdrawal slip and deposit slip which lowered the quality of services rendered by banks and their productivity (Schuffel, 2016).  According to Shim and Sin (2016), that new era is born for banks with the rise of financial technology and it is important challenge for managers in the financial industry.

Leong and Sung (2018) opines that financial technology is a cross-disciplinary subject that combines Finance, Technology Management and Innovation Management'. They went further to say that financial technology is 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. Agbata (2019) opines that financial technology applies to how people execute business transactions and double entry book keeping, and has opened doors of opportunities for a good number of small businesses by offering them more services at lower costs. Financial technology can be described as act of carrying out financial transactions using devices such as mobile phone, online financial transactions and smart card which has lowered the transaction costs incurred by the customers, minimizes manual operations and creates opportunity for almost everyone to participate in banking operations. It has also made banks to focus on other activities other than cash management and has enabled customers to have access to financial transactions in public and private places thereby solve the problem of carrying cash by the customers and making banking service convenient.

Financial system development is about overcoming costs incurred in the financial system, such as reducing the costs of acquiring information, enforcing contracts (World Bank, 2012). Financial system development occurs when financial instruments, markets and intermediaries ease the effect of information, enforcement and transactions costs and do a better job by providing the key functions of the financial sector in the economy. Financial development contributes to economic growth of a country by broadening access to finance and having robust policies for regulations (Beck, Asil and Ross, 2000). A Banking system is in a range of stability whenever it is capable of facilitating rather than impeding the performance of an economy and dissipating financial imbalances that arise endogenously or as result of significant adverse and unanticipated events. These are set of variables that should be in place as a subset to quantify how well finance is facilitating economic and financial processes are savings and investment, lending and borrowing, liquidity creation and distribution, asset price and wealth accumulation and growth (Greenspan, 1999).

Femi (2009) says that technology is at the core of everything we do now and has caused a lot of disruption in several industries and financial sector is not exempted to it because the way we see payment has changed. The financial service sector in Nigeria has evolved considerably over the years and technology has played a vital role in enabling the development of the financial institutions in Nigeria (International Women's Day 2019). Financial technology has thrown into confusion the financial sector with innovative products and services by introducing technology at various components of customer's services.

According to Sanicola (2017) financial technology companies have changed from traditional way of payment products of the financial system such as lending, savings and investment etc. they are leverage to reach a large customer base without the high cost of building infrastructure.

EFMA (2018) Nigeria has about 36.6 million adults excluded from financial services, financial technology is bridging the gap and, in a way, solving the challenges of financial inclusion by offering different kinds of products and services that are cost effective to install and easy to access.

*1.2. Statement of the Problem*

The emergence of financial technology (FinTech) has been a welcome change to financial services especially banking transactions. Financial technology has made it possible and easy for customers to pay bills, invest, save money, access loan and other financial products with little or no additional cost. One of the problems of financial technology (fintech) is that the transaction is prone to cyber fraud and the system seems to have been consistently attacked. From the CBN report 2015, it was observed that Nigerian financial institutions lost approximately N159, 000, 000, 000. 00 (One Hundred and Fifty-Nine Billion Naira) to cyber fraud between 2000 and 2013.

Dagne (2019) says that some banks might find it difficult to move in the same level, because banks don't have same level of commitment and financial capacity to adopt the new technology. Another is the regulatory and operating environment seems not to support the positive impact of fintech as the regulatory authorities have unclear regulation of the platform; as they permit the non-bank led fintech operators to integrate with other financial solution providers as customers to onboard merchants or use their respective platforms to process payment without being licensed by the CBN. Femi (2019) says that despite the innovative products offered by fintech companies, customers prefer to conduct their financial transactions inside the banking hall because of lack of trust and inability of the customer to get his or her money back if the transaction did not go through which is known as charge back or friendly fraud as no regulation exists currently to protect fintech providers from friendly fraud.

