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IMPACT OF DIGITAL FINANCE ON THE PERFORMANCE OF THE STOCK MARKET IN NIGERIA

Adepoju Adeoba Asaolu

Department of Finance, Faculty of Management Sciences,
Federal University Oye Ekiti, Ekiti, Nigeria
e-mail: adepoju.asaolu@fuoye.edu.ng
ORCID iD: <https://orcid.org/0000-0001-5404-0604>

Omolayo Joseph Oluwole

Department of Finance, Faculty of Management Sciences,
Federal University Oye Ekiti, Ekiti, Nigeria
e-mail: Oluomojo@gmail.com
ORCID iD: <https://orcid.org/0009-0001-9537-9310>

Mary Oluwayemisi Akosile

Department of Finance, Faculty of Management Sciences,
Ekiti State University, Ado Ekiti, Nigeria
e-mail: mary.akosile@eksu.edu.ng
ORCID iD: <https://orcid.org/0000-0001-9947-7279>

This research analyses the influence of digital finance on the performance of the Nigerian stock market from 2009 to 2023. This study examines the impact of Automated Teller Machine (ATM) transactions, Point of Sale (POS) transactions, mobile payment transactions, and online payment transactions on stock market capitalisation in Nigeria. The research employs an ex-post facto design and utilises secondary time series data obtained from the Central Bank of Nigeria Statistical Bulletin. Descriptive and inferential statistics, including multiple regression analysis, were employed to examine the data. The results demonstrate a robust and significant correlation between digital finance and stock market success. Web pay transactions have the most substantial positive impact on market capitalisation, indicating that online payment methods augment investor engagement and stock market expansion. Conversely, ATM and mobile payment transactions exhibit adverse effects, suggesting possible inefficiencies or restricted integration with stock market operations. POS transactions exhibit a modest yet favourable impact on stock market capitalisation. The research finds that digital finance is essential for advancing stock market growth in Nigeria. It advises that governments and financial institutions policy makers should deepen digital finance platforms with capital market services, augment infrastructure, and elevate digital literacy to optimise the advantages of digital finance for stock market performance.

Keywords: ATM, POS, Mobile-Pay, Web-Pay, Market Capitalization

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Introduction

The application of technology has significantly enhanced the delivery of financial services since its adoption in financial transactions (Adewale, 2024). The advent of digital technology and its application in the financial services sector is particularly significant. Digital technology has transformed almost every facet of contemporary life, making it rare to encounter an electrical device or machinery that does not integrate digital technology in some form (Goodman, 2018). Information technology is crucial in the contemporary financial market; without it, financial markets would fail to compete globally, and financial institutions would find it challenging to sustain their presence in a competitive environment (Alshubiri et al., 2019).

As a result, both banking institutions and various non-bank financial entities provide digital financial services. Digital finance can expand the extent, scope, and accessibility of financial services, hence accelerating financial inclusion. Moreover, digital technologies offer convenient and cost-effective means for individuals and businesses to save, execute payments, and access loans and insurance services. The utilisation of internet-based digital technologies is increasingly vital in the global economy, prompting many developing countries to prioritise the adoption of a digital economy, as it enables capital flows from affluent to impoverished nations (Okoyeuzu & Isa, 2020).

The financial sector is undergoing swift transformation due to technology innovations and digitalisation. Consequently, innovative applications of digital technology in financial services, commonly referred to as Fintech, are employed to transform the relationship between financial consumers and service providers, as well as to enhance communication and engagement with consumers (Organisation for Economic Co-operation and Development, 2018). Meena and Parimalarani (2020) emphasise that digital banking offers extensive services to users via digital platforms such as mobile devices, tablets, and the internet. The writers note that banks offer services devoid of paper, physical branches, or signatures, and are accessible around the clock, enabling users to utilise financial services even on holidays.

The emergence of digital finance innovations gained significance following the global financial crisis of 2007 to 2009, as financial intermediaries started utilising digital technology for cross-border payments, account administration, cost reduction, and profit maximisation (Ozili, 2023). The rationale for viewing digital finance as a mechanism to enhance both financial inclusion and the activities of financial markets, as posited by Uduk (2018), is grounded in the premise that access to finance can catalyse investment in innovative and more efficient technologies, thus facilitating business growth in scale and operational intricacy. Thus, enterprises can pursue supplementary financing from the capital

market and capitalise on the advantages of being listed. Uduk (2018) asserts that inclusive financial systems expand financial markets and improve policy efficacy.

