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Full Length Research Paper

Paradox of Using Interest Rate as Financial Incentive for the adoption of Financial Innovation and National Productivity in Nigeria

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Abstract

In Nigeria, several policies that increase financial deepening and financial innovation have been nurtured with the aim of improving economic growth. This study sought to investigate the effects financial incentives on the adoption of financial innovation in Deposit money banks and economic growth in Nigeria. The study achieves this objective using data from 2005 to 2010 from Central Bank of Nigeria and National Bureau of Statistics Nigeria. Financial innovation and deepening, the dependent variable were captured by two indicators: Customer Base and Gross Domestic Product (GDP). The dependent variable was measured by real Interest rate. The variables were subjected to Correlation Analysis. The study found that banking sector in Nigeria has an important role in the process of economic growth. Specifically, the empirical results using Pearson movement correlation reveal that interest rate have positive and statistically significant effects on Deposit money banks' customer base (0.316) but negative correlation with GDP (-0.054). The result revealed that credit to the private sector is a function of deposit in the banking sector vaults which is a function of acceptability and adoption of various banking innovative products and services by customers. This among other things is also associated with the interest payment rate which has great effect on productivity and national economy. The study therefore recommends reinforcing the existing policies that will encourage the public to save more money with commercial banks and at the same time improve national productivity. Increasing the interest rate paid to depositors on their deposits for example, will incite people to save more. However, this measure may raise cost of capital and credit thereby bringing GDP down, the study therefore recommends other palliative measures and policies that will enhance productivity and make borrowing conducive. This will encourage more people to participate in economic activities, to save more, borrow more and invest more.

Key words: Financial Deepening, Economic growth, Cost of Capital, Financial Innovation.

INTRODUCTION

In Nigeria, the Central Bank has over the years controlled the volume of liquidity in the banking system through the DMBs by employing various techniques and instruments

depending on the level of development of the financial system and state of the economy. The Central Bank controls the price or quantity of the supply of its own liabilities –reserve money – which in turn affects either (i) market interest rates or the quantity of money and credit in the banking system or (ii) the exchange rate. The market-based method, used mainly in developed financial

systems, relies on the power of the monetary authority to influence the availability and rate of return on financial assets, thereby, affecting both the desire of the public to hold money balances and the willingness of financial agents to accept deposits and lend them to users.

In a market economy, money is an important means of exchange and facilitates specialization. Generally, money serves three distinct purposes: medium of exchange, store of value and unit of account or standard of value. Money as a medium of exchange is accepted in payment for goods and services as well as debts. Money as store of value is held for future purchases, while money as standard of value is used as yardstick for measuring the prices of goods and services. As money is generally used by nearly every member of society, it should be easily recognized by the entire members of the society. The general acceptance of money by the population would depend on, as much as possible, the ability to sustain its purchasing power, which is more of a reflection of the economic environment rather than its own inherent value.

Nigeria's payments system is predominantly cash-based reflecting the preference of economic agents. This means that most payments for business transactions are made using cash rather than through other payment modes. Dependence on cash for transactions implies that much of it is held outside the banking system which otherwise would have been available to banks for lending to the more productive sectors of the economy. For instance, currency outside the banking system (COB) as a proportion of money stock (M2) accounts for a larger component of the currency in circulation (at an average 25.8 per cent in 1990 – 2000. It increased to 30.0 per cent in 2001 – 2012). This ratio is indeed high when compared with other emerging and industrialized countries (CBN, 2013).

Money Supply and Monetary Policy

In modern time, Money is made up of cash (notes and coins), demand deposits (DD) and other deposit balances. The cash component consists of balances held in the vaults of deposit money banks (DMBs) and the notes and coins in circulation (CIC) with the rest of the public. The demand deposits consist of the current/cheque accounts held in deposit money banks that can be withdrawn on demand. Other deposit balances comprise time, savings and foreign currency. These components constitute the money supply of a country at any point in time. Money supply is the amount of money that is available to the economy at any point in time. Money supply could be defined both in narrow and broad terms, depending on the ease with which it could be converted into cash. A narrow definition of money supply comprises currency in circulation and demand deposit, while a broader definition would include balances in other deposit accounts. In Nigeria, narrow money (M1) consists of the currency in circulation plus demand

deposits while broad money (M2) is made up of narrow money plus savings, time and foreign currency deposits. The definition of what constitutes narrow or broad money depends to a large extent on the level of development of financial infrastructure and its deployment (financial innovation).

