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The Link between Electronic Transactions and Stock Market Performance in the Nigerian Financial Ecosystem

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***Keywords*— Electronic transactions, Stock market performance, financial ecosystem, Vector error correction model, financial inclusion, Nigeria.**

***Abstract*—** *The electronic payment system involves transactions carried out via the aid of technology. The Nigerian economy have seen it as a welcome development and among other objectives to promote cashless economy. In a process to achieve rapid transformation, the Central Bank of Nigeria (CBN) launched the financial inclusion strategies for all sundries through the help of the Financial Technology (FIN Tech). This study assessed the linkages of electronic transactions and stock market performance in the Nigerian financial ecosystem. The study employed WEB, Automated Teller Machine (ATM), Nibss Instant Payment (NIP), and Point of Sale (POS) as the electronic transactions' channels and its link to stock market capitalization in Nigeria. The study adopted quarterly data between 2012 and 2019. The Vector Error Correction Model was applied for the evaluations, including the Johansen Co-integration. The short-run error correction shows that, the ATM and WEB were negatively and insignificantly linked to stock market performance. The findings also showed that, POS is positively but not significantly linked to stock market performance. The findings further revealed that NIP is positively and significantly linked to stock market capitalization. In essence among the study variables, NIP was the only constituted and significant variable that influenced the stock market performance in the Nigerian financial ecosystem. The study recommended the Central Bank of Nigeria (CBN) to monitor, control and report the movement of all money via NIP, as well as re-double the awareness campaign with regards to use of ATM, WEB and POS.*

I. INTRODUCTION

The introduction of electronic means of transactions in Nigeria is now on the increase and has received a rapid growth. These ideas of financial inclusion have assisted to revamp the financial system. The target for embracing the financial inclusion has raised the bar and strengthens the financial system across board. Digitalizing the financial ecosystem makes it possible for transaction even at large scale business without physical contact of the parties. Many nations have welcomed the idea and have set the trend growing.

In Nigeria, the electronic payment has come to stay. As many Nigerians that yearns for a reserved and efficient transactions has accepted the innovation. The study of Slozko and Pelo (2014) postulated that the current movement of the world financial environment is now featured by the application of information and communication technology in

business transactions. The Nigerian Stock Exchange provided in rule 11.13 which also include electronic money transfer for purchases of securities. In virtually all financial transactions it is now driven by the aid of information and communication technology (ICT). This observation is well acknowledged and practicable if the desired infrastructures are available and also accessible by users.

The large-scale use of financial technology (Fintech) platforms such as automated teller machines (ATM), WEB, NIP, and POS for financial transactions and the rise in internet access have created an innovative and new method for the use of financial resources and services. Financial technology is gradually phasing out the conventional brick and mortar financial services offered by banks which restricts customer access to financial services to banking offices and expensive telephone banking services.

Without limiting access to financial services to a particular time and place financial technology enables customers access to digitized means to transact business electronically (Kim, Shin and Lee,2009, Pandiya and Gupta 2015, Shaikh and Karjaluoto 2014). This has changed the pattern of financial intermediation in the financial system, as the use of financial technology ensures financial transactions becomes more efficient, consumer friendly and open. Deposit money banks, financial technology firms, insurance companies, asset management firms and the stock market have been at the forefront in the deployment of ATM, WEB, NIP, and POS for financial transactions.

Despite the improved financial technology network and customer friendly, it appears the performance of the Nigerian stock market still remain low. The 'Fintech revolution' is quite new and it is an emerging trend in Nigeria's financial ecosystem. Questions perhaps may emanate to the reasons why the digital environment has not performed favorably, especial within the financial ecosystem. However, there is a dearth of studies about Financial Technology on its contribution to the Nigerian stock market. This study stands to cover the gap in the literature regarding this sub-sector.