The broad objective of this study is to examine the impact of digital finance on the performance of the stock market in Nigeria from 2009 to 2023. However, other specific objectives are to; examine the impact of ATM transactions on the stock market capitalization ratio in Nigeria, evaluate the impact of POS transactions on the stock market capitalization ratio in Nigeria, Investigate the impact of mobile-pay transactions on the stock market capitalization ratio in Nigeria, assess the impact of web-pay transactions on stock market capitalization ratio in Nigeria.

Literature Review

Conceptual Review

Stock Market Capitalization

Market capitalisation denotes the market value of traded shares or quantities of a traded asset. This also signifies the value of all securities collateralised against their market prices (Adewale & Adewole, 2024). Market capitalisation denotes the total worth of a company's shares. The valuation of a stock can be ascertained by multiplying its price by the total number of outstanding shares. If the share price is \$50, the market capitalisation of a corporation with 20 million shares is \$1 billion. It enables investors to comprehend the comparative scale of one company about another.

Market capitalisation quantifies the value of a publicly traded firm and encapsulates market sentiment regarding its future potential, since it indicates the price investors are willing to pay for its shares (Shofawati, 2019). It serves as a social media platform to evaluate corporate worth and offers an alternative perspective on sales. Adewole et al. (2023) asserted that market capitalisation serves as a significant predictor of share value and overall company valuation. Market capitalisation denotes the total worth of a company's stock (Adewale & Adewole, 2024). Market capitalisation is the metric that quantifies the size of businesses and corporations, calculated as the market share price multiplied by the number of shares that have been authorised, issued, and acquired by investors in a publicly traded company (Kuvshinov & Zimmermann, 2022).

Market capitalization is determined by multiplying the number of shares outstanding by the price per share. The investment community employs this metric to assess a company's size or value, rather than relying on sales or total asset figures (Adewale & Adewole, 2024). In summation, market capitalisation denotes the product of a company's share count and its market share price. Market capitalisation is typically regarded as indicative of a company's value, and by investors to assess the creditworthiness of a firm for investment purposes (Ozili, 2018). Equity refers to the

complete ownership interest in a firm; for instance, if a corporation possesses 10,000 shares and you own 1,000 of them, you would hold a 10% equity interest in that company.

E-Payment Channels in Nigeria

Nigeria provides numerous e-payment channels for electronic financial transactions, including cheques, web/internet payments, ATMs, mobile payments, NIBSS Instant Pay, NEFT, NIBSS Automated Payment Services, POS, REMITA, M-Cash, E-Bills Pay, and Central Pay (Adewale, 2024). The implementation of EPS and the cashless policy in Nigeria has enhanced the dependability of e-payment infrastructure, resulting in a rise in transactions across all channels. In the first quarter of 2021, 1.96 billion electronic payments were processed across several channels, reflecting a 13.11% increase in the second quarter and a 9.49% growth rate in the third quarter. In Q4 2021, e-payment operations declined by 2.16% to \$2.38 billion. The National Bureau of Statistics documented transactions amounting to N238.87 trillion in Q1 and N269.73 trillion in Q2.

This research investigates several electronic payment systems in Nigeria.

Mobile payment systems provide clients with the convenience of SMS messaging, enabling them to transfer funds, verify account balances, and execute application payments. (Adewale, 2024). In 2021, mobile payments experienced a growth of 831 million in volume and 53 trillion in transactions, providing various advantages including enhanced incentives, the capability to process credit card payments, stock monitoring, expedited transactions, and lower fees. Notwithstanding technical difficulties, mobile payments continue to be the predominant alternative to cash transactions across numerous enterprises. Point of sale (POS) devices facilitate standard banking and financial transactions in retail environments, including grocery payments, balance enquiries, and the printing of concise statements (Durai & Stella, 2019). They offer advantages like enhanced productivity, improved network security, and diminished support requirements beyond standard business hours. The advent of corporate banking via Deposit Money Banks (DMB) has been essential in executing cashless policies and facilitating smooth electronic transactions. Agents are authorised to do electronic transactions and facilitate money transfers via POS systems to rural unbanked populations, enhancing operational efficiency. (Adewale, 2024).

Benefits of a Cashless Economy

Adewale (2024) asserts that numerous studies indicate an increasing popularity of e-payment systems among users, with a progressive rise in the proportion of non-cash transactions over recent years. Customers possess enhanced alternatives for services and convenience when utilising e-transactions. Electronic

payments will allow entrepreneurs to broaden their customer base and resource network beyond local confines (Qamruzzaman & Wei, 2018). Utilising a credit card provides convenience and security in contrast to withdrawing cash and visiting a store for purchases.