*1.3. Objectives of the Study*

The broad objective of the study is to examine the effect of financial technology (Fintech) on financial system development in Nigeria. The specific objectives were as follows;
- To examine the impact of Point of Sales utilization on financial system development in Nigeria.
- To evaluate the effect of Online Financial Transactions on financial system development in Nigeria
- To analyze the effect of Mobile Phone Transactions on financial system development in Nigeria.
- To investigate the effect of ATM transactions on financial system development in Nigeria.

*1.4. Research Questions*
- To what extent does point of sales utilization impact on financial system development in Nigeria?
- To what extent does an online financial transaction impact on financial system development in Nigeria?
- To what extent does a mobile phone transaction impact on financial system development in Nigeria?

*1.5. Research Hypotheses*

     The research hypotheses are stated in null form only.

- HO1: Point of sales utilization has no positive significant effect on financial system development in Nigeria.
- HO2: Online financial transaction has no positive significant effect on financial system development in Nigeria.
- HO: Mobile phone transaction has no positive significant effect on financial system development in Nigeria.

*1.6. Significance of the Study*

     The study will be of great importance to the following persons.

- Bankers: it will help the bankers to know how much their customers know about the use of financial technological packages in their banks
- Public: the work will help the public to know about the different fin tech garget used by banks and how to make use of them. On the other hand, the study will make people to know that using financial technological tools makes financial transactions to be carried out at ease and it is convenient.
- Researchers: the work will add to the available literature.

*1.7. Scope of the Study*

     The study covers the transactions of all the Deposit Money banks in Nigeria, from 2005 till 2018. We chose the date because that is when banks in Nigeria started adopting fin tech services.

## 2. Review of Related Literature

*2.1. Conceptual Review*

2.1.1. Concept of Financial System in Nigeria

     The financial system consists of various financial institutions, operators and instruments that give the system its character and uniqueness. CBN (1993) opines that the financial system refers to a set of rules and regulations and the aggregation of financial arrangements, institutions, agents, that interact with each other and the rest of the world to foster economic growth and development of a nation. According to CBN Report (2017) financial system is a prime mover of economic development, as the system ensures efficient transfer of funds to the parties that need them for investment or consumptions. All these services rendered by the financial institutions were manually done which slow or made some customers not to have access to financial services efficiently and on time. Hamilton (1804) identified that technological advancement such as the Automated Teller Machine (ATM), Online banking and bill payment, and mobile banking have enhanced customer's experience in banking and payments, while alleviating costs, increasing convince and streamlining processes.

     Financial technology (fintech) is the technology and innovation that aims to compete with the traditional method of rendering financial services. This is the use of some gargets such as smart phone for mobile banking, investing services, online transactions, Point of Sales (POS). This is done with the aim of making financial services more accessible to the general public (Venkatesh and Davis 2000).

     The key areas financial technology has been used are insurance, trading, banking services and risk management. The banking sector has been the main driver of growth and development in the industry as they are in charge of settlement of financial commitments (Abaenewe, 2013). Most technology innovations are to support payment activities. The mostly used electronic payments in Nigeria are point of sale (POS), mobile money transfer, online money payment, etc. Abaenewe (2013) listed the following as the benefits of financial technology (Fintech)

- Fast retrieval of accounts balance from the customers chosen location
- Fast and efficient funds transfer
- Helps customer to revisit their account transactions history at convenient
- Quick ordering of bank statements.

Aderonke and Charles (2010) find that ATM is still the most commonly accepted form of fintech in Nigeria

2.1.2. Point of Sale (POS)

     Decker (2018) defines point of sale machine (POS) as a terminal that has an information screen and the ability to handle every payment type. Previously, it served as a simple cash register as it keeps a record of every sale that a cashier had rung in. This is a form of e-payment that handles balance enquiry, payment for goods and services, electronic fund transfer at a specific point of sale. The device allows customer to make payment for goods and services purchased without the physical use of cash. The transaction takes place when a customer slots in his card in to the POS, inputs his account details, and in the case of payment for goods and services his account is debited.