Monetary policy is a deliberate action of the monetary authorities to influence the quantity, cost and availability of money credit in order to achieve desired macroeconomic objectives of internal and external balances. The action is carried out through changing money supply and/or interest rates with the aim of managing the quantity of money in the economy. The importance of money in economic life has made policy makers and other relevant stakeholders to accord special recognition to the conduct of monetary policy. The Central Bank of Nigeria is the organ that is responsible for the conduct of monetary policy in Nigeria, in concert with Discount Houses and Deposit Money Banks. Monetary policy can either be expansionary or contractionary, depending on the overall policy thrust of the monetary authorities, through CBN minimum lending rate – MLR.

Monetary Lending Rate (MLR), this serves as an indicative rate for transaction in the money market as well as other Deposit Money Banks' (DMBs) retail interest rate and boost nationwide economic activities. The DMB often use this interest rate as bait (financial incentive) to entice and enlist the customers patronage of new or improved products and services Financial innovation, even to the previously unreached and unbanked potential customers (financial deepening and inclusion), a move supported by the CBN after the failure of rural banking policy to interest the unbanked and unreached rural dwellers. This paper explores in particular, the relationship between variations in interest rates and the rate of economic growth. Is there a positive correlation, as suggested by standard growth theory?

Financial innovation channels and purpose

These are non-paper computer-based technology payments instruments. The electronic payments system is made possible by the existence of electronic money (e-money) which can be defined as a stored-value product in which a record of the funds or value available to the consumer for multipurpose use is stored on an electronic device held by the consumer. The electronic payments system is amenable to electronic platforms such as automated teller machines (ATM), point-of-sale (PoS) terminals, internet payment, plastic money (e.g e-purse, debit and credit cards), mobile payment and wire transfers, etc. Banks have not only come to realize that to become relevant in global financial issues, they must embrace technology, package products in manners acceptable to customers and use it as competition strategy for their core competence.

Major Product of Electronic Banking in Nigeria

Smart card or electronic pulse (use of point of sale terminal), Electronic Fund Transfer (ETF), Internet banking, Automated Teller Machine (ATM), Telephone banking and personal computer banking are the major products of electronic banking in Nigeria.

Smart Card

This is a card issued to a customer (a person who has a current account with the bank) by a member bank of SMART CARD Nigeria Limited to aid them in their transactions. Other card transactions include the use of debit card, credit card, master card, visa etc. these cards have similar function with the smart card discussed above.

Electronic Fund Transfer (EFT)

This is an electronic oriented payment mechanism. It allows customers accounts to be credited electronically within 24 hours.

Point Of Sale Terminals (POS)

This is a second generation remote service unit that is capable of electronically placing a third party into the customer-financial institution communication link. POS terminals handle cheque verification, credit authorization. This enhances electronic fund transfer at the point of sale (EFT POS). EFTPOS enables a customer's account to be debited with the cost of purchase and credited into the seller's account immediately anywhere it is accepted. Electronic fund transfer has been variously designed to ease international transfer of money.

Mobile banking

Mobile phones are increasingly being used for financial services in Nigeria. Banks are enabling the customers to conduct some banking services such as account inquiry and funds transfer through the mobile telephone. It is an innovative banking service via mobile phone (SMS). This notifies the customer of any transaction on his/her account.

Automated Teller Machine

This is an electronics device which allows a bank's customers to make cash withdrawals and check their account balances at any time without the need for a human teller. Many ATMs also allow people to deposit cash or cheques, transfer money between their bank accounts or even buy postage stamps. To withdraw cash, make deposits, or transfer funds between accounts, you generally insert an ATM card and enter your personal

identification number (PIN). Some ATMs impose a surcharge, or usage fee, on consumer who are not member of their institution or on transactions at remote locations.

The Internet banking

Internet is a global network of computers. It is a collection of computers networks, computers and millions of users, who share a compatible means for interacting with one another to exchange information for settlement transactions, especially among financial institutions (Idowu, 2013).