A confrontational demeanour from cashiers is inappropriate in electronic transactions. Uduk, (2018) assert that the objective of cashless policies is to eliminate the detrimental consequences associated with the overuse of physical currency, including theft, corruption, financial leaks, money laundering, and other cash-related illegal activities. An overdependence on cash retention for transactions may lead to additional financial losses due to fire or flooding incidents. The cashless economy positively influences economic development, reduces cash handling costs, and improves the tax collection system. The Nigerian economy has significantly suffered due to the functioning of the cash-based system (Uduk, 2018)

Theoretical Review

Efficient Market Hypothesis (EMH)

The efficient market hypothesis posits that when investors encounter new information, some may overreact while others may underreact. This indicates that investors' responses are random and adhere to a normal distribution pattern. According to Jensen (1978), a market is deemed 'efficient' about the information set. In an efficient market, generating excess returns based on the available knowledge is not feasible. This occurs because markets react immediately and impartially to new information, providing no opportunity for investors to achieve excess returns. This implies that all information regarding a stock's anticipated future cash flows is reflected in its price. The efficient market hypothesis asserts that it is impossible to outperform the market. This occurs because market prices are already assimilated and disclose all pertinent information. It presumes that all investors interpret all relevant information uniformly. An efficient capital market denotes a market characterised by comprehensive information dissemination.

According to Pandey (2010, p. 46), the efficiency of a stock market is defined as the capacity of stocks to promptly reflect and incorporate all pertinent information into their pricing. Consequently, the efficacy of security pricing is contingent upon the rapidity with which prices respond to any pertinent accessible information. The greater the rapidity of adjustment, the more efficient the security pricing will be. Furthermore, Fama (1970, pp. 383) classified the efficiency of capital markets into weak, semi-strong, and strong forms. The weak form represents the most basic level of market efficiency, asserting that a market is efficient if current prices fully incorporate all knowledge derived from historical prices. This form suggests that historical prices cannot serve as a forecasting instrument for

abnormal returns when relying just on past price history.

The semi-strong variant of market efficiency asserts that current market prices incorporate all publicly accessible information. This encompasses data on money supply, currency rates, interest rates, and stock splits, among others. If the information includes private data, it is improbable for a market member to achieve abnormal profits; thus, the market is characterised as possessing a strong degree of efficiency. In the strong form of market efficiency, the prices of securities incorporate all pertinent information, encompassing both public and private data. The strong form of market efficiency suggests that private knowledge is incorporated into share prices. Acquiring private information may be challenging, despite its potential to yield extraordinary riches.

Empirical Review

Adewale (2024) evaluated the influence of electronic banking channels on financial inclusion in Nigeria. The study employed a linear regression model to examine the correlation between financial inclusion and the utilisation of mobile payments, Automated Teller Machines (ATMs), and Electronic Fund Transfers. Research conducted on Nigerian banks revealed a significant correlation between financial inclusion and mobile payments, but ATMs and EFTs had no statistical significance in enhancing financial inclusion. The study emphasised the significance of mobile payments in facilitating access to financial services in underserved rural areas with limited traditional banking infrastructure.

Automated Teller Machines (ATMs) and Electronic Funds Transfers (EFTs) exert a constrained influence owing to factors such as network instability and inadequate cash availability. The study determined that mobile payments significantly promote financial inclusion and recommended that the government prioritise digital infrastructure and mobile financial services to enhance economic participation among unbanked individuals.

Gbanador (2023) assessed the impact of cashless policies on economic growth in Nigeria using quarterly time series data from 2012 to 2021, employing an ex-post facto research design. The data was examined with the Auto-Regressive Distributed Lag (ARDL) technique. The data revealed a significant correlation between Cheque (CQ) and Internet Banking (IB) and Gross Domestic Product, however; the relationship between Automated Teller Machine and Gross Domestic Product is minimally negative. The research determines that cashless policies influence economic growth in Nigeria.

Isamade et al. (2022) examined the influence of electronic payment systems on Nigeria's GDP. The research employed secondary data obtained from CBN Statistical Bulletins and other telecommunications

firms. The research utilised an ex-post facto design and applied the Auto Regressive Distributed Lag Model (ARDL) for data analysis. Research indicated that Nigeria's GDP growth is substantially affected by ATM, Point of Sale (POS), and mobile payment technologies. The report advised that banks must consistently update their systems upon the availability of new security-enhancing features.

Abina and Lemea (2019) analysed the capital market and its impact on the performance of the Nigerian economy. The study utilised secondary data obtained from the Central Bank of Nigeria Statistical Bulletin, covering the period from 1985 to 2017. Stationarity, Johansen co-integration, error correction, and Granger causality tests were conducted. The findings indicate a long-term positive correlation among the variables, whereas the Granger Causality test results demonstrate two substantial unidirectional causality from gross domestic product to total market capitalisation and to total value of new issues, respectively. The study asserts that the capital market significantly propels economic growth in Nigeria for both public and private sectors for medium and long-term investments. A robust institutional structure for regulating market participants to instill investor trust and ensure sustainability must be prioritised.