2.1.3. Online Financial Transactions

     This is a payment method in which the transfer of fund or money happens online over electronic fund transfer. It is secured and password protected. An online transaction is also known as PIN-debit transaction, it is a password protected payment method that authorizes a transfer of funds over an electronic fund transfer. When you pay for goods and services with your debit card it can either be debited as an offline transaction via a credit card processing network or

as an online transaction via electronic transfer fund system requiring a personal identification number (PIN) to complete the process. This process uses App, provided by the financial institution for the purpose

2.1.4. Mobile Phone Transaction

Mobile phone is a service provided by a bank or other financial institutions that allows its customer to conduct financial transactions remotely using a mobile device such as a smart phone or tablet. It is usually available on a 24-hour basis. Some institution has restriction on the amount that may be accessed and transact through mobile banking. According to Schierz (2018) mobile banking has reduced the cost of handling transactions by reducing the need for the customers to visit the bank branch for non-cash withdrawal and deposit transactions.

*2.2. Empirical Review*

Wenyu and Wench (2019) carried out a study on affordances, experimentation and actualization of fintech; a block chain implementation study, using affordance-actualization theory known as A-A theory as theoretical lens used an organization as a case study on block chain implementation that has effectively implemented it. The study identified three kinds of affordance and a process model. The study recommended that fintech helps IT practitioners to implement blockchain effectively and extract value from their investment.

Saidi (2018) investigates E-payment technology effect on bank performance in emerging economies- evidence from Nigeria. The study looked at three research innovations; measures of bank performance, the sortino index; market risk exposure of banks to electronic payment technologies and controls without effect of these innovations on bank performance using interacting dummies. The study adopted the time dimensional and panel least square models. The study finds that bank performance increased after the adoption of electronic payment technologies and bank performance contradicts autoregressive and random walk processes.

Kshetri (2018) carried out a study on impact study on how block chain can change business operations, the study finds out that most of the senior managers interviewed saw blockchains as the technology of the future but few knew how to implement it. Gibson (2015) carried out a research on the impact of financial technology is having on the financial services industry in Ireland. The work used qualitative approach to analyze the impact of financial technology has on the traditional financial services model and what the existing companies and the new entrants are doing to challenge or support this move. Youghee, Jack, Young and Jengil (2015) conducted a research on an empirical analysis on the adoption of fintech services focused on mobile payment services, the work adopted the elaboration likelihood model using variables associated with the technology acceptance model.

Valahzagha and Bilandi (2014) carried out a study on the impact of electronic banking on profitability and market share: Evidence from banking industry. The study used 16 banks, five governmental organizations and eleven private organizations as the population of the study over the period of 2007 to 2012. It was found out that none of the technological facilities had a meaningful impact on market share but there was a positive impact on bank's performance. Okafor, Imhonopi and Urim (2011) carried out a study on internet service utilization and the impact on research outputs and teaching. They used survey reach method using the bank customers as their populations of the study. The result indicated that majority of the bank customers are not computer compliant while some are literate. The study made a recommendation that banks should try their best to educate their customers on the use of ICT tools and incubate the importance of using it to them.

*2.3. Theoretical Framework*

The work adopted Technological Acceptance Model (TAM), propounded by Fred Davis in 1989. This is an information systems theory that models how users accept and use a technology. The theory explains how individuals accept new technology and how users of the proposed technology welcome and adapt to it. He stated that there are two factors that determine the complete acceptance of a technology. They are perceived usefulness and perceived ease of use. He believed that perceived usefulness is a factor that affects user's acceptance because it is based on how capable the new technology will help improve job performance and generate a positive performance. Perceived ease of use, Fried Davis (1989), defined it as how easy it is for users to make use of the new technology. Prior to the introduction of financial technology (Fintech), financial services were rendered using analog system and people were carrying huge cash around, in order to increase the effect of the fintech on people, financial service providers have to teach their customers on how to use the various tools and make them understand that it is easy and safe to use thereby result to positive performance and enhance financial system stability. The assumption of this theory is that people accept and use new technology they know how to use and how useful the technology will be to them and improve their job. The relevance of the theory to the study is that it will help financial service providers to teach their customers how to use the various tools obtainable in their banks.

