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Re-examining the Impact of Financial Deepening on Economic Growth in Nigeria: Size or Level of Activity?

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Abstract
This study examines the impact of financial deepening on economic growth in Nigeria between 1970 and 2015, using Vector Error Correction Model, Impulse Response Function, andForecast Error Variance Decomposition, with a distinction between size and activity variables of financial deepening. The results show that financial deepening and economic growth have a stable long-run relationship, and that activity variables of the financial deepening have more stimulating effect on economic growth than the size variables. Also, the results support existing literature that financial structure has positive and significant impact on economic growth, with bank base exert more influence than market base. In light of this, appropriate regulatory and macroeconomic policies like reducing the cost of financial intermediation, improving institutional and legal framework, and raising access and efficiency of credit at any level of financial development need to be pursued to ensure favourable competition of all the components of the financial sector, to deepen the financial sector and accelerate economic growth.
Keywords: Financial deepening, economic growth, financial structure, financial institution

1. Introduction

Financial systems and their level of development and efficiency have gain momentum in today's globalized world as key factor that contribute to the economic growth of countries.This explains series of effort by the Nigeria Government to ensure efficient and deepen financial system in the economy. The prominent reform after the controlled regime (1960-1985) was the introduction of Structural Adjustment Programme (SAP) in 1986. SAP was put in place to diversify the economy and empower non-oil sector of the economy. Consequently, this reform fails to stimulate economic growth due to inconsistency of policy and implementation (Omotor 2007). Thus, a number of the deregulation exercises were reintroduced after abandoning it (for example, in 1991, embargo on bank licensing and fixed interest rates were placed, a year later, interest rates were allowed again to be determined by market forces in 1992 and 1993).

In 2004, the banking sector reform/consolidation exercises took a prominent part in the National Economic Empowerment and Development Strategy (NEEDS), as fundamental to the economic agenda of the government. The motives for the reform were to solve the perceived fragmented and weak banking system which includes poor management and channelling of fund to short-term arbitrage opportunities instead of funding productive investments during SAP (Okonjo-Iweala & Osafo-Kwaako 2007). Therefore, consolidation was aimed to deepen and improved supervision of the banking system. This necessitated all Deposit Money Banks (DMBs) to increase their capital base from the previously N2.5billion to N25billion naira thereby reducing the number of DMBs from 89 to 25 at the end of 2004.

In 2009, the Central Bank of Nigeria in conjunction with the fiscal authorities introduced some parliamentary measures in an attempt to avert financial system from been collapsed during global financial and economic crises. The aim for the reform was to sanitize the banking industry and streamline the industry according to international best practices. For instance, Nigerian Deposit Insurance Corporation (NDIC) instituted by the CBN to investigate ten banks out of twenty-four banks which revealed that five banks were insolvent. On the aggregate, these banks had 40% non-performing loan. In addition, they borrowed extensively at the Expanded Discount Window (EDW) of the CBN. Consequently, billions of naira was injected into these banks by the CBN. At the end, five banks received 420 billion naira in bail-out (Alford 2010).

In the context of capital market in Nigeria, several measures have been put in place to develop the market. In 1985, the Second-tier Security Market (SSM) was established. The objective of the scheme was to harness the role of the Nigeria Stock Exchange (NSE) in a way that it will assist both the small and medium scale enterprises to have access to funds at the capital market. To complement these efforts, the Central Securities Clearing System (CSCS) was introduced to implement a computerized Stock Exchange Management to secure the market against unethical practices (Ojo & Adeusi 2012).

Developments, as shown by all markets indicators, have trended upwards in capital market institutions. For instance, in 1981, the total number of deals and value of transactions at the Nigerian Stock Exchange (NSE) Market were put at 10,199 and ₦304.8 million respectively. In 2000, the number of deals rose to 256,523, while the value of transactions rose by 9,236.58% to ₦28,153.1 million. In 2013, the total number of deals rose by 1,257.06% to 3,224,639, while the value of transactions increased to ₦2,350,875.7 million from ₦28,153.1 million, an 8,350.32% growth rate. In 2016, the total number of deals was 15.34 billion units, representing a

16.51% decline from the number of deals in 2015. While the value value traded fell by 33.98% to ₦112.36 billion, from the previous year.Market capitalization recorded an appreciated by 1.3%of the 288 securities listed on the Nigerian Stock Exchange from ₦14.80 trillion in 2012 to close at N19.08 trillion in 2013.In 2016, Market capitalization of the 247 securities listed on the Nigerian Stock Exchange declined to ₦16.19trillion as a result of US election that saw international investors reacted to the opportunity in expansionary fiscal policy. The NSE, like other frontier and emerging markets, saw foreign inflows decline in favour of advanced capital markets (NSE, 2017).