Taiwo, Alaka, and Afieroho (2016) assess the impact of the capital market on the growth of Nigeria's economy. An error correction model was generated for Nigeria's economic growth, employing Vector Error Correction techniques on annual time series data from 1981 to 2014. The data underwent the Phillips Perron Unit Root Test at both the level and first difference. The results indicate that, at a one percent significance level, all variables were stationary after first differencing. The analysis of the normalised cointegrated series indicates that market capitalisation rate, total value of listed securities, labour force participation rate, cumulative savings, and capital formation are key macroeconomic predictors of economic growth in Nigeria. It was then advised that, for the capital market to achieve its full potential, its environment must be conducive to fostering and promoting investment possibilities for both domestic and international investors, as the stock market functions within a macroeconomic context. Thus, enhancing the Nigerian trading system to facilitate the acquisition and disposal of shares by investors could ensure stock market liquidity.

Nedozi and Omoregie (2019) conducted an empirical evaluation of various electronic payment methods in Nigeria from 2012 to 2019. The study utilised data from the Central Bank of Nigeria and the quarterly bulletins of commercial banks. The study employed descriptive statistics to ascertain the e-payment penetration rate in Nigeria. The findings indicated that between 2011 and the first quarter of 2019, ATMs were the predominant factor in Nigeria's e-payment adoption by volume. In

terms of value, NIP dominated from 2014 to the first quarter of 2019, whereas NEFT excelled in 2012 and 2013. It is advisable to expand electronic channels to expedite transactions as the world undergoes a technology revolution and to enhance electronic transactions inside the economy. The issue of fraud arising from electronic transactions must be examined and mitigated to foster customer confidence in these transactions.

Ravikumar (2019) examined the impact of electronic payments on Indian real GDP from 2011 to 2019. This study employed secondary data, utilising ARDL and Ordinary Least Squares regression methods for analysis. The variables employed consist of economic growth quantified by real GDP, while e-payments were assessed by Prepaid Payment Instruments (PPIs), paper clearing, retail electronic clearing, card payments, Real Time Gross Settlement (RTGS), and systems regulated by the Clearing Corporation of India Ltd. (CCIL). The study's findings indicated that digital payments significantly impact actual GDP growth in the short term. Nonetheless, over the long term, digital payments do not affect GDP growth.

The descriptive analysis aimed to elucidate the features of the study variables, encompassing the maximum, minimum, mean, median, kurtosis, standard deviation, Jarque-Bera statistic, and skewness.

Model Specification

This research will utilise inferential statistics, specifically parametric statistics, including regression analyses. To fulfil the aims of this research, the study employed the subsequent model;

E-payment systems Equation

$$MKTR = a + \alpha_1 ATM + \alpha_2 POS + \alpha_3 MBP + \alpha_4 WBP + \epsilon$$

Where:

ATM = ATM transactions

POS = POS transactions

MBP = Mobile-pay transactions

WBP = Web-pay transactions

MKTR = Market capitalization ratio

a = Constant;

α_1 - α_4 = Regression Coefficients;

ϵ = Error term

Results And Discussion

Table 1

Descriptive Statistics

	N	Range	Minimum	Maximum	Sum	Mean		Std. Deviation	Variance	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error
ATM transactions	15	24954.35	4481.67	29436.02	182541.52	12169.4347	1950.08105	7552.63142	57042241.374	.136	1.121
POS transactions	15	110336.07	11.03	110347.10	189346.45	12623.0967	7593.71136	29410.31765	864966784.213	9.759	1.121
Mobile pay transactions	15	219798.81	1.27	219800.08	409022.34	27268.1560	15825.61283	61292.33493	3756750321.138	7.361	1.121
Web pay transactions	15	1097107.98	25.05	1097133.03	2820057.34	188003.8227	90990.37806	352404.21890	124188733497.966	2.221	1.121
Market capitalization ratio	15	68172.06	7030.84	75202.90	387125.98	25808.3987	4786.48723	18537.98533	343656900.209	2.510	1.121
Valid N (listwise)	15										

Source: Authors' Computation, (2025)

Methodology

The study will follow an ex post facto research design. The research design is suitable for this study due to its distinctive characteristics in analysing the relationships between the study's variables. The research will utilise secondary data. Annual time series data on ATM transactions, POS transactions, mobile payment transactions, web payment transactions, and market capitalisation ratio in Nigeria will be sourced from the Central Bank of Nigeria Statistical Bulletin covering the period from 2009 to 2023. Considering the objectives and hypotheses to be examined, the study will utilise both inferential and descriptive statistics.