**3. Methodology**

*3.1. Research Design*

The study employed *Ex-post facto* research design. *Ex-post factor* research design has to do with any investigation using existing data. The reason for choosing this design is because of the nature of the research which requires the use of past data or historical data. The variables under investigation are categorized into dependent variable (financial system stability index proxy contributions of banks to GDP) and a set of independent variables (POS Utilization, Online Transactions and Mobile Phone Transactions). These variables are in line with the research objectives and the chosen estimation model.

### 3.2. Sources of Data

Quantitative data on research variables will be generated from secondary sources, namely; CBN Statistical Bulletin and Banks Annual Reports. The period under review is 2008 to 2018. This period was chosen because it was when Information and Communications Technology (ICT) was fully introduced in the financial sector.

### 3.3. Description of Model Variables

Financial System Development: The financial sector is the set of institutions, instruments and markets. It also includes the legal and regulatory framework that permits transactions to be made through extension of credit. Financial sector development concerns with overcoming costs incurred in the financial system such as the process of reducing the costs of acquiring information, enforcing contracts and executing transactions (Acemoglu, Johnson and Robinson, 2015). In this study, we will represent financial system development with financial system's contribution to GDP. That is ratio of financial institution's assets to GDP.

- Mobile Phone Transactions (MBT): This is the form of banking which involve the use of mobile phone to carry out banking transactions. It offers information to the customer on bank services such as balance inquiry, payment of bills, and the transactions can be done without the customer going into the banking hall (Ayodele, 2015).
- Point Of Sale (POS): this is the form of e-payment that handles balance inquiry, payment for goods and service, electronic fund transfer at a specific point of sale. The device allows the customer to make payment for goods and services purchased without the use of physical cash, the transaction is done with the use of Masters card or Visa card issued to the customer by a bank. It can also be used for transfer of fund, cash withdrawal and deposit.
- Online financial transactions (ONLT): This is the form of e-banking whereby the internet is used to perform banking transactions. Ngango, Mbabazize and Shukla (2015) identified some of the tools that can be used for online financial transaction; the tools are computers, laptops, palm tops, android phones. All these tools must have access to the internet and bank App is used for the transaction.

### 3.4. Model Specification

Aileman, Enobong, Osuma, Evbuomwan and Ndigw (2018) used the model below:

CIC=F (ATM, POS, MB, WEB) ………………………………………………………..1

In our econometric analysis of the effect of financial technology on financial system stability in Nigeria, we adopted and modified the model in equation 1 as follows

FSCGDP = F(MBT,POST,ONLT, ATM)……………………………………………....2

The mathematical form of the model is:

FSCGDP = bo+ b1MB + b2POS+ b3 ONT + b4ATM+μt………………………..3

where;

FSCGDP = Financial System contribution to GDP (dependent variable); MBT = Mobile Phone Transactions, POS = Point of Sale; ONLT= Online Financial Transactions, ATM = Automated Teller Machine, βo = intercept term; μt = Error term over correlation and time; β1-β3 = Regression coefficient to be determined; i, t = Index of banks and annual time effect

### 3.5. Method of Data Analysis

The estimation procedure adopted in this study are the Augmented Dickey Fuller Unit root diagnostic test to ascertain the time series properties of the data used in the estimation model for prediction of the model and easy analysis. The Johansen Co-integration test was also conducted to know the long run relationship among the variables used. The Vector error correction mechanism was also employed to tie the short run fluctuation. We also employed the ordinary least square regression. The tests and estimation were carried out using econometrics –view (E-views 8.0). The study has three research hypothesis and the Beta coefficients of the respective independent variables results were tested at significant level of 1%, 5% and 10%. The level of standard error, sign and size of the t-statistics and the arising probability values will form the basis for decision making on the statistical significance of the results obtained for each of the research hypothesis which are in line with the research objectives. The decision rule will be, to accept the alternate hypothesis if the t-statistics is equal or greater than 1.96 and p-value greater than 0.05. Similarly, null hypothesis will be rejected if the t-statistics is less than 1.96 and p-value greater than 0.05.