This innovative products and services have been found to be clean, fast, cheap, reliable and efficient to prosecute banking transactions on either side though not without its own peculiar problems such as ease of use, awareness, security risks, cost implications, lack of facilities and infrastructures and level of literacy. To all these banks have always responded by embarking on many initiatives to encourage its adoption by customers such as public enlightenment programs, education, advertisement and product promotion, user friendly interface and the use of interest rate to stimulate customers patronage and adoption. The issue now is what are the effects of all these strategies? Especially the consequence of using interest rate as a bait for adoption of financial innovation and national productivity.

The advances in ICT have led to the development of cost-effective ways of building new business models that can accelerate the penetration and expansion of financial services in rural areas using ICT and favourable interest rate for financial deepening and inclusion as a result, payment infrastructure and services have improved substantially, thereby providing huge opportunities for service providers to design customized financial services and products for both urban and rural segments of the population. Technological products such as Global System for Mobile Communication (GSM), internet and mobile payments among others have improved the delivery of financial services significantly in most developing economies.

According to statistics, 30% of the adult population (25.4 million people) of Nigeria has at least one bank account while 56.9 million adults are unbanked (UNCTAD, 2009). Virtually all 21 banks in Nigeria today offer banking services on financial technology innovation platform with a view to boost commercial activities via financial deepening and inclusion. The issue now is low level of patronage and how to improve it. While financial innovation services are numerous in number, there is not enough evidence of consumer acceptance and their stance towards the adoption of the services (Muniruddeen, 2007). Access to financial services in Nigeria is still relatively low. As at 2010, only 36.0 per cent (about 31.0 million out of an adult population of 84.7 million) were served by formal financial services, compared

to 68.0 per cent in South Africa and 41.0 per cent in Kenya. In 2012, there was a little improvement to 39.2 million Nigerian adult representing 46.3 per cent of the adult population that were financially excluded. Of this figure, 54.4 per cent were women, 73.8 per cent were between the age of 0 and 45 years. In addition, about 34.0 per cent of the excluded population had no formal education, while 80.4 per cent reside in rural areas. According to Mbutor and Uba (2013), Nigeria has a formal payments penetration of 21.6 per cent that is lower than the level of 46% in both South Africa and Kenya, This connotes that majority of the populace is unbanked, transactions are predominantly cash based, then the level of financial innovation adoption, could not be anything better than low. In such environment, economic developments will be loop-sided and commercial activity and productivity cannot be optimal. The connectivity within these three elements will be examined, i.e. the effect of interest rate movement on financial deepening, financial innovation adoption, national economic growth and national productivity.

The main objective of this study is to determine the role of financial incentive (interest rate) in national productivity and financial innovation adoption in Nigeria. Specifically, to determine how financial incentives (interest rate) affect the adoption of financial innovation products and services (deposit base); and how this translate into productivity in the general economy (GDP)

In order to address the above objectives, the following hypotheses will be tested.

Ho: Financial incentives (Interest rates) have no effect on the adoption of financial innovation

Ho: Financial incentives (Interest rate) have no effect on national productivity (Domestic Product GDP)

Theoretical and Empirical Literature Review

Tushar Seth's theory stated that interest is paid on capital because it is productive, however the rate of interest is a function of scarcity of capital i.e. it is the need to mobilize capital for productivity that determines the interest rate (Productivity theory of Interest rate). Integrating this into financial deepening and financial innovation adoption is the theory on rational choice that says, everyone assumes that individual choose the best action according to personal identifiable functions and constraints facing them.

The basic idea of rational choice theory is that pattern of behavior in societies reflect the choices made by individuals as they try to maximize their benefits and minimize their costs. In other words, people make decisions about how they should act by comparing the costs and benefits of different courses of action. The idea of rational choice, where people compare the costs and

benefits of certain actions is easy to see in economic theory. Since people want to get most useful products at the lowest price, they will judge the benefit of a certain object by comparing it to a similar object. They will compare benefits, price, or costs. In general people will choose the object that provides greatest reward at the lowest cost. This behavioral pattern is also traceable in adoption of financial innovation.

