Effect of Digital Economy on the Nigeria Financial Structure

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Abstract

This study examines the effect of digital economy on the Nigeria financial structure. The literature developed was guided by the diffusion of innovation theory and technology acceptance theory. The study adopted exploratory and ex-post facto research designs with the aid of computer based regression analysis. The Nigeria Deposit Insurance Corporation (NDIC) and the National Financial Inclusion Structure were used as source of data to establish the effect of digital economy on the Nigeria financial structure and also the report of the united nation conference on trade and development was used to explain the opportunity and challenges of digital economy. The data used were the number of e-transactions and the value of e-transaction for ATM and Mobile Money in the deposit money banks as proxy for digital economy and also the percentage of loan to deposit of the deposit money banks as proxy for Nigeria financial structure. The test of hypothesis of this study is a null hypothesis.The R-square value is 0.71; it means that the model has successfully predicted the variables. This implies that 71% changes in the loan to deposit of Deposit Money Banks are explained by the changes in the ATM and Mobile Money. The Adjusted R-squared value of 0.43 is positive and not significant; this therefore indicates that there is no strong relationship between digital economy and financial structure of the Nigerian Deposit Money Banks. Finally, the P-value is 0.29, greater than 0.05. Therefore the study conclude that there is no significant relationship between digital economy and financial structure of the Nigerian Deposit Money Banks.In line with the findings of the study, it is recommended that deposit money banks should remove the bottlenecks associated with the use of their automated teller machines and mobile money and strive to meet international best practice. Also, to prevent the evolving digital economy from exacerbating, more concerted efforts should be made to help countries strengthen their readiness to capture the opportunities arising from digitalization. To prevent the evolving digital economy from exacerbating, more concerted efforts should be made to help countries strengthen their readiness to capture the opportunities arising from digitalization.

Keywords: Digital Economy, Electronic Transaction, Nigeria Financial Structure

1.   INTRODUCTION

One of the most significant changes that we experience today is the move to an Internet-based society. Some of the changes are already here, and they are spreading around the globe, others are just beginning. One of the most significant changes is in the manner we conduct business, especially in how we manage the marketplaces and commerce. Digital Economy is derived solely or primarily from digital technologies (ICT) with a business model based on digital goods or services. Digital economy is one collective term for all economic transactions that occur on the internet. It is also known as the Web Economy or the Internet Economy. With the advent of technology and the process of globalization, the digital and traditional economies are merging into one.The twenty first century movement towards advanced technology in telecommunication, information, and innovations brought up the concepts of digital technology and digital economy (Tsyganov and Apalkova, 2016). Digital economy is an economy based on digital technologies and the primary use of information technology hardware, software, applications and telecommunications in all areas of economy, including internal and external activities of organizations (Domazet and Lazić, 2017, Sutherland and Jarrahi, 2018). At the same time, digital economy refers to an economy based on professional and market knowledge, creativity, and an innovation society. Digital economy is a paradigm of global information society that is centered on technology platforms, such as the Internet, mobile or other electronic devices, used for producing, distributing, exchanging and consuming goods and services in global markets (Tsyganov and Apalkova, 2016, Balcerzak and Pietrzak, 2017). New products and needs are generated now at the rapid pace, due to the speed and volume of information, thereby opening up significant opportunities for business creation and development. Digital technologies are currently the target of investment flows and global resources throwing, human and financial (World Investment Report, 2017). So far, European countries are forecasting staffing needs that may hit when digitalizing various sectors of economy.

Digital economy plays a significant role in accelerating the economic development of a country by improving its financial structure via executing the trade of goods and services through electronic

commerce on the internet,(According to OECD), manufacturing of digital equipment, publishing media production and computer programming, (According to the UK Government). The Economist Intelligence Unit and IBM joint study defines digital economy as a system that can provide a high quality of ICT infrastructure and harness the power of it to benefit consumers, businesses and governments. Despite a rapid increase in business spending on capital and services in ICT, the New Digital Economy (mobile technology, the internet, and cloud) has not yet generated any visible improvement in productivity growth (Van Ark, 2016; Nelson *et al.,* 2017). However, one should note that digital economy is still in the middle of formation, so any effects on productivity will occur only with a developed digital technology. This study therefore seeks to examine the extent to which digital economy has effect on the Nigeria financial structure.