## 4. Results

### 4.1. Descriptive Results

| | FSGDP | ATMT | MPAY | POST | WEBPAY |
|---|---|---|---|---|---|
| Mean | 1557.463 | 2885.815 | 505.6950 | 620.9633 | 103.6843 |
| Std. Dev. | 210.1721 | 1804.412 | 449.0460 | 582.4226 | 100.0731 |
| Skewness | -0.379031 | 0.067747 | 0.409826 | 0.079035 | 1.052141 |
| Kurtosis | 2.752104 | 2.668521 | 3.201060 | 2.796283 | 3.010747 |

*Table 1: Descriptive Test*
*Source: Author's computation 2021 Using E-views, see Appendix*

The table above shows selected statistical summary of the data employed in this study. As observed, the financial sector contribution to Gross Domestic Product (FGDP) being the dependent variable (used as a measure of financial sector development) has a mean value of 1557.463, while the mean value for the independent variables: ATM transactions (ATMT), mobile transactions (MPAY), POS transactions (POST), and online transactions (WEBPAY) are 2885.82, 505.695, 620.96 and 103.68 respectively. It can be implied from the result that transactions through the ATM medium have a higher volume and therefore suggest greater acceptance by customers.

The analysis is also fortified by the value of the skewness and kurtosis of all the variables used. Skewness defines the extent to which a distribution differs from a normal distribution, the closer the values are to zero, the more normal the data sample is said to be; the descriptive result above shows that all the variable data have a normal distribution.

A closer look at the result also offers some interesting information regarding the kurtosis. Kurtosis is a measure of the combined weight of the two tails relative to the rest of the distribution; to accept a normal weighted sample, the Kurtosis value must be equal to 3. The study variables have values approximately equal to 3 for which case it supposes a normal weighted distribution. The implication is that the data employed for this study has satisfied the expectation of normalcy of distribution and fit for use in policy decision making.

*4.2. Empirical Result*

4.2.1. Unit Root Test of Stationarity

| Variable | @Level | @ 1st Diff | Critical value | | Order | Remark | |
|---|---|---|---|---|---|---|---|
| FSGDP | -2.82743 | 4.387932 | 3.828975 | | 1(1) | Stationary | |
| ATMT | | -3.28187 | 4.663496 | 3.828975 | | 1(1) | Stationary |
| MPAY | | -3.66259 | 5.137612 | 3.828975 | | 1(1) | Stationary |
| WEBPAY | -3.75749 | 4.76903 | 3.828975 | | 1(1) | Stationary | |
| POST | | -3.70405 | 5.226145 | 3.828975 | | 1(1) | Stationary |

*Table 2: Unit Root Test Result*
*Source: Author's Computation (E-Views 8.0, See Appendix)*

The result in table 2.0 shows that (@ level), the variables did not attain stationarity, thereby justifying the need for differencing. After differencing for the first time however, they became stationary and integrated of order 1(1). Conclusion of stationarity is based on the fact that the individual ADF statistic of the variables became greater than the 5% critical value. The implication of stationarity of data means that the model we have employed can be relied upon for policy analysis and decision making.