The purpose of this study is to assess the link between electronic transactions and the stock market performance in the Nigerian financial ecosystem. The study is posed by asking the extent of link between the electronic transactions of ATM, WEB, NIP, and POS, and stock market capitalization in the Nigerian financial ecosystem. Hypothetically, electronic transactions of ATM, WEB, NIP, POS, did not positively and significant linked stock market capitalization in the Nigerian financial ecosystem. The study covers the period of 2012 and 2019. The variables were extracted from the Central Bank of Nigeria (CBN) statistical bulletin, and its website of 2019 publications. The stock market capitalization data was extracted from the Central Bank of Nigeria (CBN) statistical bulletin, while electronic transactions such as the ATM, WEB, NIP, and POS data were sourced from the CBN website. The obvious limitation of this work was the short period covered. All data were prorated on quarterly basis to achieved a longer period as well as to enhanced the analysis. In that circumstance, the results of this work would have improved if the data were available earlier than the covered periods. Notwithstanding, the findings of this study stands to benefit the Scholars/Academics, Policy-makers, Industrial practitioners, and the general public.

The remainder of this paper is arranged as follows: in section II, a review of the literature is discussed, while section III presents the methodology employed in the present study. The results of the empirical analysis are presented in section IV. In Section V, a discussion of the results outlined in section 4 are articulated. The conclusion and recommendations of the paper are laid out in section VI.

II. LITERATURE REVIEW

The efficient market hypothesis states that asset prices reflect all available information. According to Fama (1970) that stocks are always trading at their current fair market value. This hypothesis holds that it is virtually impossible to either buy undervalued stocks at a bargain or sell overvalued stocks for extra profits. A recent study conducted by Ozili (2020) revealed to investors to be aware of financial inclusion assumptions, which the theory in itself suggested the ease of access and the availability digital infrastructures. Besides, the term, financial inclusion is concerned by individuals and business having access to useful and affordable financial products and services that meet their needs in a responsible and sustainable way.

The theory of financial inclusion (FI) and the efficient market hypothesis (EMH) are combination that tries to expand our knowledge horizon concerning modern transactions in the world. These theories further explained the influence of electronic transactions on stock market performance. For the fact all investors are abreast with all market information and modern technologies to expand the business frontiers. In this case, the study is focused only on the stock market performance as influenced by the modern technologies. So, the study explicitly evaluates the

relationships between electronic transactions and stock market performance within the Nigerian financial ecosystem in connection to EMH and FI theories empirically.

Similar studies have emanated towards the development of stock market through the uses of technology. However, Brynjolfson (2000) stated that the benefits of IT investment are difficult to measure since they are intangible by nature. Meliciani (2002) opined that countries that specialized in fast growing technologies experience above average rates and also, innovation affect countries performance in the international markets. Furthermore, a study by Benner (2007) described that an incumbent firm's stock price will decrease to the extent that it is forced (it) to depart from its stock market identity. This inability to respond to technological change which may arise from institutional pressures from financial market during the uncertain period of technology change.

The use of technology in financial transactions has impacted businesses variety of ways. For instance, Bett and Bogonko (2017) investigation in Kenya found out that the adaptation of digital finance technologies has minimized operational cost and have impacted huge turnover in the financial system despite the initial high cost of capital. Also, Gomber, Kauffman, Parker and Webber (2018) argued that many fintech starts-ups are looking for new pathways to successful business models and the creation has enhanced customer experience and results in services transformation.

Consequently, this study provides an empirical-based insight into the link between electronic transactions and stock market performance in Nigeria Financial ecosystem.

III. METHODOLOGY

The study adopted the *ex-post facto* analytical research design. Such analytical research design plan is fit for a work concerning quasi-experimental. Justly, it is an attempt to established the linkages of Electronic Transactions and Stock Market Performance in the Nigerian Financial Ecosystem. This can be explained by the relationship of Automated Teller Machine (ATM), Internet (WEB), Nibss Instant Payment (NIP), and Point of Sale (POS), and stock market capitalization in Nigeria. This study adds in its design, the econometric/analytical design to the approval of the *ex-post facto* design.

The data sets for empirical estimation in this study have two major properties. The data is secondary and is quarterly time-series. Time series are data sets that follow regular time-frequency of market performance was measured by market capitalization, while the electronic transactions of ATM, WEB, NIP and POS were prorated to put all variables at the same level. In a view of assessing the influence of Fintech environment on stock market performance in Nigeria, in this case, quarterly data are used for both the dependent and explanatory variables. In terms of sources, data was extracted from the Central Bank of Nigeria fact books. The study accounted for quarterly information between 2012 and 2019. This is for the fact that, the data commence 2012, and the study intended to make it as current as possible by extending to 2019. The obvious limitation of this work was the short period covered. In that circumstance, the results of this work would have improved if the data were available earlier than the covered periods.

