



## Financial Innovation, Economic Growth and Sustainable Development in an Emerging Market: Nigeria

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### Abstract

This paper presents recent studies on the effects of financial innovation on economic growth and sustainable development in Nigeria. The financial sectors worldwide are becoming increasingly important and competitive. Therefore, in order to compete successfully, it is necessary to possess flexibility and adaptability to change, as well as a willingness to embrace innovation. Financial markets are becoming more advanced and complex due to financial innovation, which helps direct capital towards productive sectors that are necessary for economic growth and development. The study employed time series data. Statistical data analysis techniques were employed to evaluate the secondary data on financial innovation. Research indicates that financial innovation has a significant impact on both economic growth and sustainable development in Nigeria. The study found that financial innovation variables have a positive effect. Therefore, financial institutions should prioritize easy and secure access to financial services when developing their financial innovation strategies. Regulatory bodies, on the other hand, should establish a regulatory environment that promotes innovative solutions capable of influencing economic growth and sustainable development.

**Keywords:** Financial Innovation, Economic Growth, Sustainable Development, Financial Sectors, Emerging Markets



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# Financial Innovation, Economic Growth and Sustainable Development in an Emerging Market: Nigeria

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## I. Introduction

Financial innovations have been worldwide transforming and reforming the way financial services are provided, and as a consequence, their role in the economies is expanding. The link between financial innovation and economic growth in Nigeria and other developing nations has not been properly explored despite its significant contribution to financial development (Oyadeyi, 2023). Financial innovation that becomes the permanent feature of the capital market results in a financial system that is robust and optimal. This, in turn, encourages institutions such as banks to appear to provide better financial services, higher credit facilities, higher liquidity, and wider variety of financial instruments. These factors result in higher economic growth as well as sustainable development to the country (Sirait, Rosalina & Sari, 2023).

Innovation is a key driver of economic growth and the change of a country's financial system. However, further endeavors are required to attain the intended augmentation in economic growth and sustainability in Nigeria (Amarachi, 2023). Financial innovation in the Nigerian economy has several associated issues, including inadequate financial literacy education, a gender gap in account ownership, low rates of financial deepening and inclusion, weak telecommunication services in rural areas, deficient infrastructural development, insufficient security measures and inadequate power supply (Osuiigwe, 2022).

Nigerian financial institutions, namely deposit money banks (DMBs), have adopted financial technology innovation platforms to encourage the expansion of financial services and inclusion in the economy (Adedokun & Ağa, 2023). However, a significant proportion of the Nigerian population does not have access to banking services, resulting in a slow adoption of financial innovation and low levels of financial inclusion (Imoagwu & Ezeanyej, 2019). A significant proportion of adults remain financially excluded. The majority of those who are financially excluded are both educationally disadvantaged and reside in rural areas (Kamalu et. al., 2019). The adoption of financial innovation products and services is often perceived as ambiguous and overwhelming due to a combination of factors such as ignorance, illiteracy, lack of understanding of the modern banking system, and fear of fraud and theft (Omankhanlen, Samuel-Hope & Ehikioya, 2022).

It is when most of the country's population is financially literate that they can fully participate in the formal financial system thereby becoming aware of and taking advantage of financial innovation opportunities, so

that they can contribute to the economic growth and development of the country (Ahmed et. al., 2021). The study's objective is to establish the influence of financial innovation on economic growth and sustainable development in Nigeria.

## II. Literature Review

The financial industry is becoming more and more relevant as well as competitive on a global scale, and staying competitive requires being flexible, adaptable and open to new ideas (Wang & Tan, 2021). The rapid pace at which innovation and dynamism propel the financial sector has led to a surge in expenditure on information and communication technology (ICT) by financial institutions, particularly deposit money banks (DMBs) (Ahassan, Blokhina, & Kouadio, 2021). The financial sector's services have been worldwide revolutionized and reformed by financial innovation, leading to a growing recognition of its significance on economies (Alawi et. al., 2022).

The implementation of financial innovation has facilitated the transformation of financial service sectors from conventional methods of financial transactions to contemporary innovative approaches, thereby enhancing the efficiency of their services. This has resulted in the advancement of payment systems, improved investment prospects, the availability of alternative assets for storing wealth and the facilitation of financial transactions in international trade. Furthermore, financial innovation has also played a pivotal role in promoting financial inclusion, ultimately contributing to economic growth and development (Qamruzzaman & Jianguo, 2018).