4.2.2. Relationship between Financial Technology andFinancial Sector Development inNigeria

| Date: 01/24/20  Time: 03:53 | | | | |
|---|---|---|---|---|
| Sample (adjusted): 2005 2018 | | | | |
| Included observations: 14 after adjustments | | | | |
| Trend assumption: Linear deterministic trend | | | | |
| Series: FSGDP ATMT MPAY POST WEBPAY | | | | |
| Lags interval (in first differences): No lags | | | | |
| Unrestricted Cointegration Rank Test (Trace) | | | | |
| **Hypothesized** | | **Trace** | **0.05** | |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.** |
| None * | 0.961569 | 85.32327 | 69.81889 | 0.0018 |
| At most 1 | 0.737056 | 39.69877 | 47.85613 | 0.2335 |

*Table 3: Johansen Co-Integration Test Result of Long Run Relationship*
*Source: Author's Computation (E-Views 10)*

The Johansen co-integration test was conducted having established that the variables are integrated of the same order 1(1). Co-integration tests for the existence of a tendency for long-run convergence among variables. The result as presented above indicated four (4) co integration equations at 5% level of significance; but cointegration was found at the first. This is because the equation at which the trace statistics is greater than the 5% critical value (85.32327 > 69.81889). This shows that there is a long run relationship between financial sector development represented by the sectoral contribution to the Gross Domestic Product (FSGDP) and all the explanatory variables (financial technology). In other words, they possess the characteristics that would cause them to converge in the long-run. The implication of long run relationship is that over a long period, the variables can be allowed to work together in the economy to produce growth sustaining results; this result is in line with the empirical evidence by Akingbuola (2011).

#### 4.2.3. The Vector Error Correction Mechanism

| Vector Error Correction Estimates<br>Date: 01/24/20   Time: 03:55<br>Sample (adjusted): 2005 2018<br>Included observations: 14 after adjustments<br>Standard errors in ( ) & t-statistics in [ ] | | | | | |
|---|---|---|---|---|---|
| Error Correction: | D(FSGDP) | D(ATMT) | D(MPAY) | D(POST) | D(WEBPAY) |
| CointEq1 | -0.096733 | 2.297195 | 0.448165 | 0.568135 | 0.071190 |
|  | (0.07738) | (0.83456) | (0.26064) | (0.33745) | (0.06263) |
|  | [-1.25010] | [ 2.75258] | [ 1.71951] | [ 1.68361] | [ 1.13661] |

*Table 4 Vector Error Correction Estimates*
*Source: Author's Computation using E-views (See Appendix)*

Since the presence of co-integration between or among variables implies the presence of short-run errors, the study had need for the error correction estimation. Usually, the error correction mechanism smoothen the short-run errors associated with variables which have long run relationship or co-integration properties. The conditions for smoothening effects being that the error correction coefficient must be negative, fractional and significant.  Our result indicates an error correction coefficient of -0.459679 which means that about 9.7% of the short run errors are corrected each year. The conditions for error corrections are satisfied since the coefficient is negative, fractional and significant.

The interest in this study is to determine the impact of financial technology on the development of the financial sector in Nigeria. Having found the presence of co-integration among the variables and the error corrections, the ordinary least squares estimation result is shown below:

#### 4.2.4. Ordinary Least squares Estimation Regression

| Dependent Variable: FSGDP<br>Method: Least Squares<br>Date: 01/24/20   Time: 04:00<br>Sample: 2004 2018<br>Included observations: 15 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| ATMT | 0.479761 | 0.232035 | 2.617622 | 0.0330 |
| MPAY | -4.032387 | -6.047760 | -2.666757 | 0.0187 |
| POST | 2.383214 | 3.922424 | 0.607587 | 0.5558 |
| WEBPAY | 3.211753 | 1.032315 | 2.426397 | 0.0080 |
| R-squared | 0.605924 |  |  |  |

*Table 5: OLS Result*
*Source: Author's Computation Using E-Views (See Appendix)*

From table 5, we can see the result of the estimation which shows that the financial technology variables have positive signs except for POS transactions (POST) which showed negative trend.

*4.3. Test of Research Hypotheses*

##### 4.3.1. Test of Research Hypotheses 1

It could be observed also from table 5 above that Automated Teller Machine Transactions (ATMT) variable has a positive impact on the development of the Nigerian financial sector and by extension the aggregate economic output in Nigeria. Precisely, one unit increase in the volume of ATM transactions (ATMT) will lead to ₦0.47 billion increase in the aggregate financial sector output as contribution to the Gross Domestic Product in Nigeria. The implication of this finding is that financial transactions through the ATM channel exerts significant impact in driving financial activities in the economy: this is based on the probability value of the estimated coefficient which is less than the 5% level of significance. (0.0330 < 0.05).