The theoretical outline of this study was the theory of financial inclusion (FI) and the efficient market hypothesis (EMH). These theories take into explanation the digital environmental factors on the stock market performance relationships within the financial ecosystem. The theory in itself provides applicable evidence concerning the stock market activities so it needs to empirically determine the linkages with electronic transactions. The study adopted the Vector Error Correction Model (VECM) to diagnosed and empirically test the FI and the EMH functional approach. The attempt is to validate or invalidate these concepts via the VECM. Sims (1980) stated that VECM is a prevalent method of time-series modeling. According to Sims, VECM is analytical tool used by macroeconomists to characterize the jointed dynamic behavior of collection of variables without requiring strong restrictions. Therefore, the Vector Error Correction model becomes more appropriate for modeling the joint dynamics and the linkages concerning the electronic environment and the stock market performance within the Nigerian financial ecosystem.

Expressing the FI/EMH functionally appears thus:

$$MCAP = f(electronic\ transactions) - - - - - \text{eq. } 1$$

Taking MCAP to be market capitalization being performance index of stock market and the electronic transactions as an indicator of Automated Teller Machine (ATM), WEB, Nibss Instant Payment (NIP), and Point of Sale, (POS). Thus, the study empirically estimates the functional linkages as follows:

$$MCAP\text{r} = f(ATM\text{r}, WEB\text{r}, NIP\text{r}, POS\text{r}) - - - - - - eq. 2$$

Standing from the theoretical perspective, this study was designed to prove the reality or otherwise of the FI/EMH applying Nigerian information. The above equation can be written in a mathematical form, thus

$$MCAP_t = \mathrm{Yt} = \alpha + \beta 0\mathrm{Yt} + \beta_1 AMT_{t-1} + \beta_2 WEB_{t-1} + \beta_3 NIP_{t-1} + \beta_4 POS_{t-1} + \mu t --eq.3$$

By and large, the regression forms, eqs. 1, 2, and 3 can be rewritten in econometric form, thus:

$$MCAP_t = Yt + \beta_0 MCAP_t + \beta_1 ATM_{t-1} + \beta_2 WEB_{t-1} + \beta_3 NIP_{t-1} + \beta_4 POS_{t-1} + \mu_t --eq.4$$

Where β_0 = the constant (the value of the dependent variable when all the regressor are at zero); $\beta_1, \beta_2 \beta_3$, β_4 were the coefficient of the independent variables and $\mu_t$was the noise or error term.

The model's variable of this study was the electronic transactions as a broad dependent variable that was influenced by the ATM, WEB, NIP, POS as the independent variables.

The estimation process for this study followed the Diagnostic tests, long-run and short-run Test of Hypothesis using the Vector Error Correction Model estimations. These sets of tests are designed to validate the goodness of the data sets for Unit Root stationary of the variables. The Philips Perron was adopted to show the data stationery of the unit root properties. The series following equation being specified below.

$$\Delta y_t = \beta_1 + \delta y_{t-1} + \alpha_i \sum_{t=1}^{m} \Delta y_{t-1} + \mu_t -------$$

$$-----eq.5$$

Where the test is for $H_o = \delta = 0 \; and \; H_1 = \delta < 0$.

Lag selection was based on the Bayesian Criterion generated automatically by the estimation software following the form of equation 6 below:

$$BIC = \ell n(n)K - 2\ell n(\hat{\mathcal{L}}) ----------$$

$$-----eq.6$$

Where:

n represents either the sample size, the number of observations, or the number of data points in x.

k represents free parameters to be estimated.