Table 1 presents descriptive statistics for the principal variables in the study, including ATM transactions, POS transactions, mobile payment transactions, web payment transactions, and market capitalisation ratio for Nigeria from 2009 to 2023. The mean signifies the average value, providing insight into the overall activity level of each variable, whereas the standard deviation quantifies the extent to which values diverge from the mean, reflecting variability. The minimum and maximum values indicate the range of observations, whereas kurtosis reflects the distribution's peakedness or the existence of outliers.

ATM transactions exhibit a mean of 12,169.43 and a standard deviation of 7,552.63, indicating moderate utilisation accompanied by significant annual variability. This signifies a consistent yet irregular dependence on ATMs for financial transactions. POS transactions have a significantly broader range and a high kurtosis (9.759), indicating the presence of years with exceptionally elevated transaction volumes, maybe signifying policy changes favouring cashless payments. Mobile payment transactions demonstrate a substantial standard deviation (61,292.33) and kurtosis (7.361), indicating that the usage of mobile payments expanded swiftly yet inconsistently during the time. Web payment transactions exhibit the most variety, indicating substantial growth in online payment systems.

The market capitalisation ratio exhibits significant variability, indicating that stock market performance in Nigeria has been inconsistent; however demonstrates development phases corresponding with the advancement of digital finance. The descriptive statistics indicate that digital financial channels in Nigeria have undergone significant development and variety. These fluctuations indicate a dynamic financial ecosystem in which technology adoption varies in response to economic situations, regulatory modifications, and technological progress. The increase in digital financial transactions appears to coincide with enhancements in stock market capitalisation, highlighting the potential impact of digital finance on market performance.

Table 2 provides the model summary for the regression study investigating the influence of digital financial transactions (ATM, POS, Mobile Pay, and Web Pay transactions) on the market capitalisation ratio in Nigeria. An R-value of 0.991 signifies a robust positive association between the independent variables (digital finance indicators) and the dependent variable (market capitalisation ratio). This indicates that fluctuations in digital finance activity are closely linked to variations in stock market performance.

The R-Square value of 0.983 indicates that 98.3% of the fluctuation in the market capitalisation ratio is accounted for by the collective impact of ATM transactions, POS transactions, mobile payment transactions, and web payment activities. The substantial explanatory power suggests that digital finance profoundly influences stock market performance in Nigeria. The Adjusted R Square (0.976) considers the number of predictors in the model, indicating that, after adjustment for the number of variables, 97.6% of the variability in market capitalisation remains explicable by the model.

The Durbin-Watson value of 1.599 indicates the absence of significant autocorrelation in the regression model's residuals, implying that the data is mostly devoid of serial correlation, hence enhancing the validity of the conclusions. The model summary underscores a robust and significant correlation between digital finance and stock market performance in Nigeria. The elevated

R-Square indicates that digital financial transactions are significant determinants of market capitalisation, underscoring the importance of digital finance in fostering stock market growth and stability.

Table 3 presents the Analysis of Variance (ANOVA) results for the regression model examining the influence of digital finance (ATM, POS, mobile payment, and web payment transactions) on Nigeria's stock market capitalisation ratio. ANOVA evaluates the statistical significance of the total regression model. The F-statistic is 142.937, accompanied by a significance level (p-value) of 0.000. The p-value, being less than 0.05, indicates statistical significance, so affirming that the model adequately fits the data. The interplay of digital financial transaction factors consistently forecasts alterations in the stock market capitalisation ratio.

The Regression Sum of Squares (4728494181.879) significantly exceeds the Residual Sum of Squares (82702421.050), indicating that the majority of the variation in market capitalisation is accounted for by the predictors rather than by unexplained variables. This substantiates the assertion that the independent variables (digital finance indicators) jointly exert a considerable influence on stock market performance. The ANOVA results demonstrate robust statistical evidence that digital finance activities—specifically ATM, POS, mobile payment, and online payment transactions—substantially affect stock market capitalisation in Nigeria. This indicates that digital finance is crucial to the performance and expansion of the Nigerian stock market throughout the study period.

Table 4 displays the coefficients from the regression study, illustrating the distinct influence of each digital finance variable (ATM, POS, mobile payments, and web payments) on the stock market capitalisation ratio in Nigeria. The unstandardised coefficient for ATM transactions is -0.561, with a p-value of 0.000, indicating statistical significance at the 5% level. The negative coefficient indicates that a rise in ATM transactions correlates with a decline in the market capitalisation ratio, thus suggesting that dependence on ATM services may not directly facilitate stock market expansion.