Nevertheless, the significance of financial and economic progress in underdeveloped nations has not been thoroughly pursued, despite its essential role in financial development (Ambala & Amewu, 2023). Developing nations possess the highest percentage of individuals without access to banking services and experiencing financial exclusion. This situation presents numerous possibilities for enhancing financial inclusion by offering financial services to both rural and urban residents. Financial innovation is widely recognized as the primary catalyst for the expansion and development of the financial sector (Nguena, 2019).

The Nigerian Economy is acclaimed in the top ten of the fastest-growing economies in the world. This is by and large have to do with the burgeoning population and immense endowment of Nigeria, which have made the country an attractive market for investors (Olorogun, Salami & Bekun, 2022). The Financial system of Nigeria is composed of the money market, capital market and different institutions as well as channels that aid smooth movement financial transactions in the economy (Anthony-Orji et. al. , 2023). Financial innovation has been witnessed in Nigeria through various sophisticated developments. In 2012, the CBN introduced the 'cashless policy' in order to disperse the use of notes and coins in the economy. This has brought about different options of cashless payment systems like ATM, POS systems, EPS, internet banking, mobile money, biometrics, robots and others. The facilitating roles of these developments were fund transfers and interbank transaction observed faster and more conveniently (Okafor, Chijindu & Anyalechi, 2017).

The evolving ecosystem of payment is advancing with massive dynamics in the e-commerce industry enabling customers to make payments and receive money transfers (Ajide, 2016). Banks have leveraged technology to reposition banking in the psyche of their customers. Mobile banking has become particularly popular. The existence of stiff competition has pushed banks to exploit innovative agent banking. Financial technology (fintech) companies have developed products and services to meet the needs of their consumers and contributing to the efficiency and effectiveness of financial services (Akinwunmi, Muturi & Ngumi, 2016).

In 2023, the CBN launched “Sabi MONI” a fully digital national e-learning platform to provide a knowledge base for financial literacy and drive financial education in Nigeria (Adedokun & Aga 2023). Furthermore, there has been a great deal of reforms in the Nigerian capital market which has improved market liquidity, introduction of alternative platforms and creation of enabling environment supportive of new products. These developments in financial innovation are expected to drive economic growth and sustainable development in Nigeria (Adenii et. al., 2015). The question is: Does adoption of financial innovation has significant influence on economic growth and sustainable development?

### III. Theoretical Issues

Financial innovation and economic growth can be linked using transaction cost innovation and endogenous growth theory. Hicks and Niehans (1983) introduced the concept of transaction cost innovation. They argue that the primary driver of financial innovation is the decrease in transaction costs. They further elaborate that financial innovation is a result of technological advancements that have led to a reduction in transaction costs. Reducing transaction costs can stimulate financial innovation and progress in financial services (Čižo, Lavrinenko & Ignatjeva, 2020). The endogenous theory, articulated by Romer (1986) and Lucas (1988), posits an alternative perspective. They assert that innovation is the primary catalyst for economic progress. Romer argued that the overall productivity is positively influenced by the level of product diversity. He emphasized that innovation leads to increased productivity by generating novel product variations. The idea of innovation-based growth suggests that in order to achieve rapid growth, a significant portion of resources should be allocated to research and development. Additionally, policies that encourage openness, competition, change and innovation would facilitate growth (Pece Simona & Saliseanu, 2015).

### IV. Empirical Issues

Theoretical research on financial innovation’s effects on economic growth, in turn, created empirical studies that are aimed at drawing up economic relationships and unmasking the hidden factors that determine the financial innovation and economic growth relationship. Some researchers did the analysis of the contribution of the particular groups of financial innovations to GDP. Adesete and Risikat (2021) carried out a study to examine how the financial innovations affected the Nigerian economy. The research employs the autoregressive distributed lag model (ARDL) and the polynomial distributed lag mixed data (DMD) sampling model. ARDL report drew that the mobile payment

platform had a quantitative significant positive effect on the Nigerian economy while the site internet transactions and POS transactions had an insignificant negative influence.

Effiom and Edet (2022) studied the role that financial innovation had on the outcome of small and medium scale enterprises in Nigeria. The study employs autoregressive distributed lag technique. The result shows that the usage of the new financial methods is a positive and important factor in the regard of improving the operating efficiency of small and medium enterprises (SMEs) in Nigeria.

Chukwunulu (2019) undertook a study to assess the effects of finance innovation on the Nigerian economy. This was done by applying the Generalized Methods of Moments (GMM). The research demonstrated that financial innovation plays an important role in the economic growth through a strong positive influence.