$\hat{\mathcal{L}}$ represents the maximized value of the likelihood function for the estimated model *M given as* $\hat{\mathcal{L}} = p(\frac{x}{\hat{\theta}}, \mathcal{M})$

Vector Error Correction Model Representation

The Vector error correction model was seen possible to test the estimations linkage effect through the speed of adjustment between stock market performance and shocks emanating from the electronic environment. This followed the form specified below:

From the Model, MCAP as the dependent variable:

$$\Delta \mathrm{MCAP}_t = \beta_0 + \sum_{i=1}^{n} y_i \Delta MCAP_{t-i} \sum_{i=1}^{n1} \beta 1 \delta_i \Delta \mathrm{ATM} + \sum_{i=1}^{n2} \beta 1 \delta_i \Delta \mathrm{WEB} + \sum_{i=1}^{n3} \beta 1 \delta_i \Delta \mathrm{NIP} + \sum_{i=1}^{n4} \beta 1 \delta_i \Delta \mathrm{POS} + \Phi z_{t-1} + \varpi_{1p} ATM_{t-1} + \varpi_{1p} WEB_{t-1} \; \varpi_{1p} NIP_{t-1} + \varpi_{1p} POS_{t-1} + \mu_t --eq.7$$

All the variables are discussed above with the Vector Error Correction modeling coefficients framework.

A-Priori expectorations:

The priori expectations are derived from underlying theoretical relationships between the dependent and each of the employed explanatory variables. These were presented in a summary from the model's tests of the hypotheses as follows:

$$MCAP_t = \beta_0 + \beta_1 ATM_t + \beta_2 WEB_{t-1} + \beta_3 NIP_{t-1} + \beta_4 POS_{t-1} + \varepsilon_t -----eq.8$$

All the variables are discussed above with combined modeling of the short-run coefficient in the error correction framework. Thus, the priori expectation with regards to this is$\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0$. To ensure that estimates are valid, efficient, and unbiased inferences in this study, the diagnostic test contained in table 1 below shall be adopted.

Table 1: Summary of Adopted Diagnostic Tests

S/No	Test Name	Test Function	Decision Rule
1.	Coefficient of Correlation (R^2)	To measure the goodness of fit of the model	It is between 0 and 1. The higher the R^2 the better the fitness.

2.	Probability	To test the significance of the regression	The p-value of less than 0.05 suggests it is good enough inferences acceptance.
3.	t- Statistics	To confirm the significance level	t- Statistics higher than 1.96 shows evidence of significant.
4.	Durbin Watson Statistics	To measure the first-order autocorrelation	DW approximately 2 shows evidence against the first-order autocorrelation.

Source: *Author's Compilation*.

Inferences in this study are based on the outcome of the estimation approaches as well as conclusions drawn based on the tested hypotheses. The choice level of significance for all tests is 0.05 or 5% level. All estimations are done by the use of E-views estimation software version 10.

Table 2: Data and results presentation

The table 2 below presented quarterly data of MCAP, ATM, NIP, POS, and WEB from 2012 to 2019. The MCAP represents market capitalization, ATM is Automated Teller Machine, NIP is Nibss Instant Payment, POS is Point of Sale, and WEB is the internet WEB in volumes.

YEAR	MCAP	ATM	NIP	POS	WEB
2012-Q1	6549.84	93878288.5	1112413.5	646898.75	569116
2012-Q2	6895.29	93878288.5	1112413.5	646898.75	569116
2012-Q3	8282.28	93878288.5	1112413.5	646898.75	569116
2012-Q4	8974.45	93878288.5	1112413.5	646898.75	569116
2013-Q1	10733.29	73854181	4278039.5	2354606.75	725118.25
2013-Q2	11426.25	73854181	4278039.5	2354606.75	725118.25
2013-Q3	11652.87	73854181	4278039.5	2354606.75	725118.25
2013-Q4	13226	73854181	4278039.5	2354606.75	725118.25
2014-Q1	12445.69	100067285	10207463.5	5204355.75	1391859
2014-Q2	14027.71	100067285	10207463.5	5204355.75	1391859
2014-Q3	13607.4	100067285	10207463.5	5204355.75	1391859
2014-Q4	11477.66	100067285	10207463.5	5204355.75	1391859
2015-Q1	10717.53	108423937	17805886.25	8430233.25	1995340.25
2015-Q2	11421.02	108423937	17805886.25	8430233.25	1995340.25
2015-Q3	10728.9	108423937	17805886.25	8430233.25	1995340.25
2015-Q4	9850.61	108423937	17805886.25	8430233.25	1995340.25
2016-Q1	8704.87	147559731	38404112.5	1592880.75	3522061.75
2016-Q2	10165.34	147559731	38404112.5	1592880.75	3522061.75
2016-Q3	9733.37	147559731	38404112.5	1592880.75	3522061.75
2016-Q4	9246.92	147559731	38404112.5	1592880.75	3522061.75
2017-Q1	8828.96	200137274.8	92717668	36566789	7247774.25