POS transactions exhibit a positive unstandardised coefficient of 0.552 and a p-value of 0.067, which is slightly above the conventional significance threshold of 0.05. Despite lacking statistical significance at conventional levels, the link exhibits a positive trend, suggesting that enhanced POS operations could facilitate stock market capitalisation. Mobile pay transactions exhibit a negative coefficient of -0.308 with a p-value of 0.085, which is not statistically significant at the 5% threshold. This signifies a tenuous and adverse correlation between mobile payments and stock market performance over the examined timeframe. Conversely, web pay transactions have a positive and statistically significant coefficient of 0.062 (p-value 0.000). This indicates that online financial transactions substantially

Table 2

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change	Durbin-Watson
						F Change	df1	df2		
1	.991 ^a	.983	.976	2875.80286	.983	142.937	4	10	.000	1.599

a. Predictors: (Constant), Web pay transactions, ATM transactions, POS transactions, Mobile pay transactions

b. Dependent Variable: Market capitalization ratio

Source: Authors' Computation, (2025)

Table 3

ANOVA^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	4728494181.879	4	1182123545.470	142.937	.000 ^b
Residual	82702421.050	10	8270242.105		
Total	4811196602.930	14			

a. Dependent Variable: Market capitalization ratio

b. Predictors: (Constant), Web pay transactions, ATM transactions, POS transactions, Mobile pay transactions

Source: Authors' Computation, (2025)

Table 4

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	22389.423	1454.665		15.391	.000	19148.228	25630.619					
	ATM transactions	-.561	.106	-.228	-5.286	.000	-.797	-.324	.020	-.858	-.219	.920	1.087
	POS transactions	.552	.269	.876	2.053	.067	-.047	1.151	.906	.545	.085	.009	105.903
	Mobile pay transactions	-.308	.161	-1.018	-1.912	.085	-.667	.051	.924	-.517	-.079	.006	164.853
	Web pay transactions	.062	.009	1.180	7.201	.000	.043	.081	.962	.916	.299	.064	15.617

a. Dependent Variable: Market capitalization ratio

Source: Authors' Computation, (2025)

Table 5

Coefficient Correlations^a

Model		Web pay transactions	ATM transactions	POS transactions	Mobile pay transactions
1	Correlations				
	Web pay transactions	1.000	-.153	.597	-.764
	ATM transactions	-.153	1.000	.027	.008
	POS transactions	.597	.027	1.000	-.970
	Mobile pay transactions	-.764	.008	-.970	1.000
	Covariances				
	Web pay transactions	7.428E-5	.000	.001	-.001
	ATM transactions	.000	.011	.001	.000
	POS transactions	.001	.001	.072	-.042
	Mobile pay transactions	-.001	.000	-.042	.026

a. Dependent Variable: Market capitalization ratio

Source: Authors' Computation, (2025)

Table 6

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	(Constant)	Variance Proportions			
					ATM transactions	POS transactions	Mobile pay transactions	Web pay transactions
1	1	3.616	1.000	.01	.01	.00	.00	.00
	2	1.169	1.759	.08	.07	.00	.00	.00
	3	.143	5.021	.89	.83	.00	.00	.00
	4	.069	7.220	.01	.09	.03	.00	.46
	5	.003	34.669	.01	.00	.97	1.00	.53

a. Dependent Variable: Market capitalization ratio

Source: Authors' Computation, (2025)

Table 7

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	5894.5664	75033.2500	25808.3987	18377.96464	15
Std. Predicted Value	-1.084	2.678	.000	1.000	15
Standard Error of Predicted Value	934.473	2864.631	1520.807	689.637	15
Adjusted Predicted Value	4490.2793	67613.9141	22847.1949	15716.35700	15
Residual	-3423.26025	5779.03271	.00000	2430.49703	15
Std. Residual	-1.190	2.010	.000	.845	15
Stud. Residual	-1.260	2.185	.110	1.009	15
Deleted Residual	-4628.28271	34631.86328	2961.20374	9557.76262	15
Stud. Deleted Residual	-1.304	2.867	.151	1.127	15
Mahal. Distance	.545	12.958	3.733	4.327	15
Cook's Distance	.002	28.779	2.082	7.394	15
Centered Leverage Value	.039	.926	.267	.309	15

a. Dependent Variable: Market capitalization ratio

Source: Authors' Computation, (2025)

and favourably affect stock market capitalisation, probably owing to enhanced investor confidence and transaction efficiency on web platforms.

The coefficient analysis indicates that, among the digital finance variables, online pay transactions are the most influential and positively significant contributor to stock market capitalisation in Nigeria. In contrast, ATM and mobile payment transactions demonstrate adverse consequences, but POS transactions display a marginal beneficial impact. This indicates that the digitalisation of financial services, particularly via online platforms, can improve the efficacy of Nigeria's stock market.