Ubi and Mba (2019) explored the role that financial innovation can play in the development of micro and small enterprises (MSEs) in Nigeria. In the study, ARDL was used combined with the regressive distributed bounds testing and the Granger causality test. The findings revealed that financial innovation was one of the main factors that encouraged the output growth of small and medium-sized enterprises (SMEs) in Nigeria. This study further suggested that depository money banks are supporting the existing level of financial service provision by creating more financial channels in the rural areas and urban locations.

The paper by Kamalu et. al. (2019) analyzed the cause effect relationship between financial development, financial inclusion and economic growth in Nigeria. The research used a unit root test. The study showed that financial progress as well as integration of participants into these systems represents the main components of economic growth. Therefore, along with the rise, the expansion of the economy is even more substantial as more people begin to employ the official financial services. Although the financial innovation is a contributing factor to the economic growth in Nigeria, the scarcity of in-depth empirical investigation reveals that the innovative measure may not lead to economic growth and sustainability in Nigeria.

### V. Methodology

The research intends to examine whether the adoption of financial innovation in the financial services industry affects economic growth and sustainable development in Nigeria or not. The research, in turn, used the time series analysis method. Spanning from 2013 to 2023, the secondary data were collected from the Central Bank of Nigeria (CBN) statistical bulletin and Nigeria Bureau of Statistics (NBS) report. The selection criteria for secondary sources were established to include sources with the history of providing accurate, sufficient, intact and easily accessed data. This research used descriptive statistic and economics as an analytical tool to identify the correlation between two variables. The e-view output program was utilized to apply a summary of statistics for doing a descriptive analysis of the several variables in the investigation. In addition, linear regression model was employed as the technique. On the basis of the evaluated literature, the following model below is specified. The following model (regression equation) in its linear form

was used to test the relationship between independent variables and dependent variable.

$$GDP = f(ATM, POS, WEP, NIP) \quad 1$$

$$GDP = \beta_0 + \beta_1 ATM + \beta_2 POS + \beta_3 WEP + \beta_4 NIP \quad 2$$

To standardize the values and obtain elasticity, the model is transformed into a natural logarithm. Hence, the model is specified as the following:

$$\ln GDP = \beta_0 + \beta_1 \ln ATM + \beta_2 \ln POS + \beta_3 \ln WEP + \beta_4 \ln NIP + \mu \quad 3$$

Where;

GDP = Gross Domestic Product, Ln = Natural Logarithm, ATM = Value of Automated Teller Machine transaction, POS = Value of Point of Sale transaction, WEP = Value of WEP Pay Transaction, NIP = Value of NIBSS Instant Payments Transaction, Bo = Constant term or intercepted, B1 = Coefficient of ATM, B2 = Coefficient of POS, B3 = Coefficient of WEP, B4 = Coefficient of NIP,  $\mu$  = Error term.

### VI. Data Analysis and Discussion of Results

Time series analysis necessitates stationary series data since non-stationary data can provide false conclusions. The technique of regression analysis was utilized to examine the correlation between the variables of interest. A test for stationarity was performed on the variables. Prior to use a conventional econometrics methodology, it is imperative that variables exhibit stationarity in accordance with economic theory. The stationarity test employs a maximum of 1 lag and incorporates the intercept to prevent inaccurate outcomes. The performance of the ADF is presented in Table 1 below.

#### Unit Root Test

**Table 1: Augmented Dickey-Fuller Unit Root Stationarity Test**

Variable	Test at Levels			Test at 1 <sup>st</sup> difference			Inference
	ADF statistic	t-statistic	Prob.*	ADF statistic	t-statistic	Prob.*	
LGDP	-0.389724	-2.911730	0.9037	-7.765179	-2.912631	0.0000	I(1)
LATM	-2.613384	-2.912631	0.0961	-12.63630	-2.912631	0.0000	I(1)
LPOS	-0.303180	-2.911730	0.7358	-7.151477	-2.912631	0.0000	I(1)
LWEP	-1.245107	-2.915522	0.6485	-4.922747	-2.915522	0.0002	I(1)
LNIP	-2.995178	-2.911730	0.0411	-2.584468	-2.912631	0.0785	I(0)

Source: Authors' computation using E-Views

The variables employed in this study include a mix of both I(0) and I(1) series, as shown in Table 1. That is, the variables are a mixture of variables with integrated orders of zero and one, which is one of the reasons for using the ARDL model.

#### Analysis of Co-integration (Bounds Test)

**Table 2: Cointegration Bounds Test**

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
Asymptotic: n=1000				
F-statistic	5.275022	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Author's computation using E-views

The estimate for ARDL bound testing/co-integration is presented in Table 2. The co-integration test confirms the rejection of the null hypothesis that there is no co-integration between variables. This suggests that the variables of the model exhibit a persistent correlation over an extended period of time. The calculated F-statistic (5.275022) obtained from the ARDL bound testing for co-integration exceeds the upper critical bound of the 5 percent critical values, as seen in Table 2. At a significance level of 5%, this provided evidence to reject the null hypothesis that there is no co-integration. Based on the ARDL bound testing, it can be inferred that there is a significant long-term relationship between the variables, with a confidence level of 5%.