Rational choice theory is at the heart of modern economic theory and in the disciplines contiguous to economics. There is no widely accepted definition of rational choice theory, but there are two important senses in which the term is used. The first is an informal sense: choice is said to be rational when it is deliberative and consistent. The decision maker has thought about what he or she will do and can give a reasoned justification for the choice. That is, one expects that there will be no wild and inexplicable swings in the objects of their choices and that the means chosen to effectuate the goals of the decision maker will be reasonably well-suited to the attainment of those goals (Nozick, 1993). Like many informal definitions this one is highly imprecise. The second sense in which the profession uses "rational choice" is more formal: have transitive preferences. Transitive preferences are those for which, if some good or bundle of goods denoted *A* is preferred to another good or bundle of goods denoted *B* and *B* is preferred to a third good or bundle of goods denoted *C*, then it must be the case that *A* is preferred to *C*. By contrast, if it were the case that *A* were preferred to *B*, *B* were preferred to *C* and *C* were preferred to *A*, we would find that distinctly odd – indeed, irrational. Similarly unobjectionable is the assumption that the decision maker seeks to maximize utility subject to various (Deposit base) constraints such as those imposed by income, time, cognitive resources and the like). Most economists find this more formal sense of rational choice to be so obvious that they never doubt it and are puzzled by those who do.

Interest Rate Movements

Interest rates, like other prices, perform a rationing function by allocating limited supply of credit among the many competing demands on it. Interest rate management refers to the totality of steps and processes designed and used by the monetary authorities to determine, sustain or support the level of interest rates in an economy in ways that engender the achievement of the stated macroeconomic goals of price and exchange rate stability, rapid and sustainable employment and generating growth (Elumelu, 2002). Instruments and techniques used to manage interest in an economy depend on the stated goals of the political and financial authorities of that country. When nominal prices are slow to adjust, movements in nominal interest rates translate into movements in real interest rates, firms, finding that their real cost of borrowing over all horizons has increased,

Data presentation

Table 1. Dependent and Independent Variables

	2005	2006	2007	2008	2009	2010	2011
Interest rates	8.68	8.26	9.49	11.95	12.63	7.19	6.30
Deposit base	15000000	17123290	20527397	19787671	21784813	20381072	22332356
No of Customers	1316957.4	1739636.9	2693554.3	4118172.8	5763511.215	5954260.452	6531913.009
GDP					25102		
LCU-N'B	14572	18566	20657	24296		34363	37754

CBN statistical bulletin and National Bureau of Statistics- Various issues

Data Analysis

Table 2. Data Correlation Analysis

		Correlations			
		IR	CD	DB	GDP
IR	Pearson Correlation	1	.316	.475	-.054
	Sig. (2-tailed)		.542	.341	.919
	N	6	6	6	6
CD	Pearson Correlation	.316	1	.826	.906
	Sig. (2-tailed)	.542		.043	.013
	N	6	6	6	6
DB	Pearson Correlation	.475	.826	1	.709
	Sig. (2-tailed)	.341	.043		.115
	N	6	6	6	6
GDP	Pearson Correlation	-.054	.906	.709	1
	Sig. (2-tailed)	.919	.013	.115	
	N	6	6	6	6

*. Correlation is significant at the 0.05 level (2-tailed).

cut back on their investment expenditures; likewise households, facing higher real borrowing costs, scale back on their purchases of homes, automobiles, and other durable goods. Thus, aggregate output and employment falls. Nevertheless, the authority must ensure that rates do not fall to the level where the liquidity traps the economy. Interest rate policy is an integral part of monetary policy used to facilitate mobilization of domestic financial resources; stimulate economic growth; promote price stability/efficient resource allocation and attract foreign capital and curb capital flight. The effectiveness of the interest rate policies would however depend among other factors on the saving habit, the spread of banking facilities and availability of alternative assets.

Customers Adoption of Financial Innovation

Mohammed *et al.*, (2009) assert that financial innovative banking uses the internet as the delivery channel by which to conduct banking activity, for example, transferring funds, paying bills, viewing checking and savings account balances, paying mortgages and purchasing financial instruments and certificates of

deposits. Customers prefer to deposit money into a system in which they can obtain a good timely information and payment service (Kemppainen, 2003 & 2008). A study on financial innovation by Mols *et al.* (1999) revealed that the diffusion of financial innovation is more determined by customer's acceptance than by the seller offerings. As Woldie, *et al.* (2008) rightly observed: "It is one thing to innovate, but entirely another for the innovation to be accepted by consumers" O'Connell (1996) demonstrated that the explanation for slow growth of financial innovation is caused by security concerns, lack of knowledge about availability of such a service, financial innovation sites not being user friendly and the lack of access to computers or the Internet. In line with Wallis (1997) whose report states that new innovation adoption by the majority of the customers depends mainly on awareness and usefulness as portrayed by; financial incentives, transaction cost, turnaround time and safety and security as portrayed by fraud risk.

