THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

Banking Sector Development and Real Estate Growth in the Nigerian Emerging Economy

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Abstract:
The housing sector is very essential in each country's welfare, given that it directly impacts on the well-being of the community and the performance of other economic sectors. This study estimates the long term causation between banking sector development and real estate growth in the Nigerian emerging economy from 1990 - 2018, hypothesizing no causation between banking sector and real estate growth. Applying the autoregressive distributed lag (ARDL) model and vector error correction model (VECM), the study establishes that banking sector and real estate growth in Nigeria are related. It implies, long run relationship exists between banking sector and real estate growth in Nigeria. The results show that causality is absent between banking sector and real estate growth in Nigeria. The findings give reasons to establish the banking sector using proper macroeconomic, legal and regulatory policies to boost real estate growth by introducing motivating systems that funnel more funds to real estate investment. The research reveals that banking sector development contributes insignificantly to real estate growth in Nigeria.

Keywords: Banking sector development, real estate growth, real estate financing, investment, emerging economy

1. Introduction

The real estate sector is very essential in each country's welfare, given that it directly impacts on the well-being of the community and the performance of other economic sectors (Sanusi, 2003). Provision of adequate housing attracted the attention of most countries worldwide since the early 1970s, especially the developing ones for some reasons. Firstly, housing is one of the three most vital basic human needs among food and clothing. In fact, the right and need for housing is one of the basic needs demonstrated by the Maslow's hierarchy of need prism theory (Ugochukwu, Akpan, & Raju, 2019). Secondly, it is a fundamental durable consumer asset, which positively impacts on productivity, since decent housing greatly increases workers' well-being and growth. The Nigerian national housing policy (2012) substantiates that housing is the process of providing comfortable, attractive, safe, functional, identifiable and affordable shelter in a suitable setting within a neighborhood.

This is supported by perpetual maintenance of the built area for individuals and families daily life activities within the community, which reflect their cultural and socio-economic preferences. Thirdly, it is a standard of living measuring index for the population across societies (Bichi, 1997). Poopola & Alamu (2016) maintain that housing involves sustainable energy efficiency and resource conservation to improve standard of living. Consequently, housing finance becomes imperative for obvious reasons. This is because huge capital is required, which is always above the capacity of the medium and low income groups in the society. According to the ministry of finance, constructing a three-bedroom residential house in three different countries gives huge variations. To construct such a house in Nigeria cost about US$50,000, while in South Africa and India, it costs roughly US$36,000 and US$26,000 respectively (Iweala, 2018). The variations might be due to exchange rate fluctuations, given that most of the materials used are imported (Makinde, 2013; Mwathi, & Karanja, 2017).

Real estate investment is considered as the doorway to meet the basic human needs which are exponentially growing in recent decades, stemming from population growth, increased urbanization and industrial expansion etc. (Ugochukwu, Akpan, & Raju, 2019). Housing financial needs are derived mostly from population growth in the urban areas of the country. With a rural urban migration rate of about 5.5 %, it is expected that Lagos, for instance, will reach 22.5 million by 2030, but presently Lagos population is about 14.5 million inhabitants (Bureau of Statistics, Nigeria, 2018). From (United Nation, 2009) the population of Nigeria in 2005 was 154.7 million growing at 3.8% per annum.

Generally, a population growth increases the demand for accommodation and housing finance. Effective demand for accommodation and home ownership relates to affordability which depends on household incomes. From EFInA's Access to financial services in Nigeria, 2018 survey, key findings relating to home ownership show that real estate finance plays a crucial role in the development process by supporting the markets, strengthening the financial sector and the housing market (EFInA, 2018). Property developers, builders and construction enterprises are privately or in partnership with government are investing in real estate development. However, it appears that housing demand continue to grow above

supply of houses due to limited land supply and high construction costs, which leaves a greater population with no shelter (Masika, 2010; Singh, Gupta, & Mondal, 2012).