2017-Q2	11452.12	200137274.8	92717668	36566789	7247774.25
2017-Q3	12216.93	200137274.8	92717668	36566789	7247774.25
2017-Q4	13609.47	200137274.8	92717668	36566789	7247774.25
2018-Q1	14992.96	218879826.8	165781034.8	73972541.75	12703975.25
2018-Q2	13802.61	218879826.8	165781034.8	73972541.75	12703975.25
2018-Q3	11962.26	218879826.8	165781034.8	73972541.75	12703975.25
2018-Q4	11720.72	218879826.8	165781034.8	73972541.75	12703975.25
2019-Q1	64725.55	20995480.5	2864430307	109653545.5	25873501.75
2019-Q2	64725.55	20995480.5	2864430307	109653545.5	25873501.75
2019-Q3	64725.55	20995480.5	2864430307	109653545.5	25873501.75
2019-Q4	64722.55	20995480.5	2864430307	109653545.5	25873501.75

Source: Central Bank of Nigeria (CBN) Statistical bulletin and website.

IV. RESULTS

Results analysis and discussion

Table 3: Unit root test results

The table 3 below presented the Philips-Perron Unit root test results.

Table 3: Unit Root Test Results

Differenced variable	ADF-Test Statistic	Test of Critical Level			Order of integration	Probability Value
		1%	5%	10%		
D(MCAP)	-5.537550	-3.670170	-2.963972	-2.621007	1(1)	0.0001
D(ATM)	-5.312464	-3.670170	-2.963972	-2.621007	1(1)	0.0001
D(WEB)	-5.899892	-3.670170	-2.963972	-2.621007	1(1)	0.0000
D(NIP)	-5.503036	-3.670170	-2.963972	-2.621007	1(1)	0.0001
D(POS)	-5.902452	-3.670170	-2.963972	-2.621007	1(1)	0.0000

Source: Extracted from E-views 10

Unit root test results analysis

In the above table, the results of Philips-Perron test statistics indicate that all variables became stationary at first difference. The Test Statistic-5.537550,-5.312464, -5.899892, -5.503036, and -5.902452, were greater than the respective critical level values of -2.963972, -2.963972, -2.963972, -2.963972 and -2.963972 at 0.05 significance level. Moreover, the respective probability values of 0.0001**,**0.0001, 0.0000,0.0001, and 0.0000 were all less than 0.05 significance level conducted with the trend and intercept, therefore the study refuses to accept the alternate hypothesis that there are unit-roots. So, the data was can be used for analysis since the data were spurious free.

Table 4: Johansen Co-integration results

The table 4 below presented Johansen Co-integration results

Johansen co integration results

Date: 11/26/20 Time: 12:20

Sample (adjusted): 4 32

Included observations: 29 after adjustments

Trend assumption: Linear deterministic trend

Series: LOG(MCAP) LOG(ATM) LOG(NIP) LOG(POS) LOG(WEB)

Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.697856	72.83735	69.81889	0.0281
At most 1	0.503423	38.12867	47.85613	0.2964
At most 2	0.299477	17.82819	29.79707	0.5788
At most 3	0.171272	7.506263	15.49471	0.5196
At most 4	0.068513	2.058231	3.841466	0.1514

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

Source: Extracted from E-views 10 version

Johansen Co-integration results analysis

In the above table, the results of Johnsen co-integration indicated 1 cointegrating variable. For the fact that, the trace statistic of 72.83735 is greater than critical value of 69.81889. Also, judging from the probability value, only one variable was significant (0.0281) as it is less than 0.05.