2. LITERATURE REVIEW

2.1 Conceptual Framework

2.1.1 Concept of Digital Economy

Digital economy is defined as economy based on digital technologies that cover mostly the sector of e-services and e-goods. The more enhanced approach interprets digital economy as production process based on the use of digital technologies (Yudina, 2016). Digital economy can be described as economic activity based on digital technologies and divided into auxiliary infrastructure, online services and electronic commerce (e-business). The development of a digitalized environment requires the maintenance of existing digital platforms and the creation of new know how technologies and software. M.V. Matyunina (2017) Digital economy is defined as an economy that focuses on digital technologies, i.e. it is based on digital and computing technologies. It essentially covers all business, economic, social, cultural etc. activities that are supported by the web and other digital communication technologies. Digital economy has given rise to many new trends and start-up ideas. Almost all of the biggest companies in the world (Google, Apple, Microsoft, and Amazon) are from the digital world. Some important merits of the digital economy include; Promoting use of the Internet; Rise in E-Commerce, Digital Goods and Services and Transparency

2.1.3 Concept of Financial Structure

Financial structure is the mix of short-term liabilities, short-term debt, long-term debt, and equity that a business uses to finance its assets. A significant reliance on debt funding allows shareholders to achieve a higher return on investment, since there is less equity in the business. However, this financial structure can be risky, since the firm has a large debt obligation that must be paid. A firm positioned as an oligopoly or monopoly is best able to support such a leveraged financial structure, since its sales, profits and cash flows can be reliably predicted. Conversely, a business positioned in a highly competitive market cannot support a high degree of leverage, since it experiences volatile earnings and cash flows that could cause it to miss debt payments and trigger a bankruptcy filing. A business in this latter position needs to skew its financial structure in the direction of more equity, for which there is no payback requirement. Consequently, one of the most critical issues for a CFO to deal with is the proper mix of debt and equity to employ in a company's financial structure.

2.1.4 Concept of the Components of Digital Economy

According to the OCED, Digital economy is an umbrella term used to describe markets that focus on digital technologies. It refers to the full range of our economic, social and cultural activities supported by the Internet and related information and communications technologies. These typically involve the trade of information goods or services through electronic commerce. It operates on a layered basis, with separate segments for data transportation and applications (OECD 2012). A widely accepted understanding about digital economy is its activities on and around the digital world. Thomas Mesenbourg (2001) has provided three main components for Digital Economy; E-business infrastructure (hardware, software, telecoms, networks, human capital, etc.); E-business (how business is conducted, any process that an organization conducts over computer-mediated networks) and E-commerce (transfer of goods, for example when a book is sold online).

2.1.4 Concept of Electronic Transaction

Electronic transaction also refered to as electronic banking is the best innovation that has happened in the banking industry in the 21st Century. Electronic transaction has made transacting possible away from banking premises. Transaction can now take place anywhere using various electronic devices like mobile phones, automated teller machines, point-of-sale systems, smart televisions, computers, tablets, among others. Today different baking transactions can be completed or initiated from different locations outside banking premises such as transfer and receipts of funds, balance enquiry, purchase of airtime, payment of bills and account opening. The question therefore is what is electronic banking? The concept of electronic transaction has been defined in many ways by researchers. Daniel E. (1999) defines the concept as the delivery of information and services by banks to customers via different delivery platforms that can be used on different electronic devices such as personal computers, mobile phones or digital televisions with browsers or desktop software. As good as this definition appears, it does not take into cognizance other platforms for electronic banking such as automated teller machines and point-of-sales which are the focus of this study. Similarly, Abid H. and Noreen U.C. (2006) defined electronic banking as any use of information and communication technology and other electronic means by a bank to conduct transactions and have interaction with stakeholders. This definition is broader than that of Daniel E. (1999) as it focuses on information and communication technology. Also, electronic banking is a system of payment whereby transaction takes place electronically without the use of cash. Magembe s. and Shemi A.P. (2002) defined electronic banking (e-banking) as nothing but e-business in the banking industry. Tiwari and Buse (2007) defined electronic banking as provision of banking and financial services with the help of telecommunication devices such as mobile telecommunication devices. The scope of offered services may include facilities to conduct bank transactions, to administer accounts and to access customized information. In the broader sense electronic banking enables the execution of financial services in the course of which within an electronic procedure the customer uses communication techniques in conjunction with telecommunication devices. The most easily accessible electronic platform is mobile banking.