The Nigerian housing financial market is operating within the informal and formal sectors. The formal sector consists of the upper-income groups, whose activities are located in the urban areas and the lower income groups, which rely on the subsidized funding for access to housing (Nnamdi, Ukpai, & Chikwendu, 2016; Oni, & Adebayo, 2012). The informal sector includes the thrift and loan schemes ('ESUSU'), the traditional co-operative systems, credit co-operatives, individual and family savings. The lending rate in Nigeria is high relative to other African countries due to liquidity shortage in the financial sector. This shortage results partially from the central bank's currency market intervention aim at ensuring exchange rate stability (IMF, 2018).

The high lending rates hinder long-term business expansions in the non-oil sectors since investors and businesses are de-motivated from borrowing to expand their business investments and increase economic growth. The lending rate in 2018 was 14.0% and it was sloped down to 13.5% in 2020. High lending rate has considerable impact on local manufacturing firms and potentially destabilizes national diversification strategy (Financial Times, 2018). Apart from lending rate in Nigeria, several factors make the bank lending environment difficult. These include the absence of clear property and security rights, mandatory governor's consent and cultural identities (Ogedengbe, & Adesopo, 2003; Ojo, 1983). The country requires N49 trillion (US$326 billion) to meet its housing demand (Enhancing Financial Innovation and Access[EFInA], 2010). However, the outstanding credit to the economy in 2008 from financial institutions was US$20billion.

Furthermore, Nigerian commercial real estate is challenged with dwindling occupational demand, with disparities in expected and actual incomes which are either positive or negative (Murigu, 2005). Real estate prices are increasing more than 100%, in the recent years (Majtenyi, 2010). The real estate market size and scale makes it an attractive and lucrative sector for investors. The limited source of long-term funding for Nigeria's housing sector presents enormous potentials for housing and finance investors (Shuaribu & Aliyu, 2018). According to (Lusht, 1988), with financial obligation and investment in land, real estate development becomes significant in the coming years.

Growth in the real estate sector is promoted by the entry and extension of new multinational companies in sectors like oil and gas, telecoms and finance. The Central Bank of Nigeria (CBN) is encouraging banks to sustain the development of the housing sector in Nigeria, given the significance of the housing sector and bearing in mind that cheap funds are available to banks from retail deposits. Also, the infrastructure to process real estate loans and the skills to manage the inherent risks are available. Specifically, the CBN using its credit policies requires the commercial and merchant banks to apportion a specific minimum percentage of their credit to the housing and construction sectors.

There has been significant growth in the Nigerian real estate sector from 1999 to 2008, given the country's return to democracy with relative political stability. This sector was worth US$7 billion in 2008 representing roughly 2% value added to GDP. The growth rate in the sector from 2000 to 2005 stood at 10.7%. Nigeria's GDP growth is directly linked to growth in real estate activities like in other world economies. Every unit increase in GDP, 75% of that unit is connected directly to real estate or housing related expenditure (EFInA, 2010). Statistics show that the GDP value-added by the real estate sector to increase from 3.5% to 13.4% in the years 2007 to 2012. This gives an annual compounded growth rate of approximately 11.2% (Federal Republic of Nigeria [FRN], 2012).

From literature, many factors affect real estate growth in Nigeria which include inflation, exchange rate, interest rate, population growth, income level, foreign direct investment and gross domestic product (Mukhtar, Amirudin, Sofield, & Mohamad, 2017; Udechukwu, 2008). Adequate research is needed to establish the influence and link of these factors on real estate sector so that the housing challenge in Nigeria could be remedied. The rest of the research has this organization. Section two is literature review; three is methodology, four presents results and discussions while five wraps up with conclusion.

2. Literature Review

2.1. Theoretical Review

The supply-leading and demand following theories were generated by (Patrick, 1996). These hypotheses motivated empirical studies on the association between financial development and economic growth alongside the direction of the causality. Patrick (1996) maintains that the direction of causality could be supply-leading or demand-following. The connection between the banking sector and the real estate sector is explained using the supply-leading hypothesis postulates that banking sector development propels the real estate growth in an economy (Odhiambo, 2008). The supply of financial services gives momentum to construction enterprises to expand their activities. The demand-following hypothesis states that the real estate sector pulls the banking sector. Banking sector development depends on real estate sector growth (Arestis, & Demitriades, 1997). This reveals that causality flows from the real estate sector to the banking sector. According to (Odhiambo, 2009), real estate sector growth promotes the demand for financial services, which are partially realized through the creation of new financial institutions.