##### 4.3.2. Test of Research Hypotheses Two

The negative significant coefficient value of mobile phone payment systems (MPAY: -4.03, p-value 0.0187) suggest that it has a negative impact on the financial system development. The reason for this could be attributed to the prevalence of fraud through that channel of transaction. Also, this financial technology channel removes funds from the financial system easily with impacts particularly on credit creation capacity of banks

##### 4.3.3. Test of Research Hypotheses Three

It is common knowledge in the public domain that POS transaction channel remain relatively untapped. The positive but insignificant coefficient value of the variable (POST: 2.38, p-value 0.5558) confirms that bankable Nigerians

are not yet attuned to the benefits associated with the use of POS channels for financial transactions. This hints us that with more attention directed towards increasing consumer acceptance of POS financial technology both in policies and in capital investments; it could even overtake the other fintech innovations in driving the sectoral development of the financial sector in Nigeria. Similarly, online transactions (WEBPAY) responded with a positive and significant outcome (3.212); the p-value of the coefficient (0.0080) indicates that online financial transactions enhance development of the financial system of Nigeria. It also means that there is a positive interaction between online transactions (WEBPAY) and the financial system development

*4.4. Implication of the Results*

The variables estimated showed positive and significant outcomes except for mobile phone payments channel. This implies that there should be a strategic policy approach to entrenching financial technology innovations in the financial system of Nigeria as it contributes to the stability of the system. With respect to mobile phone transactions, the negative coefficient implies that the fight against financial frauds through that channel should be given a boost.

## 5. Summary, Conclusion and Recommendations

*5.1. Summary of Findings*

With respect to the stated specific objectives, the overall results of the study were summarized thus;

- It could be observed in table 5 above, that Automated Teller Machine Transactions (ATMT) variable has a positive impact on the development of the Nigerian financial sector and the aggregate economic output in Nigeria. One unit increase in the volume of ATM transactions (ATMT) would lead to ₦0.47 billion increase in the aggregate financial sector output as contribution to the Gross Domestic Product in Nigeria. ATM transaction exerts significant impact in driving financial activities in the economy.
- It was observed that mobile phone payment systems (MPAY: -4.03, p-value 0.0187) has a negative impact on the financial system development. The reason for this could be attributed to the prevalence of fraud through that channel of transaction. Also, this financial technology channel removes funds from the financial system easily with impacts particularly on credit creation capacity of banks
- The positive but insignificant coefficient value of the variable (POST: 2.38, p-value 0.5558) confirms that bankable Nigerians are not yet attuned to the benefits associated with the use of POS channels for financial transactions. This reviews to us, that with more attention directed towards increasing consumer acceptance of POS financial technology both in policies and in capital investments; it could even overtake the other fintech innovations in driving the sectoral development of the financial sector in Nigeria.

*5.2. Conclusion*

The study examines the impact of financial technology (fintech) on the financial system stability. The study utilized data for a sample period of 2004-2018. The study reviewed relevant theoretical and empirical literatures on the subject area. The result indicated positive and significant coefficient of some of the specific objective's variable (ATM transactions, mobile phone transactions, point of sale transactions, and online web transactions). The policy implication however, is that significant outcomes have been achieved regarding the prevalence of financial technology in the financial system

A long-run sustainable relationship among the variables was identified as indicated by the Johansen co-integration test. The implication is that there is possibility of convergence in the long-run between financial technology and the financial system development. This projection of a long run convergence is further strengthened by the outcome of the vector error correction estimate which satisfied all the conditions of negative, fractional and significant error correction estimate.