2.2   Empirical Review

Edwin and Peter (2018) sought to understand the challenges which serve as barriers to E-Commerce adoption by small and medium scale enterprises in the Nigerian context. Findings indicates that small and medium scale online present is at best unknown. The most common e-commerce applications used by most SMEs include but not limited to the use of e-mails for communication purposes and a simple website for basic product information – information contained are usually outdated as most of these websites are hardly updated. Ogechi, Adeola and Olaniyi Evans, (2018) examined the relationship between information and communication technology (ICT), infrastructure, and tourism development in Africa between 1996 and 2016, the study identified relevant factors including bilateral real exchange rate and gross domestic product per capita of the origin countries, suggesting a major role for the variables measured in the region of origin and for those that serve as a comparison between origin and destination. Overall, the empirical results provide evidence that ICT and infrastructural development have opened huge opportunities for growing and strengthening tourism in Africa. Akinwale, Sanusi and Surujlal, (2018) examined the relationship and impact of ICT on economic growth in Nigeria. The study used secure internet server per 1 million, mobile cellular subscription per 100 people, and investment in telecoms with private sector participation (in current USD) as proxies for ICT, and GDP as proxy for economic growth for the period 1997 to 2016. The panel of data set was analyzed using autoregressive distributed lag (ARDL) which revealed that there is a co integration between ICT and economic growth, which establishes the existence of a long-run relationship between them. In the short run, only secure internet server per 1 million and mobile cellular subscription per 100 people have a positive and significant impact on economic growth, whereas investment in telecoms with private sector participation was not significant. Ustyuzhanina, Sigarev and Komarova, (2017) examined the Impact of the digital revolution on the paradigm shift in the economic development. Result viewed that the transformation of the paradigm of economic development is characterized by changes in the nature of labor division, the dominant way of interaction among business entities, and the basis of economic power. Changes in the nature of labor division imply intellectual and organizational centers getting separated from production and service departments.

Asare and Sakoe (2015) examined the effects of electronic banking on financial services in Ghana using qualitative research method. The study found out that the advent of electronic banking in Ghana has enhanced accessibility to a wide range of banking products and also delivery of banking services has been made increasingly faster to cover a wide range of customers or people referred by existing customers. Therefore, the study concluded that electronic banking has fundamentally changed the business of banking in Ghana from a financial intermediary to a financial shopping mall providing a one-stop-shop for various financial services. Musa (2014) examined the Effects of Cashless Economy Policy on financial inclusion in Nigeria. The study is an exploratory study. The result showed that Awareness, Consumer or User Value Proposition, and Infrastructure were found to have strong significant relationship with Financial Inclusion while Business Model of Financial Service Providers did not show any significant relationship with Financial Inclusion. Kumbhar (2011) observed that today almost all banks are adopting information and communication technology as a means to enhance service quality. They are providing information and communication technology-based e-service to their customers in form of electronic banking, internet banking or online banking. It brings convenience and customer centricity, enhances service quality and cost effectiveness in banking and increases customer satisfaction in banking services. Al-mutawkkil, Heshmati and Hwang, (2009) examined the Development of telecommunication and broadcasting infrastructure indices at the global level The study introduced a number of telecommunication and broadcasting sub-indices, which include the fixed telephone network, the Internet, and mobile networks, which are aggregated into a composite Telecommunication Index (TI). Results suggest that the parametric index approach may be preferred over those methods in which the subjective weighted summation of normalized variables used (non-parametric indices).