2.2. Empical Review

Oriavwote, & Eshenake (2014) investigated that financial sector development has no remarkable improvement on economic growth due to the statistical insignificance of credit to the private sector on economic growth. Aliyu, & Yusuf (2013) indicated that financial sector development has a significant impact on real sector's growth using Ordinary Least Square (OLS) technique. This implies that credit to the private sector, liquid liabilities and the size of financial intermediaries exert significant positive influence on real sector's growth. Odediran & Udeaja (2010) showed that financial

sector and economic growth are interdependently related to each other. Odhiambo (2008) stated that there is a causal link between financial sector development and economic growth caused by financial sector development index and the demand-following hypothesis tends to prevail in Kenya.

Aizenman, Pinto & Sushko (2013) investigated how the financial contraction cycles and expansion affect the economy through their impact on 8 real economic sectors in 28 countries from 1960 to 2005. The results reported that financial contractions follow periods of accelerated growth and negatively affect many of the real sectors without improving financial expansions. Gounder (2012) examined the impact of financial sector development on Fiji economy from 1970 – 2005 and the results revealed that financial sector development does not have significant impact on economic output. Udoh & Ogbuagu (2012) with the autoregressive distributed lag (ARDL) technique investigated the relationship between financial sector development and industrial production from 1970 to 2009. The findings showed that financial sector development have significant negative effect on industrial production.

Onwumere, Ibe, Ozoh & Mounanu (2012) estimated the impact of financial deepening on economic growth in Nigeria from 1992 to 2008. The findings revealed that broad money supply and stock market liquidity promote economic growth while money stock diversification, economic volatility and market capitalization did not promote growth. Dehkordi, Sameti & Dehkordi (2012) indicated weak evidence of supply-leading hypothesis response in Iran from 1981 to 2010 and pointed that there is no causation between the financial and real sectors.

Ugochukwu, Akpan, & Raju, (2019) investigated the effect of macroeconomic variables on real estate performance in Nigeria from 1980 to 2017 using OLS regression analysis. The results show that GDP per capita, loan interest and Diaspora remittance positively affect real estate performance. Inflation and exchange rates negatively influence real estate performance in Nigeria. Adeusi, & Aluko, (2015) examine the relevance of financial sector development on real sector productivity in Nigeria from 2000 to 2013 using OLS regression. The results reveal that credit to the private sector and deposit money banks liquid liability insignificantly positively affect real sector productivity. Broad money supply (M_2) insignificantly negatively impacts real sector output.

Monnin & Jokipii (2010) revealed a positive connection between banking sector stability and real sector's output growth in a sample of 18 Organization of Economic Cooperation and Development (OECD) countries. Furthermore, it was revealed that banking sector stability results in a significant underestimation of GDP growth in the successive quarters. Sendeniz-Yüncü, Akdeniz & Aydoğan (2006) investigated if credit-view hypothesis is true in 11 OECD countries from 1987Q1 to 2003Q3. Using co-integration tests, the findings revealed that the banking sector and real sector have a long-run association in all countries. The Granger causality tests provide strong causality from banking sector to real sector in some countries. Calderón & Liu (2002) indicated that financial deepening drives growth of 109 economies through capital accumulation rate and productivity growth, with the productivity growth channel being stronger.

Literature is giving contrasting views on the relationship between banking sector and real estate growth. There are views that banking sector promotes the real estate sector (Aliyu, & Yusuf 2013; Andabai, & Eze, 2018;Udoh & Ogbuagu 2012), views that banking sector has no impact on growth (Gounder 2012; Oriavwote, & Eshenake, 2014). Other studies hold that there is interdependency between banking sector and real estate growth (Dehkordi, Sameti & Dehkordi, 2012; Sendeniz-Yüncü, Akdeniz & Aydoğan, 2006). This study investigates the causation between banking sector development, exchange rate, inflation, Interest rate and real estate growth in Nigeria.