*5.3. Recommendations*

The outcome of the various tests carried out in this study and the results obtained leads us to recommend as follows:

- There is need for Government to ensure that the relevant agencies make significant efforts toward ending frauds committed through online transactions since it impacts financial sector development positively.
- Financial service industry especially banks should try and sensitize their customers on the use of online transactions to carry out their financial transactions. From the analysis conducted it was observed that many have little or no knowledge of the tool.
- Emphasis should also be made on the use of POS since it is one of the easiest ways of carrying out financial transactions without carrying cash around.
- Bank customers should also be encouraged to use the ATM machines for most of their transactions as it will boost the financial system development as shown in the analysis conducted.

## 6. References

i.  Abaenewe, Z. C., Ogbulu, O.M. and Ndigbu, M.O. (2013). Electronic Banking and Bank Performance in Nigeria, *WestJournal of Industrial and Academic Research,* 6 *(1) 171-186*

ii. Acemoglu, D, Johnson, S, and Robinson, J.A. (2005). Institutions as a Fundamental cause of long run growth, *Handbook of Economics Growth 1(5)*

iii. Aderonke, A. and Charles, A (2010). An Empirical Investigations of the level of Users Acceptance of E-banking in Nigeria, *Journal of Internal Banking and Commerce,* 1*(15) 1-12.*

iv. Agbata, C.F. (2019). Fintech: Sure, way to reach the Unbanked, Punch Newspaper.

v. Beck, T, Asil, D and Ross, L (2000). 'A New Database on the Structure and Development of the Financial Sector.' World Bank Economic Review 14 (3), 597-605

vi. Buchat, G, Matuos, G, Piskorskit, T and Seru, A (2018), Fintech, Regulatory, Arbitrage and the Rise of Shadow Banks in Nigeria, *Journal of Financial Economics,* (130) 453-483

vii. CBN Report (2019). The Nigerian Financial System at a Glance, Monetary Policy Department.Femi, A. (2019). Major Challenges Facing the Realization of Reaching the Unbanked, Unpublished Article Presented by Chief Executive Officer of Inlaks, Lagos.

viii. Greenspan, .A (1999). Do Efficient Market Mitigate Financial Crises? Speech Delivered before the 1999 Financial market Conference of the Federal Reserve Bank of Atlanta.

ix. Gibson, .J (2015). The Impact Fintech is sharing on the Financial Services Industry in Ireland, Dissertation Submitted in Dublin Business School.

x. Leong, .K, Sung, .A (2018), Fintech: What is it and How to use Technologies to create Business Value in Fintech way, *Internal Journal of Innovation Management and Technology,9 (2) 4–78.*

xi. Nicoletti, .B (2017), The Future of Fintech, Ist Edition Palgrave Macmillan Publishers.

xii. Mcwaters, R. (2015), The Future of Financial Services: How Disruptive Innovations are reshaping the way Financial Services are Structured, *Personnel and Consumer World Economic Forum*

xiii. Okafor, E.E, Imbonopi, D. and Urim U.M (2011). Utilization of Internet Services and its Impact on Teaching Research outputs in Universities in South Western Nigeria, *Journal of Emerging Technologies and Society9(2)135-151*

xiv. Padoa-schioppa, .T (2003). Central Business and Financial stability: Exploring the Land in Between in the transformation of the European Financial system, Frankfurt *European Central Bank 269 -310.*

xv. Sanicola, L. (2017). What is Fintech. Huffington Post Schinasu, G. J (2004). IMF working Paper Defining Financial Stability, *International Capital Market Department.*

*xvi.* Schueffel, P. (2017). Taming the Best: A Scientific Definition of Fintech, *Journal of Innovation Management*; *4 (4) 32 - 54*

xvii. Valahzagha,. M.K and Bilandi, .E.B (2014). The impact of electronic banking on profitability and market share of Banks in Nigeria: evidence from banking industry. *Journal of industrial engineering computations4(12).*

xviii. Word bank (2012). Global Financial Development Report 2013: Rethinking the Role of the State in Finance. World Bank, Washington, DC.