Table 5: Vector Error Correction Results

The Table 5 below presented the Vector Error Correction Results

Dependent Variable: MCAP

Method: Least Squares

Date: 11/26/20 Time: 12:22

Sample (adjusted): 2 32

Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12125.27	1248.312	9.713333	0.0000
ATM	-1.10E-05	1.61E-05	-0.680074	0.5027

NIP	1.98E-05	2.96E-06	6.692998	0.0000
POS	7.78E-05	4.56E-05	1.705708	0.1005
WEB	-0.000471	0.000467	-1.007256	0.3235
ECM(-1)	0.723588	0.115276	6.277029	0.0000

R-squared	0.997266	Mean dependent var	18090.41
Adjusted R-squared	0.996719	S.D. dependent var	18339.33
S.E. of regression	1050.463	Akaike info criterion	16.92384
Sum squared resid	27586813	Schwarz criterion	17.20138
Log likelihood	-256.3194	Hannan-Quinn criter.	17.01431
F-statistic	1823.759	Durbin-Watson stat	1.825827
Prob(F-statistic)	0.000000		

Source: Extracted from E-views 10 version

Vector error correction results analysis

In the table the (R^2) of 0.9972 indicated that the model is good and fit for the analysis and such less than 0.01 was accounted for noise/errors or other variables not captured in the study. Since the fitness of the model is said to have been concluded. The study reports the Durbin Watson test statistic.

According to the rule of the thumb by Field (2009) stated that test statistics value in the range of 1.5 to 2.5 is relatively normal for time series data. Therefore, the results of the test for autocorrelation shown in table 5 take into account the value of 1.825827 is within the range of 1.5 to 2.5. Thus, the null hypothesis that there is no autocorrelation is refused to be rejected. The study found no evidence of autocorrelation following the statistical value of 1.825827 which is within the range. In essence, it can be concluded that the model is free from serial correlation.

Test of Hypothesis

H_{O1}What is the extent of link between electronic transactions of ATM, WEB, NIP, POS, and stock market capitalization in the Nigerian financial ecosystem.

H_{A1}Electronic transactions of ATM, WEB, NIP, POS did not positively and significant linked stock market capitalization in the Nigerian financial ecosystem.

V. DISCUSSION

The table 5 above showed the short run vector error correction results. Recalling from table 1 decision rule 3 that there exists evidence of significance if t- Statistics [1.96] which was higher than 2. It can either be positive or negative as results suggested and control the decision rules. In table 5, ATM, WEB, and MCAP indicated a negative link, but insignificant since the t-Statistics of-0.680074, -1.007256are less than the criterion value of 2, and the probability values of 0.5027 and 0.3235 respectively are higher than 0.05. Again, POS and MCAP showed a positive and insignificant link, based on the value of the t-Statistics of 1.705708is less than 2, and the probability value of 0.1005 is higher than 0.05. The results however, revealed a positive and significant link between NIP and stock market capitalization in the Nigerian financial ecosystem, for the fact that the t-Statistics of 6.692998is higher than 2, and the probability value of 0.0000 is less than 0.05. Concerning these results, only NIP electronic transactions significantly and positively influenced stock market performance in the Nigerian financial ecosystem.

The implications to these findings in the real economic situation prevailed that, for every unit change in ATM would have caused a 1.10 decrease in the performance of the Nigerian stock market, but insignificant. The findings also revealed in the real economic activities that, for every unit change in NIP causes a 1.98 increase in the performance of the Nigerian stock. More so, for every unit change in POS would have caused 7.7 increase in the stock market performance, although not significant. On the side of WEB, for every unit change of WEB would not have caused any decrease or increase (-0.00) in the stock market performance, but insignificant. The findings in NIP could be for the reasons that more of the electronic transactions are carried out by the

use of instant transfer. Whereas, ATM and WEB tends to influenced the Nigerian stock market negatively. These results can be for the fact of unavailability and ignorance of the digital environment. However, POS operated positively and independent. The independent relationship among POS and MCAP could be that most customers' transactions are not gearing towards stock purchase. Most of the customers' transactions using POS are more of domestic items and not for investment purposes.

VI. CONCLUSION

From the findings of this study, it can be concluded that there is gradual awareness of the digital environment. The electronic transactions are topping the stage in doing business easily. The study has shown that there is little literature in the field of financial inclusion. The study in the cause of reviewing literature archives identified that no work has considered the linkage of electronic transactions and stock market performance in Nigeria. Considering this gap and how the subject is valuable in the area of financial economics, the study assessed the link between the electronic transactions and the stock market performance in the Nigerian financial ecosystem. Knowing that, the findings emanated from the study has contributed to the existing body of knowledge in banking and finance, and as such helpful to the academic, policymakers and the general public. Consequently, the selection of MCAP as dependent variable for stock market performance, and the adoption of ATM, WEB, NIP, and POS as the explanatory variables for electronic transactions makes the study valuable to the Financial Economists.