2.3   Theoretical Framework

2.3.1   Diffusion of innovations Theory

Diffusion of innovations is a theory that seeks to explain how, why, and at what rate new ideas and technology spread. Everett Rogers (2003) argues that diffusion is the process by which an innovation is communicated over time among the participants in a social system and it must be widely adopted in order to self-sustain. According to E.M. Rodger's definition, Diffusion process is the spreading or deployment of a new idea from the initial source (developer) to the end-user or adopter. The diffusion of innovations in the digital economy thus is described as a process by which the innovation is spread via communication channels between the members of the social system in a given period of time. examples are e-commerce (e-business), e-learning programs, on-line sales of games, videos, mobile applications, films, taxi aggregator programs, food delivery via electronic applications, e-banking, booking services etc. All the mentioned services become widely spread and used in everyday life. In other words, the diffusion of the digital economy is the spreading and development of once used innovation to other spheres of life. This is the process of innovation adaptation and applicability to end-users and its further deployment to the market.

2.3.2   Technology Acceptance Theory

The technology acceptance theory (TAM) postulated by Davis, F.D (1989) is an adaptation of the Reasoned Action Theory (TRAT) specifically tailored for modeling user acceptance of information systems. The goal of (TAM) is to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behavior across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified. Thus, this study believes that the acceptance of contemporary digital technology by organizations is fundamental to their performance as well as improving their financial structure.

3. METHODOLOGY

Using exploratory research design, the study sourced secondary data on opportunities and challenges from united nation conference on trade and development (2019). Also, data on E-transaction (ATM and mobile money) and loan to deposit of deposit money banks whichranged between 10 banks to 22 banks from 2014 to 2018. The data were sourced from theannual reports of Nigeria Deposit Insurance Corporation (NDIC) and the National Financial Inclusion Structure to establish the effect of digital economy on the Nigeria financial structure. This study used ex-post facto research (after the event research) and correlational design for a period of years (from 2014 to 2018). The technique of data analysis for the research is regression analysis and this technique is preferred for the analysis because the research is empirical in nature and data for the study is time series. The dependent variable for this study is Nigeria financial structure which loan to of the deposit money banks is a surrogate. The independent variable is digital economy which E-transaction is a surrogate and is represented by Automated Teller Machine (ATM) and Mobile Money.

4. RESULT AND DISCUSSION

In this study, data was collected for 5 years (2014-2018) from the annual reports of Nigeria Deposit Insurance Corporation (NDIC) and the National Financial Inclusion Structure to establish the effect of digital economy on the Nigeria financial structure. The data used were the number of e-transactions and the value of e-transaction for ATM and Mobile Money in the deposit money banks as proxy for digital economy and also the percentage of loan to deposit of the deposit money banks as proxy for Nigeria financial structure.

4.1 Regression Result

The intension of this study is to establish the relationship between the Automated Teller Machine (ATM), Mobile Money and the Loan to Deposit of the Deposit Money Banks in the years between 2014 and 2018. The table below is a summary of the secondary data used for regression analysis table and the data below, was run using Ordinary Least Square of the Regression model via the use of E-views, version 10

Table 1: Time SeriesRegression Data

	Digital economy (independent variable)						Nigeria financial structure (dependent variable)	Modifier
	Number of E-transactions of DBMs		Value of E-transactions of DBMs		Value of E-transactions (%) of DBMs			
years	ATM	Mobile Money	ATM	Mobile Money	ATM	Mobile Money	Loan to deposit of DMBs	No-account opened
2014	400.3M	27.7M	3.7TN	0.3TN	8.4%	0.8%	68.11%	64,314,151
2015	433.7M	43.9M	4.0TN	0.4TN	7.9%	0.9%	73.76%	67,014,525
2016	590.2M	47.1M	5.0TN	0.8TN	7.2%	1.1%	87.29%	83,016,654
2017	800.5M	47.8M	6.4TN	1.1TN	6.5%	1.1%	72.30%	99,114,035
2018	875.5M	59.9M	6.5TN	1.2TN	4.9%	0.9%	64.69%	112,005,516