The commitment of senior management is a driving force in the adoption and exploitation of technology (Shiels, McIvor and O'Reilly, 2003). Banks have invested heavily in financial technology innovation due to their cost advantages on a per-transaction basis, where it's less

than teller or telephone or human operator. Also, Massoud, Saunders and Scholnick (2006) found that the level of ATM surcharge is positively related to deposits market share of large banks, while Prerna and Singh (2011), finds it negatively related to deposits market share of small banks. The highest fear of customers about innovative banking is that of insecurity, next is cost, and uncomfotability. Bank for International Settlement (BIS) in their study recognized that safe and efficient retail payment systems enhance the effectiveness of the financial system, boost consumer confidence and facilitate the functioning of commerce (BIS, 2003).

METHODOLOGY AND SCOPE

This paper adopts both the descriptive and explanatory design. Consequently, the paper seeks to investigate the effect of using financial incentive – interest rate to enlist financial deepening and adoption of financial innovation by customers and the consequence on national productivity. Interest rate, a carrot and stick measure often use by CBN and Deposit money banks in Nigeria as situation demand in order to widen customer base, mobilize fund, popularize products and reallocate capital for productivity. The population of this paper comprise of all the individual and corporate customers of Deposit money banks in Nigeria. The study achieves this objective using data from CBN and NBS from 2005 to 2010. That is secondary data was used for this study. Financial Incentives: the independent variable was captured by Interest Rate. The dependent variables; Financial deepening and financial innovation adoption were measured by Customers base and Deposit base; and the national productivity was captured by GDP. Correlation analysis was used to analyse the data.

Years 2006 and 2010 according to Table 1 were relevant because 2006 was the first year of banks operation after recapitalized of Nigerian banks, when things have not really settle in the banking sector, hence the drop in the interest rate in 2006. In 2009-2010, many banks in Nigeria folded up as a consequence of bad risk management revealed and precipitated by the contagious global financial crisis of 2008-2009 that started in 2008 in the USA.

This snowballed into many government bailouts and takeover of many banks and of course the beginning of another round of interest rate management regime in Nigeria (2010-Date). There was a rising in all indicators considered between 2005 and 2010. That is a positive correlation, holding forth that the interest rate is doing what it is suppose to do in the financial market; encouraging more people to bank their money, adopt financial innovative products and services, and penetrate the neglected but are they all growing in similar proportion or percentage? Pearson Movement Correlation analysis will reveal this.

Testing of Hypotheses

Ho: Financial incentives (Interest rates) has no effect on the adoption of financial innovation Deepening (Customer base). There is a positive relationship between interest rate movement and growth in the adoption of financial innovation depicted by increase in the Deposit base. The correlation is 0.475 (Table 2). So the alternate hypothesis is rejected because both interest rate and customer base moved in the same direction over the period of study-increasing.

Ho: Financial incentives (Interest rates) have no effect on Nigerian national productivity (GDP). On the contrary, there was a negative correlation between interest rate movement and the Gross Domestic Product (-0.054) according to Table 2. So the hypothesis is accepted because the interest rate and the national productivity (GDP) move in opposite direction.

DISCUSSION OF FINDINGS

When interest rate is increased, in order to stimulate the economy or as marketing tool to entice customers to patronize a product i.e adoption of financial innovation products and services, more customer came into banking and the customers deposit base is swollen up. As a matter of fact there is positive correlation between Customers base and Deposit base (0.826) as shown in Table 2, courtesy of rising interest rate. However, now that there is more money for banks to lend as a result of increased deposit, the increased cost (interest rate) cannot be passed to borrowers, who will not borrow for production at such a high price (interest rate), hence productivity is slowed down.