Despite the financial reform efforts in Nigeria for over three decades, its impact on economic growth is still not clear largely due to the choice of financial measurement. Most of the previous studies in Nigeria were based on financial measures that may not capture the real mechanism through which financial deepening can effect economic growth, namely Odedokun (1989), Adam (1998), Azege (2004), Ndebbio (2004), Ibrahim and Shuaibu (2013), Adelakun (2010), Omotor (2007), Agu and Chukwu (2008), Audu and Okumoko (2013), Odeniran and Udeaja (2010), Osuji and Chigbu (2012), Nzotta and Okereke (2009), Nkoro and Uko (2013). These studies favour the usage of size variables of both banking and capital market development. Mostly they used the ratio of money supply to GDP to measure financial deepening. As noted by King and Levine (1993), this type of financial deepening indicator does not identify where the financial system allocates capital. Consequently, the size of financial intermediaries concentrates mainly on the level of monetization. However, in developing countries, monetization can be increasing without financial deepening occurring (Andrianaivo & Yartey 2009; Demetriades & Luintel 1996; Luintel & Khan 1999; Ogwumike & Salisu 2010). In another hand, studies that used credit to private sector as a ratio of GDP fail to account for capital market. In the context of capital market for instance, Beck and Levine (2004) and Levine and Zervos (1998) have shown that no theory suggest that market size will influence resource allocation or the ease with which shares can be traded. As a result, other channels like level of activity of financial sector through which financial deepening may affect the growth process in Nigeria have been overlooked.

Therefore, a major contribution of this study is the recognition that financial services may influence the growth process through several channels, some of which depend on the size of the financial sector (measured by bank total asset as a ratio of GDP, Ratio of market capitalization to GDP, ratio of money supply to GDP among others) while others depend on the level of activity in both banking and capital market development(measured by ratio of bank credit to private sector to GDP, Stock market turnover ratio among others). Therefore, to capture these channels, this work considered among others the size and level of intermediation, which is the ease to access and use financial services at low cost by a wide range of individual consumers and business as a components of financial deepening in line with Sahay et al. (2015), that described financial development as a blend of depth (size and liquidity of markets), access (the ease and availability of financial services to individuals and firms), and efficiency (capacity to provide financial service by financial institution at low cost).These channels provide better insight on the nature of the relationship between financial development and economic growth to know whether the policy needs to focus on rising the size of the financial sector or on eliminating the obstacle to higher activity of financial sector in Nigeria. Hence, the objectives of this study are: (i) to evaluate the channel through which financial deepening affect economic growth most in Nigeria; and (ii) to examine the impact of financial structure on economic growth in Nigeria.

2. Literature Review

Few numbers of international case studies have empirically tried to validate the “activity” and “size” effect of financial deepening on economic growth.Surprisingly, Nigeria economy has not been substantially accounted for, In fact, the only attempt was Karimo and Ogbonna (2017) who mainly focused on the causal effect of financial deepening on economic growth. Thus, the related empirical literatures reviewed were drawn from foreign studies including the work of Kar and Mandal (2014) that re-examines the validity of three propositions envisaged in empirical literature on the finance deepening and economic growth nexus. The three debated propositions are that: (i) the impact of financial deepening on economic growth is highly significant; (ii) financial “activity” measure play more significant role than the “size” measure in the growth process; and (iii) that the impact of financial structure is insignificant on the growth process. The study used bank assets, bank credit, stock market capitalization and stock market turnover as measures of financial development while the constant price index of industrial production was used to proxy real output. The study found that in banking sector, both the size and activity variables contribute independently to growth but the activity level exact more significant role while for the capital markets, it is only the size variable that has significant impact.

Levine and Zervos (1996) examined the size of stock market and liquidity measure of banking sector. The results indicate that stock markets provide independent services from banks. The study also finds that stock market size, international integration, and volatility are not strongly linked with growth, and that private saving rates is not closely related to the financial indicators.