Source, NDIC and Nigeria Financial inclusion (2018)

Test of Hypothesis

Ho: There is no significant relationship between digital economy and financial structure

Decision Rule

The hypothesis is tested using Ordinary Least Square of the Regression model via the use of E-views, version 10. The significance of the variables tested in the model is assessed by comparing the p-value against the level of significance (0.05). The H_O is rejected if the p-value is less than the level of significant and we thus conclude that the variable under consideration is significant. Otherwise we

accept the null hypothesis and conclude that the independent variable under consideration does not have significant effect on the dependent variable.

Dependent Variable: LOAN TO DEPOSIT OF DMBS

Method: Least Squares

Date: 03/10/20 Time: 16:10
Sample: 2014- 2018
Included observations: 5
Table 2.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ATM	3.308027	2.476746	1.335634	0.3134
MOBILE_MONEY	52.49663	25.22420	2.081201	0.1729
C	-0.256792	33.39566	-0.007689	0.9946
R-squared	0.714042	Mean dependent var		73.23000
Adjusted R-squared	0.428084	S.D. dependent var		8.630982
S.E. of regression	6.527190	Akaike info criterion		6.873539
Sum squared resid	85.20843	Schwarz criterion		6.639202
Log likelihood	-14.18385	Hannan-Quinn criter.		6.244601
F-statistic	2.497018	Durbin-Watson stat		3.055930
Prob(F-statistic)	0.285958			

Source: Compilation of the author, based on the analysis results using E-views

4.2 Discussion of Findings

According to the table above it shows that there is no significant relationship between digital economy and Nigeria financial structure. The R-square value is 0.71; it means that the model has successfully predicted the variables. This implies that 71% changes in the loan to deposit of Deposit Money Banks are explained by the changes in the ATM and Mobile Money. The Adjusted R-squared value of 0.43 is positive and not significant; this therefore indicates that there is no strong relationship between digital economy and financial structure of the Nigerian Deposit Money Banks. Finally, the P-value is 0.29, greater than 0.05. We therefore, accept the null hypothesis and conclude that there is no significant relationship between digital economy and financial structure of the Nigerian Deposit Money Banks. According to the trade and development board united nation conference (2019), the rapid spread of digital technologies is disrupting production and trade, generating both opportunities and challenges for sustainable development.

5. CONCLUSION AND RECOMMENDATION

The analysis investigated the effect of digital economy on the Nigeria financial structure with specific reference to automated teller machine (ATM), mobile money and loan to deposit of deposit money bank which were represented in numbers, naira and percentages all information from 2014 to 2018. Adopting digital has been the target of governments around the world, especially underdeveloped and developing economies. Thus, digital economy is seen by researchers as one of the key drivers of economic growth and development which informed this research effort. This study shows that digital economy has positive effect on the Nigeria financial structure, while the challenges associated with its adoption made it have no significant effect on the Nigeria financial structure. In line with the literature review, analysis and findings of this study, it is recommended that:

   i.   Deposit money banks should remove the bottlenecks associated with the use of their automated teller machines and mobile money transaction and strive to meet international best practice.

   ii.   Governments should take a holistic approach that involves multi-stakeholder dialogue With a view to securing the benefits from and minimizing the risks of digitalization. In addition, national policies and strategies should focus on harnessing digital data for development by developing relevant infrastructure, skills and regulations.

   iii.   The use of e-transaction in the deposit money banks should be further discussed.

   iv.   To prevent the evolving digital economy from exacerbating, more concerted efforts should be made to help countries strengthen their readiness to capture the opportunities arising from digitalization.

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