In Alper (2008), the relationship between financial development and economic growth in Middle East countries as a group was examined, by employing panel co-integration for a dynamic heterogeneous panel over a 14-year period (1990-2003). A positive and statistically significant equilibrium relation between financial development and economic growth was established for the Middle East countries. Other components of the model used found control variables such as human capital, gross fixed capital, international trade and government spending on growth to be significant. Calderon and Liu (2002) examined whether all financial developments leads to economic growth naturally. The study found that a mutual Granger causality exists between financial development and economic growth, but financial development's share in causing economic growth is higher in developed countries than in developing countries

CONCLUSION

Over the last 50 years, the CBN has put in place a number

of measures to strengthen its internal capacity to cope with rapid internal developments and growth in the global payments system. The Bank continues to focus on strengthening the institutional and regulatory frameworks that would facilitate financial inclusion of the unbanked and promote more usage of electronic payments (financial innovation). In any modern society, the need for functional and efficient payments system is very obvious. Modern economies have developed or are developing multilateral payments systems in response to the sophistication in economic activities. This permits the settlement of financial obligations for economic operators, no matter where such transactions are made. For the payments system to function effectively, it is important that the financial system is properly developed and made efficient.

An efficient payments system minimizes liquidity, settlement, systemic, credit and operational risks which are inherent in financial transactions. For the effectiveness of monetary policy, Central Banks, world over, play a leading role in development of appropriate payments policies and instruments. Responding efficiently to current and future payment needs of economic units while, leveraging on new technological innovations reduces costs and increases the speed of settlement of funds and securities as well as value and volume of transactions. The use of the various forms of e-banking products grew significantly in the year 2009 as the volume and value of the transactions stood at N114.6 million and N645.04 billion respective (CBN annual report and statement of account, 2009). Among strategies used by the Government to stimulate the economy in monetary policy- Interest rate. It is the same interest rate used by the bank to increase patronage, market share and the adoption of many financial innovation products and services that resulted into improved customers and deposit base.

Nyangosi and Arora (2011) argue that financial institutions adopted different electronic distribution channels to meet the demands of customers. In their study to examine the adoption of information technology in Kenyan banks, focusing on services provided through internet and mobile banking, they found out that inclusion of information technology in banking business was necessary to achieve excellence goal, i.e. improved productivity and performance. Today, information and communication technology has become the heart of banking sector, while banking industry is the heart of every robust economy. Financial innovation system has become the main technology driven revolution in conducting financial transactions. However, banks have made huge investments in telecommunication and electronic systems, users have also been validated to accept financial innovation system as useful (Adesina and Ayo, 2010). According to Loonam and O'Loughlin (2008) ICT advancements, globalization, competition and changing social trends such as heightened customer pro-

activeness and increased preferences for convenience have caused intense restructuring of the banking industry.

According to Abubarka & Tasmin (2012), owing to issues of increasing demand to meet customers' expectation for customer service delivery, trustworthiness of the information system and competition in financial services, it is quite evident from their study that enhancing innovation for qualitative prompt service delivery in the banking industry is a must in a rapidly changing market place. ICT revolution has set the stage for exceptional increase in financial activity across the globe. However Customers are often mindful of Transaction cost and financial incentives such as interest rates.

RECOMMENDATION

Cardinal objective of any reasonable government is stability of the economy, provision of jobs and management of foreign currency exchange rate. These are often executed through various policies and agents which normally focus on monetary and fiscal policies. Banks are major stakeholder and always at the centre of them all. Deposit base and Customer base growth are paramount to banks' success and survival. This they do through quality service delivery, viable credit packaging and disbursement and of course sensitive liquidity and interest rate management within the confine of CBN allowance. Hence there is a need to be alive to interest rate manipulation in the attract customer and deposit base growth via quality service delivery as provided by various financial innovation channels by banks. The government too has a role to play by providing necessary incentives e. g. tax allowance and holidays and conducive atmosphere for business development.

The study therefore recommends reinforcing the existing policies that will encourage the public to save more money with commercial banks and at the same time improve national productivity. Increasing the interest rate paid to depositors on their deposits for example, will incite people to save more. However, this measure may raise cost of capital and credit thereby bringing GDP down, in view of this the study therefore recommends other palliative measures and policies that will enhance productivity and make borrowing conducive. This will encourage more people to participate in economic activities, to save more, borrow more and invest more.

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