In another perspective, a big branch of research has been centring on structural issues. The argument has

been whether a bank-based financial sector is better for economic growth than market-based financial sector. However, both the bank-based and capital market financial systems have their own advantages comparatively. The choice depends on the legal systems, financing preference of the firm and efficiency of the financial (Chakraborty & Ray, 2006). For some developed firms prefers financing through market-based for more technological advances with minimal agreement on how firm should be managed. On the other hand, some firm that face information asymmetries in market prefer bank based financing (Holmstrom & Tirole 1997). Correspondingly, Rioja and Valev (2012) suggested that in the early stages of development, banks are more favourable and efficient than markets, especially when the institutional environment is weak. They argued that banks are more authoritative than individual investors in compelling firms to settle their debts and reveal their accounts. Additionally, banks offer mostly shorter term investments fund while stock markets are superior in offering long-term fund (Demirgüç-Kunt & Maksimovic 2002).

Based on the empirical argument on whether a bank-based is better for economic growth than market-based financial sector, Allard and Blavy (2011) finds that capital market-based economies is considerably and significantly better for economic recoveries than the bank-based ones. Sahoo (2014)argued that in developing with underdeveloped capital markets, a bank-based finance system perform better than market-based one. In spite of embracing capital market-based and bank-based views, Levine (2003) and Olofin & Afangideh (2009) downplay their significance in the sense that the difference between market-based and bank-based financial systems is less relevance than imagined. They found no evidence for either market-based or bank-based view. However, any economies with both well-developed capital market and banking sector will be indifference in following any of the intermediation processes.

In another perspective, Nkoro and Uko (2013) empirically examined the financial development-economic growth relationship in Nigeria. The study used annual time series spanning from the period, 1980-2009 and employed Error Correction Mechanism for the estimation. The results reveal a positive and significant relationship between financial development and economic growth in Nigeria. However, financial depth and credits to private sector exact insignificant impact on growth. They argued that weak legal system, low credit to private sector as well as high non-performing loans narrow financial sector contribution to economic growth. Similarly, Mohammed and Sidiropoulos (2006) found that financial development has a weak relationship with economic growth in Sudan. He argued that inefficient allocation of resources by banks, unfavourable investment climate, and poor quality of bank credit allocation contributed to the insignificant relationship.

3. Methodology

3.1Theoretical Framework

The theoretical underpinning linking financial deepening and economic growth stems largely from the system of endogenous growth models. The role capital, labour, and technological progress play are inherent in the fundamental theories of growth. However, Schumpeter's growth model was more precise on the relationship between finance and growth (Schumpeter 1911). Carlin and Soskice (2006:542) as cited in Shittu (2012), summarized the schumperian model to show how financial services penetration tends to raise ratios of private domestic savings, capital accumulation and efficient allocation of resources via technological innovation channel for economic growth as follows;

$$x = \gamma * \delta * q \qquad (1)$$

where (x) represent technological progress, $(q)$is Research and Development (R&D),(γ) is the probability that each unit spent on R&D produces a successful innovation while (δ) is the productivity parameter that shows the extent to which each innovation raises. If (q) is exogenously determined by discounted value of expected returns γ & δ, the real interest rate r, capital per efficiency unit k, and institution features of the economy ppr. The functional form is thus:

$$q = q\{\gamma, \delta, r, k, ppr, \varepsilon\} \qquad (2)$$

From equation (1) and (2), the "Schumpeter relationship" can be derived as;

$$x = x\{k\} \qquad (3)$$

Equation (3) states that since the rate of technology(x) depends on$q$, which in turn depends on$k$, thus x is a function of k the capital efficiency per unit. A positive relationship exists between the two variables. Thus, an increase in the saving rate in the economy will increase the capital efficiency per unit, which in turn stimulates more R&D activities via innovation. This will bring about growth in the economy. Thus, in a steady state, x is similar to economic growth.

3.2 Model Specification

Following Campos, Karanasos, and Tan (2012), Shittu (2012) and the theoretical underpinning of Schumpeter (1911) as described in equation (3), economic growth is expressed as a function of financial deepening and exogenous macroeconomic factors X. The adopted econometric model is express as:

$$EG_t = \alpha_0 + \alpha_1 FD_t + \alpha_2 X + u \qquad (4)$$

where:

EG = Economic growth Indicator;
FD = Financial Deepening Indicator
X = set of control factors.