Aftermath, the VECM analytical test results showed that ATM, WEB, and MCAP negatively and but insignificant linkage. The findings of POS and MCAP indicated a positive, and insignificant relationships. However, NIP electronic transactions significantly and positively influenced stock market performance in the Nigerian financial ecosystem. The findings revealed an economic implication indicating that for every unit change in ATM, would have caused a -1.10 decrease, and no causation by WEB since the value is -0.00 in the performance of the Nigerian stock market, although both were insignificant. The implication in the real economic activities also revealed that, for every unit change in NIP causes a 1.98 increase in the performance of the Nigerian stock. Meanwhile, for every unit change in POS would have caused 7.7 increase in the stock market performance, though POS operated independently. Although, FI and EMH assumptions did not explicitly publicises the degree of magnitude and the direction of links between electronic transactions and the stock market performance within the financial ecosystem, the findings support and validated theFI and EMH. Thus, the economic implications arise from this study constituted valuable information to the policymakers, participants, and other beneficiaries of the Nigerian stock market.

VII. RECOMMENDATION

In the light of the above findings, the study therefore recommended the following:

1. The Central Bank of Nigeria (CBN) should re-double the awareness campaign with regards to use of ATM and WEB for transactions. The awareness will increase the chances of these platforms to be more effective and thereby increase the performance of the stock market.
2. Investors should be enlightened the use of POS for stock market bills payment possibility. The knowledge of paying bills in the stock market via POS will rapidly increase the successes of the stock market operations.
3. The Central Bank of Nigeria (CBN) should monitor, control and report the movement of money via NIP. The control is remained necessary to make sure that all money transfer has a genuine source and destination.
4. The Central Bank of Nigeria (CBN) should collaborate with the Federal government, network providers and the Financial Technology unit to increase the availability of digital infrastructures. The limited number of ATM, and other digital infrastructures outlet can impede the successes of financial inclusion targets.

REFERENCES

[1] Bett, C. F. and Bogonko, B. J. (2017). Relationship between Digital Finance Technologies and Profitability of Banking Industry in Kenya. *International Academic Journal of Economics and Finance, 2(3): 34-56.*

[2] Brynjolfsson, E. (2000). Beyond Computation: Information Technology, Organizational Transformation and Business Performance. *Journal of Economic Perspective, 14(4): 23-48.*

[3] Fama, E.F. (1970). Efficient Capital Market: A Review of the Theory and Empirical work. *Journal of Finance, 25(2):383-417.*

[4] Field, A.P. (2009). Discovering Statistics using SPSS: and sex and drugs and rock 'n' roll (3rded). London. Sage.

[5] Gomber, P., Kauffman, J. R., Parker, C., and Weber, W. B. (2018). On the Fintech Revolution: Interpreting the Forces of Innovation, Disruption, and Transformation in Financial Services. *Journal of Management Information System, 35(1): 220-265.*

[6] Kim, G., Shin, B., and Lee, H.G. (2009). Understanding dynamics between initial trust and usage intentions of mobile banking. *Information Systems Journal*, *19*(3): 283–311.

[7] Meliciani, V. (2002). The impact of technology specialisation on national performance in a balance-of-payments-constrained growth model. *Structural Change and Economic Dynamics, 13(1): 101-118.*

[8] Ozili, P.K. (2020). Theories of Financial Inclusion. *Available at SSRN:https://ssrn.com/abstract=3526548*

[9] Pandiya, S. and Gupta, S. (2015). A study of changing pattern and demand for mobile banking services in India. *Global Journal of Enterprise Information System*, *7*(1), 16–27.

[10] Shaikh, A.A., and Karjaluoto, H. (2014). Mobile banking adoption: a literature review. *Telematics and Informatics, 32*(1): 129–142.

[11] Sims, C.A. (1980). Macroeconomics and Reality. *Econometrica, 48(1):1-48.*

[12] Slozko, O. and Pelo, A. (2014). The Electronic Payments as a Major Factor for Further Economic Development. *Economics and Sociology, 7(3): 130-140.*