Table 5 presents the correlation coefficients among the predictor variables in the regression model: ATM transactions, POS transactions, mobile payment transactions, and web payment transactions. These correlations assist in assessing the extent of the linear relationship between the independent variables and in identifying potential multicollinearity concerns. The correlation between POS transactions and mobile payment transactions is -0.970, signifying a robust negative link. This indicates that a rise in POS transactions correlates with a drop in mobile payment transactions, and vice versa. This may result from the

substitutive characteristics of both services, since users may favour one channel over the other based on convenience or accessibility.

Web pay transactions exhibit a moderate positive association with POS transactions (0.597) and a substantial negative correlation with mobile pay transactions (-0.764). This suggests an interplay between two channels, whereby users participating in web-based payments may diminish their need for mobile payments. The correlation of -0.153 between web pay and ATM transactions indicates a negligible or nonexistent association between these two variables. The association between ATM and POS transactions (0.027) and between ATM and mobile pay transactions (0.008) is negligible, suggesting separate usage patterns. The correlation matrix reveals substantial linkages among digital financial services, especially between POS and mobile payments, which raises issues over multicollinearity. Severe multicollinearity can skew regression estimates and exacerbate standard errors. Consequently, caution is required when interpreting the independent effects of these variables inside the model. The results indicate a necessity for a broader and complementary array of digital payment methods to facilitate stock market expansion.

Table 6 displays the collinearity diagnostics, evaluating the extent of multicollinearity across the independent variables in the regression model: ATM transactions, POS transactions, mobile payment transactions, and web payment transactions. Multicollinearity arises when independent variables exhibit a strong correlation, thereby skewing regression estimates and diminishing the model's dependability. The Eigenvalues denote the extent of variance elucidated by each dimension. The minimal eigenvalue (0.003) approaches zero, indicating possible collinearity issues. The Condition Index quantifies the robustness of the linear correlation between variables. A condition index exceeding 30 often signifies significant multicollinearity. The maximum condition index is 34.669, indicating a multicollinearity issue.

Variance proportions assist in identifying the variables that contribute to multicollinearity. At the peak condition index (34.669), POS transactions and mobile payment transactions represent 97% and 100% of variance proportions, respectively. This indicates that these two predictors exhibit significant collinearity, complicating the differentiation of their independent impacts on market capitalisation.

The collinearity diagnostics indicate significant multicollinearity, especially between POS and mobile payment transactions.

Table 7 displays the residual statistics of the regression model, which facilitate the evaluation of the model's fit and the distribution of prediction errors (residuals). Residuals represent the discrepancies between observed values and projected values. Evaluating them guarantees that the model adheres to essential regression assumptions such as normality, homoscedasticity, and independence. The anticipated values span from 5,894.57 to 75,033.25, with an average of 25,808.40, which corresponds to the mean of the dependent variable (market capitalisation ratio). This signifies that the model's predicted values closely correspond with the observed data, indicating a strong overall fit.

The residuals vary from -3,423.26 to 5,779.03, with a mean around zero, indicating that the model's errors are equilibrated—further evidence of a robust match. The standardised residuals vary from -1.190 to 2.010, which is within the allowed range (generally ± 3), signifying the absence of extreme outliers that could skew the results. Crucial diagnostic metrics, such as Cook's Distance (peaking at 28.779) and Centred Leverage Values (reaching 0.926), indicate the presence of several cases exerting significant leverage and effect on the regression model. These observations may require additional scrutiny, as they can significantly influence the model's estimations.

The residual statistics indicate that the regression model adequately fits the data, exhibiting balanced errors and an absence of extreme outliers. The existence of some high-leverage points indicates that the model

requires reevaluation for influential observations to guarantee robust and dependable outcomes.

Discussion of Findings

This study's findings indicate a substantial influence of digital finance on the performance of the Nigerian stock market, as demonstrated by the elevated R-Square (98.3%) and significant F-statistic. Web pay transactions demonstrated the most substantial positive impact on market capitalisation, whereas ATM and mobile pay transactions displayed negative correlations, and POS transactions indicated a moderate, positive yet inconsequential influence.

These findings correspond with Igoni et al. (2021), who identified a substantial correlation between electronic payment methods and stock market capitalisation in Nigeria. Consistent with this study, their findings indicate that digital payment channels, especially those facilitating frictionless transactions such as online pay, bolster investor trust and stock market engagement. Furthermore, Ozili (2020) underscores the significance of digital finance in enhancing financial inclusion and expanding market access, which aligns with the favourable impact noted for web payment transactions.