α_0 = Intercept or constant;

α_{1-2} = Parameters or Co-efficient of explanatory variables;

u = Error term;

Financial deepening is conventionally viewed as the process that culminates into enhancement in the quality and quantity of financial services. However, since these financial services are diverse, using a single measure to capture their effect may not be robust enough. Therefore, four financial sector variables covering the bank base and market base are used in our analysis. The study further distinguished between measures of the level of activity of a financial sector and measures of the size in the same sector in explaining the growth effects of financial deepening. The size-variable for the banking sector is the total assets of banking sector as a ratio of GDP while the activity variable for the banking sector is bank credit to the private sector as a ratio of GDP since the major activity of deposit lending banks is to provide credit to the non-banking sector. The size-variable for stock markets is market capitalization at the Nigeria Stock exchange. The activity variable for stock markets is the stock market turnover ratio at the Nigeria Stock exchange. The econometric form of our model is specified as follows:

$$GR_t = \alpha_0 + \alpha_1 BR_t + \alpha_2 CR_t + \alpha_3 MR_t + \alpha_4 TR_t + \varepsilon_t \qquad (6)$$

where:
GR = Logarithm of annual of real gross domestic product as a measure of economic growth,
BR = Bank total asset as a ratio of GDP,
CR= Ratio of bank credit to private sector to GDP,
MR = Ratio of market capitalization to GDP,
TR = Stock market turnover ratio.

If these variables share a common long-run trend, VAR model can be expressed in Vector Error Correction (VEC) model approach to facilitate investigation of dynamic interactions among jointly endogenous variables. In compatible form, a VEC model is specified thus:

$$\Delta Y_t = \alpha_0 + \Gamma_1 \Delta Y_{t-1} + \ldots + \Gamma_{p-1} \Delta Y_{T-p+1} + \Pi Y_{t-1} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (7)$$

where: Y_t is a 5 X 1 (for this study, vector Y_t contains GR, BR, CR, MR and TR). Δ is the first difference operator, $\Gamma_j=(A_{j=1} +\ldots+A_P)$ for j=1,..,p-1. $A_1,\ldots,A_p$ are matrices of coefficients to be estimated, $\Pi= -I_K +A_1+\ldots+A_P$ is the error correction terms of the model (which capture the speed of convergence back to steady state), and ε_t is vector of coefficients of disturbance term that are independently identically distributed that are N (0, σ^2).

3.3 Scope and Data

For relevance and in-depth analysis, the study adopted annual time series data that span through the period 1970-2015. Although there are diversity of institutions which operate in the financial sector with many indicators for different financial institution that have been employed in empirical research, for purpose of this study, size and level of activity measures of bank-base and market-base have been employed as financial deepening variables.

Based on the nature of incorporated variables in the formulated model, secondary data were employed for detailed analysis. The annual of real gross domestic product and ratio of bank credit to private sector to GDP were sourced from World Bank's World Development Indicator, bank total asset as a ratio of GDP was sourced from Central Bank of Nigeria Statistical Bulletin and ratio of market capitalization to GDP and stock market turnover ratio were sourced from Security and Exchange Commission (SEC) Annual Abstracts.

4. Estimation Results

4.1 Unit Root Analysis of the Time Series

Prior to unit root test, the study carried out Quandt-Andrews unknown breakpoint test to check the presence of structural break. The Quandt-Andrews test result confirms the presence of structural break. Therefore, we

perform the Zivot-Andrews unit root test with structural breaks to check the orders of integration of the data series in the present of structural break with model A which permits a one-time change in the level of the series. The results of Zivot-Andrews test of the stochastic time series for the period, 1970 – 2015 are presented in Table 1. The empirical results indicate that all the variables are integrated at I(1).

Table 1.Zivot-Andrews Unit Root Test Allowing for One Break

	Level			1st Diff.			
Variable	**t-Statistis**	5% critical value	**Decision**	**t-Statistis**	5% critical value	**Decision**	**Remark**
GR	-2.621330	-4.93	Do not reject	-7.777404**	-4.93	Reject	I(1)
BA	-4.301524	-4.93	Do not reject	-5.557900**	-4.93	Reject	I(1)
CR	-3.949990	-4.93	Do not reject	-5.757855**	-4.93	Reject	I(1)
MR	-4.095929	-4.93	Do not reject	-7.144788**	-4.93	Reject	I(1)
TR	-4.863596	-4.93	Do not reject	-4.553276**	-4.93	Reject	I(1)

Note: ** indicates significance at 5% level.
where
GR = Log of real gross domestic product,
BA = Bank total asset as a ratio of GDP,
CR= Ratio of bank credit to private sector to GDP,
MR =Ratio of market capitalization to GDP,
TR = Stock market turnover ratio,

Source: Extracts from Eviews 9 output.