**Table 3: Error Correction Model**

ARDL Error Correction Regression				
Dependent Variable: D(LGD)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LGDP (-1))	-0.224247	0.115739	-1.937520	0.0603
D(LATM)	-1.380739	0.386702	-3.570549	0.0010
D(POS)	1.855827	0.379847	4.885719	0.0000
D(WEP)	2.165376	0.410052	5.280732	0.0034
D(LNIP)	2.619884	0.837262	3.129109	0.0000
ECM(-1)*	-0.261018	0.043547	-5.993928	0.0000
R-squared	0.508200	Mean dependent var		0.104985
Adjusted R-squared	0.379395	S.D. dependent var		0.405689
Durbin-Watson stat	2.641713			

Source: Author's computation using E-views

Table 3 shows that the value of the coefficient for Automated Teller Machine (ATM) is -1.380739; t-statistic is -3.570549 with a probability of 0.0010 which is statistically significant at 5 percent of significance indicating that the value of ATM transaction has significant effect on Nigeria economy. The regression coefficient which revealed that the value of ATM transaction is negatively associated with gross domestic product (GDP) implies that an increase in the value of ATM transaction will cause a decrease in GDP.

The coefficient for Point of Sale (POS) is 1.855827; t-statistic is 4.885119 with a probability of 0.0000 which is statistically significant at 5 percent of



significance indicating that the value of POS transaction has significant effect on Nigeria economy. The regression coefficient revealed that the value of POS transaction is positively associated with gross domestic product (GDP). The implication is that holding all other factors constant, an increase in the value of POS transaction will cause an increase in GDP.

Similarly, the coefficient for WEB payment (WEP) is 2.165376; t-statistic is 5.280732 with a probability of 0.0000 which is statistically significant at 5 percent of significance indicating that the value of WEP transaction has significant effect on Nigeria economy. The regression coefficient revealed that the value of WEP transaction is positively associated with gross domestic product (GDP). The implication is that leaving all other factors constant, an increase in the value of WEP transaction will cause an increase in GDP.

While the coefficient for NIBSS instant payment (NIP) is 2.619884, t-statistic is 3.129109 with a probability of 0.0034 which is statistically significant at 5 percent of significance indicating that the value of NIP transaction has significant effect on Nigeria economy. The regression coefficient revealed that the value of NIP transaction is positively associated with gross domestic product (GDP). This implies that put differently, an increase in the value of NIP transaction will cause an increase in GDP.

The R-squared (R<sup>2</sup>) 0.508200 revealed that about 50.8 % of the systematic variations in gross domestic product (GDP) is jointly explained by the value of ATM transaction, value of POS transaction, value of WEP transaction and NIP transaction all influence economic growth and sustainable development.

#### VII. Conclusion and Recommendations

The research study showed that financial innovations have significant effects on economic growth and sustainable development in Nigeria. The research has shown that all the other variables had a considerable effect on the explanation of the economic growth and the sustainable development in Nigeria. Regarding the way in which financial innovation factors impact the development of Nigeria, the policymakers should consider a link between institutional innovations and economic growth while developing economic policies. The policy should facilitate the financial sectors development in due time by providing room for financial innovation for the improvement and development of the financial sector. The financial sector and government should partner closely with ICT sector to provide safe transactions whatever the platform, channel or medium is. Regulatory bodies should enforce dexterous innovative ideas and build a legal and regulatory framework that will stimulate the private sector to come up with inventive solutions.

The government should go the extra step to ensure development of new financial innovative structures in addition to improving the existing ones, especially point-of-sale (POS) and web structures to have a convenient and secure access to financial services. This would also enhance financial deepening and promote financial inclusion. The CBN should enhance its efforts to promote financial education via its e-learning platform, while financial institutions should raise awareness among the public regarding the utilization of many financial innovation channels in order to enhance financial literacy. Finally, there is a need to improve process innovation such as ATM, online banking and mobile banking to enhance efficiency, encourage product innovation such as

derivatives and currency swap, improve financial system innovation such as changes in structure or legal and regulatory framework and introduce more financial institution innovation by creating new types financial firms. These will eventually improve trust of the users, innovative solutions, speed of transactions and ease of payments needed for economic growth and sustainable development.

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