The inverse correlation between ATM and mobile payment transactions contrasts with Adewale (2024), who identified a favourable impact of mobile payments on financial inclusion. This disagreement may stem from differing emphases: whereas Adewale (2024) examined financial inclusion in a general context, this study concentrates especially on stock market performance. The negative coefficients may indicate inefficiencies or constraints in utilising ATM and mobile payments for capital market operations. Moreover, the observation of multicollinearity between POS and mobile payment transactions aligns with Mamudu (2021), who noted discrepancies in e-payment contributions to economic growth attributable to overlapping functionality and infrastructure constraints. This underscores the necessity for tailored tactics in the advancement of digital finance to optimise capital market advantages.

Conclusion and Recommendations

This study analysed the influence of digital finance on the performance of the Nigerian stock market from 2009 to 2023, utilising ATM transactions, POS transactions, mobile payment transactions, and web payment transactions as indicators of digital finance, while employing the market capitalisation ratio as a metric for stock market performance. The results demonstrated a robust and significant correlation between digital finance and stock market capitalisation, with web payment transactions having the most substantial positive impact. In contrast, ATM and mobile payment transactions exhibited adverse effects, and POS

transactions revealed a tenuous positive correlation.

This study enhances the existing literature on digital finance by offering empirical evidence that substantiates the claim that digital financial innovations can markedly affect capital market performance. It underscores the significance of web-based payment platforms in enhancing stock market activity and proposes enhancements for ATM and mobile payment channels concerning capital market participation.

The report highlights the potential of digital finance as a stimulus for the development of the stock market in Nigeria. To fully optimise its impact on the stock market, stakeholders must rectify existing inefficiencies and improve the integration of digital payment systems with capital market activities.

The Study recommends that:

- Policymakers and banks should integrate ATM services with stock market operations, enabling users to access investment information and make stock purchases directly.
- Regulators and service providers should improve POS infrastructure and expand services to support investment account access and mobile brokerage, boosting stock market participation.
- Fintech firms should collaborate with capital market operators to create mobile apps that allow direct stock investments via mobile wallets.
- Stakeholders should enhance online payment security and promote digital literacy to increase stock market participation through web-based platforms.

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Адеподжу Адеоба Ассаолу, кафедра фінансів, факультет управлінських наук, Федеральний університет Ойе-Екіті, Екіті, Нігерія, e-mail: adepoju.asaolu@fuoye.edu.ng, ORCID: <https://orcid.org/0000-0001-5404-0604>

Омолайо Джозеф Олуволе, кафедра фінансів, факультет управлінських наук, Федеральний університет Ойе-Екіті, Екіті, Нігерія, e-mail: Oluomojo@gmail.com, ORCID: <https://orcid.org/0009-0001-9537-9310>

Марі Олувайемісі Акосіле, кафедра фінансів, факультет управлінських наук, Університет штату Екіті, Адо-Екіті, Нігерія, e-mail: mary.akosile@eksu.edu.ng, ORCID: <https://orcid.org/0000-0001-9947-7279>

ВПЛИВ ЦИФРОВИХ ФІНАНСІВ НА ЕФЕКТИВНІСТЬ ФОНДОВОГО РИНКУ НІГЕРІЇ

У цьому дослідженні проаналізовано вплив цифрових фінансів на ефективність фондового ринку Нігерії в період з 2009 по 2023 роки. Вивчається вплив транзакцій через банкомати (ATM), термінали для оплати (POS), мобільні платежі та онлайн-платежі на капіталізацію фондового ринку Нігерії. Дослідження має постфактум-дизайн і базується на вторинних даних часових рядів, отриманих зі Статистичного бюлетеня Центрального банку Нігерії. Для аналізу застосовувалися описова та інференційна статистика, включаючи множинний регресійний аналіз. Результати демонструють наявність стійкого та значущого зв'язку між цифровими фінансами та успішністю фондового ринку. Транзакції Web Pay мають найпотужніший позитивний вплив на ринкову капіталізацію, що свідчить про зростання залученості інвесторів та розширення ринку завдяки онлайн-платежам. Навпаки, транзакції через банкомати та мобільні платежі виявили негативний вплив, що може свідчити про неефективність або слабку інтеграцію цих каналів із фондовим ринком. POS-транзакції мають помірний, але позитивний вплив. Дослідження робить висновок, що цифрові фінанси є ключовими для розвитку фондового ринку Нігерії. Рекомендується, щоб уряд та регулятори фінансової сфери активніше інтегрували цифрові платформи з послугами ринку капіталу, покращували інфраструктуру та підвищували рівень цифрової грамотності для максимального використання переваг цифрових фінансів.

Ключові слова: банкомат (ATM), POS, мобільні платежі, онлайн-платежі (Web-Pay), ринкова капіталізація

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