4.2 Johansen Cointegration Test

The result of Johansen (1988, 1992) and Johansen and Juselius (1990) multivariate cointegration test are shown in table 2. Trace test indicates 2 cointegration equation(s) at the 5% level because the results of trace statistic values are greater than 5% critical value up to 2. To confirm this result, the maximum eigenvalue statistic result is presented. Normally this approach tests the null hypothesis of *r* versus *r*+1 co-integrating relationships. The null hypothesis is rejected when the max-eigenvalue test statistics exceeds the respective critical value. The Max-eigenvalue test indicates 2 cointegrating equation(s) at the 5% level of significant thus confirms the rejection of the null hypothesis of no cointegrating vectors. Hence the study estimated a Vector Error Correction Model (VECM), in order to account for the long-run adjustment speed in the model. Before presenting the main model estimation of the study, it is wise to show how lag length was selected for the study. Thus, lag order selection estimation was carried out using Lag Length Criteria approach. From the result the maximum lag suitable for the VEC model estimation is lag 3.

Table 2(a): Unrestricted Cointegration Rank Test (Trace Test)

Null	Alternative	Trace Statistic	5%Critical Value
r=0*	r=1	108.9354	69.81889
r≤1*	r=2	57.71225	47.85613
r≤2	r=3	27.37429	29.79707

Table 2(b): Unrestricted Cointegration Rank Test (Maximum Eigenvalue Test)

Null	Alternative	Max-Eigen Statistic	5% Critical Value
r=0*	r=1	51.22313	33.87687
r≤1*	r=2	30.33796	27.58434
r≤2	r=3	20.62913	21.13162

Note: r indicates the number of cointegrating vectors. * denotes rejection of the hypothesis at 5% significance level.

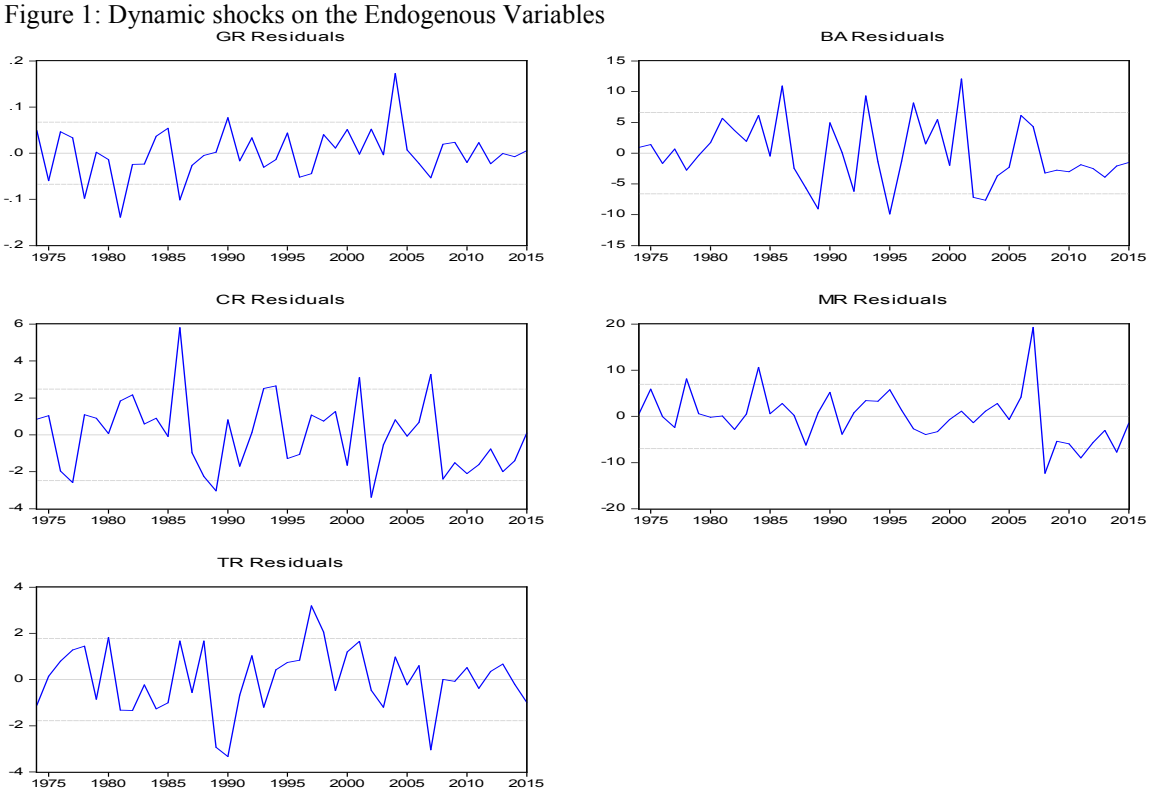
Source: Extracts from Eviews 9 output.

4.3 Vector Error Correction Mechanism Results

As the Engle-Granger Representation theorem suggests, the presence of cointegration entails the presence of long-run relationship association in the model. The VECM relationship represents an adjustment process by

which the deviated economic growth is expected to adjust back to its long-run equilibrium path. The interest of this model is not on the interpretation of the coefficient, standard error and the t-statistics. The goal is on the analyses of the impulse response function and variance decomposition mechanisms, which ascertains the transmission level between financial deepening and economic growth and the dynamic effect of shocks on the endogenous variables. The trend of the estimates of each of the endogenous variables are 'mean reverting', indicating that they were used at the best structures. This indicates the extent in which shocks to economic variables reverberates through a system. Hence the impulse response functions and variance decomposition analysis of the endogenous variables, further clarified the speed of these reverberating shocks as it concerns financial deepening and economic growth in Nigeria.

Figure 1: Dynamic shocks on the Endogenous Variables



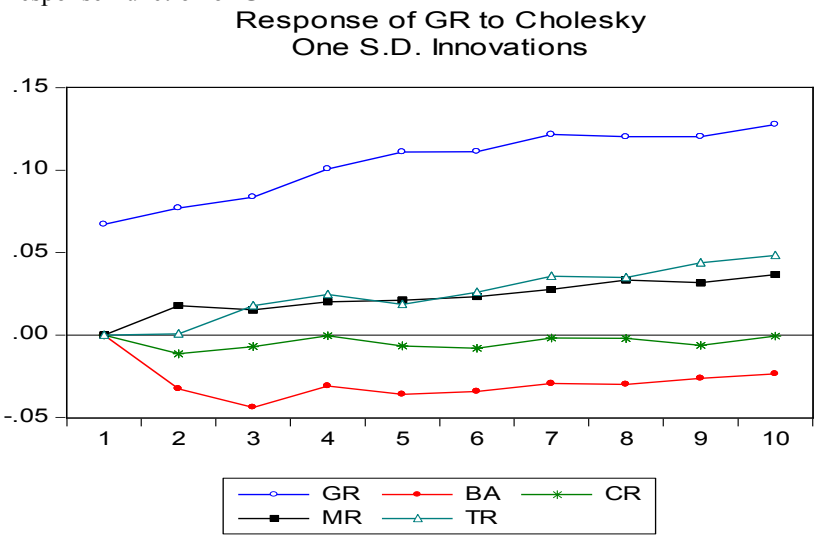
Source: Extracts from Eviews 9 output.

4.4 Impulse Response Function Results of GR

The Impulse Response Functions (IRF) measures the effects of shocks on the adjustment path of the variables (in this case, financial deepening and economic growth).

The estimate of IRF was done using the approach of Impulse Response to Cholesky (d.f. adjusted) One S.D. Innovations in the following Cholesky ordering: bank credit to private sector as a ratio of GDP (CR), bank total asset as a ratio of GDP (BA), the annual growth rate of real GDP (GR), ratio of market capitalization to GDP (MR), and stock market turnover ratio (TR). The results obtained from IRFs estimates are presented in Figure 2. Since the focus is on the impact of financial deepening on economic growth, it is the responses of growth to one standard deviation shock that are presented in the Figure 2

Figure 2: Impulse Response Function of GR



Source: Extracts from Eviews 9 output.

The results showed that logarithm of annual real GDP (GR), a measure of economic growth, responded to a one standard deviation shock to itself and subsequently to shocks in other endogenous variables in the cointegrating equation. The result further indicated that economic growth responded positively, in a fluctuating manner, to a one standard deviation shock to MR and TR endogenous variables in the model, including itself but negatively to shocks in CR and BA. The negative response of GR to shock in CR may not be unconnected to the frequent use of deposits by Nigerian banks to trade in foreign exchange and government treasury bills, among others, rather than channeling mobilized funds to the real sector of the economy (Obamuyi 2009).This is not surprising given the slow pace of private sector investment in Nigeria. On the other hand, economic growth did not respond to a one standard deviation shock to stock market turnover ratio (TR), at first year but responded positively and increasing sharply from the second year of the shock. This is not the same with the response of economic growth to bank total asset as a ratio of GDP (BA). The result shows that economic growth declined negatively from the position in the 1st year of the shock to bank total asset as a ratio of GDP (BA), and started an upward movement after getting to zero before stabilizing between the 7th and 10th horizons.

4.5 Forecast Error Variance Decomposition of GR

Variance decomposition can indicate which variables have short-term and long-term impacts on the variable of interest. In this analysis, variance decompositions are represented in Table 6. Standard errors computed using the Monte Carlo method. The forecast horizon or period is in yearly time series.

Table 3: Result of Forecast Error Variance Decomposition of GR

Period	S.E.	GR	BA	CR	MR	TR
1	0.067102	100.0000	0.000000	0.000000	0.000000	0.000000
2	0.109334	87.36093	8.906091	1.081265	2.647889	0.003830
3	0.146565	81.26262	13.89429	0.827082	2.551478	1.464530
4	0.183331	82.17614	11.72678	0.529107	2.830616	2.737360
5	0.219277	83.10704	10.88717	0.459923	2.914150	2.631722
6	0.250813	83.19848	10.17677	0.454597	3.087755	3.082395
7	0.283937	83.29584	9.009846	0.358746	3.358830	3.976737
8	0.313535	83.01066	8.300017	0.298462	3.887119	4.503743
9	0.341255	82.52003	7.600946	0.286007	4.140739	5.452281
10	0.370142	82.04785	6.867159	0.243448	4.505424	6.336123
11	0.398286	81.71851	6.357966	0.231795	4.581516	7.110210
12	0.425295	81.11697	5.950201	0.225958	4.622393	8.084477
13	0.452496	80.66439	5.483733	0.202992	4.765551	8.883337
14	0.477467	80.21584	5.109691	0.200664	4.870046	9.603764
15	0.501711	79.71746	4.772745	0.194206	4.944253	10.37134

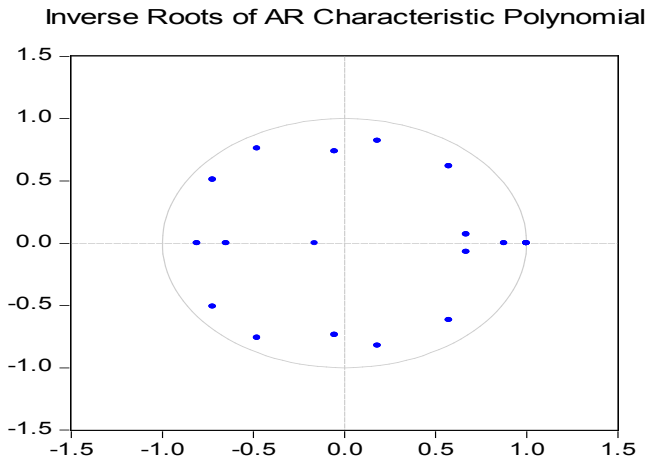
Source: Extracts from Eviews 9 output.

The results in Table 3 indicates that the influence on own shocks dominates in the short-term (one year) in explaining innovations in economic growth, though declines with time but remains the most important factor in

the long-run. In the short-run own shocks explained over 100% of the innovations in economic growth in first year and about 79.7% in the long-run holding other factors constant. Bank total asset as a ratio of GDP (BA) which represents a bank-based size instrument is the next most important variable in the short-run explaining over 8.9% of innovations in economic growth. The result showed that an increase in the capital base by 1% will improve the level of economic growth by 8.9% in the second year. The explanatory power of BA declined gradually and eventually explained about 4.7% of economic growth in the 15th horizon. However, market-based activity instrument, turnover ratio (TR) was the most important factor explaining economic growth in the long-run and the explanatory power of TR gained momentum gradually and eventually explained about 10.3% of economic growth in the 15th forecast horizon. Shocks to Bank-based activity variable, Bank credit to private sector as a ratio of GDP (CR) was able to explain 1% of the innovations in economic growth in the short-run (second year) eventually declined with lower rate explaining 0.1% in the long-run. This is an indication that the credit to the private sector has not played the desired role in enhancing the desired level of economic growth in Nigeria. This is not surprising however, given the low level of credit to the private sector in Nigeria. Also, market capitalization ratio (MR) explained significantly 4.9% of economic growth in the long-run.

The implication of the results is that financial deepening effectively impacts economic growth in the short-run through innovations in overall bank-based instruments comprising bank credit to the private sector and bank total asset. In the long-run, jointly it was the activity indicators (bank credit to private sector as a ratio of GDP and the market turnover ratio (TR)) that impact more on economic growth. This in simple terms means that combined activity instruments of financial deepening have strong transmission effect on economic growth in the long-run than size instrument. However, it is worthy to note that bank credit to private sector as a ratio of GDP has a declining transmission effect which is an indication of slow pace of private sector investment due to difficulty private sector face in obtaining credit facilities. Since, only the bank-based financial deepening instruments impacted on economic growth in the short-run while market based impacted more at the long-run, financial structure indeed has significant transmission effect on economic growth. The evidence indicates that stock markets have reached the level of maturity where their contribution to growth is comparable to those of the banking sector. Both the banking sector and the capital market are yet to have the required depth and size to impact on economic growth especially bank credit to the private sector was very weak in impacting to economic growth due low credit disbursement to private sector. The model has a good fit and suitable for policy analysis as no root lies outside the unit circle indicating that the model satisfies the stability condition (see Figure 3).

Figure 3: Inverse Roots of AR Characteristic Polynomial Result



Source: Extracts from Eviews 9 output.

5. Conclusion

This study was undertaken to unravel the impact of the financial deepening transmission mechanism in stimulating economic growth and the speed at which economic growth adjust to changes in financial deepening measures. The conclusions from this study are: First, in the short-run, only bank credit to private sector as a ratio of GDP (CR) and bank total asset as a ratio of GDP (BA) are significant and have effective transmitting impact on economic growth in Nigeria. However, in the long-run, jointly the activity variables of the bank-based and market-based financial deepening instruments (bank credit to private sector as a ratio of GDP and stock market turnover ratio) were more effective in stimulating economic growth than the size instruments of both banks and capital market based indicators. This is in tandem with the findings of Nili and Rastard (2007) that in an oil rich economy, huge resources of the financial institution that expand its size is not a reflection of the role they play in mobilizing savings from surplus entities but the result of oil windfall.Then again, Shaw (1973) features the significance of financial intermediation keeping in mind the end goal to accumulate capital for growth. He

contends that bank lending and deposit rates may not appropriately reveal capital adequacy or shortage, therefore, consideration ought to be centered on improving the lending capability of financial intermediaries through high deposit rates in order to encourage capital accumulation and efficient allocation of investible capital which may lead to economic growth.

The results in Table 3 indicates that the influence on own shocks dominates in the short-term (one year) in explaining innovations in economic growth, though declines with time but remains the most important factor in the long-run. In the short-run own shocks explained over 100% of the innovations in economic growth in first year and about 79.7% in the long-run holding other factors constant. Bank total asset as a ratio of GDP (BA) which represents a bank-based size instrument is the next most important variable in the short-run explaining over 8.9% of innovations in economic growth. The result showed that an increase in the capital base by 1 percent will improve the level of economic growth by 8.9 percent in the second year. The explanatory power of BA declined gradually and eventually explained about 4.7% of economic growth in the 15th horizon. However, market-based activity instrument, turnover ratio (TR) was the most important factor explaining economic growth in the long-run and the explanatory power of TR gained momentum gradually and eventually explained about 10.3% of economic growth in the 15th forecast horizon. Shocks to Bank-based activity variable, Bank credit to private sector as a ratio of GDP (CR) was able to explain 1% of the innovations in economic growth in the short-run (second year) eventually declined with lower rate explaining 0.1% in the long-run. This is an indication that the credit to the private sector has not played the desired role in enhancing the desired level of economic growth in Nigeria. This is not surprising however, given the low level of credit to the private sector in Nigeria. Also, market capitalization ratio (MR) explained significantly 4.9% of economic growth in the long-run.

Finally, there are structural effects of financial deepening on economic growth. The results revealed that market-based financial deepening instruments were more effective in stimulating economic growth at long run in Nigeria. This indicates that capital market markets have become important after financial reforms and have found to be significant in stimulating economic growth in Nigeria at long run even though bank continues to play a dominant role in facilitating economic growth at short run. However, if monetary authority and financial institutions can encourage credit by bringing down the cost of financial intermediation; she can reap the benefits of financial deepening as banks and financial markets will have more capacity for supplying more finance to the real sector.

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