3. Methodology

This research utilises quantitative method on the *ex–post facto,* research design with secondary time series data from 1990 to 2018 sourced from CBN bulletins and WDIs. The base year is set at 1990 due to the liberalization of the banking sector and the economic reforms of the structural adjustment program (SAP) by the Breton Wood institutions in the late 1980s in Nigeria.The data is mined using Microsoft excel before importing into the electronic view software (E-Views 9).

3.1. Material and Methods

The research adopts co-integration, autoregressive distributed lag (ARDL) and causality for analysis. The ARDL is used as it works irrespective of whether the variables are I(0), I(1) or mutually co-integrated. The ARDL is efficient and consistent with small and finite sample size observations (Samargandi, Ghosh, & Fidrmuc, 2014; Zermeño, Chimenos, Formosa, &Martínez, 2014). The technique provides unbiased estimates of the long run estimates with valid t-statistics as it works with both endogenous and exogenous lagged explanatory variables (Harris, & Sollis, 2003) and the error correction model (ECM). Studies have used Cobb-Douglas production function to estimate their models (Bashir, Mehmood, & Hassan, 2010; Saleem, & Jan, 2011).

Generally, growth analysis uses Cobb-Douglas production function with two inputs which are assumed to be constant in output scale. Nonetheless, other factors are incorporated in the function (Echevarria, 1998). The function is stated as:

$$Y_t = AK_t^\alpha L_t^\beta e^{\mu_t} \quad .... \quad (1)$$

Where Y is real estate growth, K is capital and L is labour. The parameters α and β are the capital and labour coefficients on growth respectively which range between 0 and 1, i.e. $0 < \alpha, \beta < 1$, t is time series period and μ is error term. The study investigates the link between banking sector and real estate growth, considering that housing finance plays a vital role on real estate development. Incorporating banking sector development (BSD) in the function, equation (1) provides:

$$Y_t = AK_t^\alpha L_t^\beta BSD_t^\gamma e^{\mu_t} \quad .... \quad (2)$$

The parameter γ is the coefficient of banking sector development which lies between 0 and 1, i.e. $0 < \gamma < 1$. Introducing logarithm to equation (2) gives:

$$\ln Y_t = \beta_0 + \alpha \ln K_t + \beta \ln L_t + \gamma \ln BSD_t + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

lnY represents real estate growth, proxied by construction/real estate value added to GDP.

K is the physical capital

BSD is banking sector development

L stands for labour force

μ_t is the error term

Including other factors alongside banking sector development that influence real estate growth like inflation, exchange rate and interest rate equation (3) forms:

$$REG_t = \beta_0 + \beta_1 DCPS_t + \beta_2 INF_t + \beta_3 ExR_t + \beta_4 InR_t + \mu_t \ldots\ldots\ldots\ldots\ldots (4)$$

 Where:

REG_t is real estate value added (% GDP),

$DCPS_t$ is domestic credit to the private sector by banks,

INF_t represents inflation rate,

$ExR_{it\ is}$ exchange rate,

$\ln R_t$ stands for interest rate,

μ_{it} is the stochastic error term

Theoretical explanation of variables is as follows: Domestic credit to private sector is the financial resources provided to the private sector by financial corporations, via loans, non-equity securities and trade credits which are repayable. It is expected to improve real estate growth as credit to real estate sector is a source of capital. Studies illustrate a positive link between credit to the private sector and real estate growth (Aliyu, & Yusuf 2013; Oriavwote, & Eshenake, 2014). Inflation is the continuous rise in prices of goods and services in the economy which indicates macroeconomic fluctuations. Inflation refers to the rate at which the general costs of products and enterprises are getting higher while the buying power of money is decreasing (Babatunde & Shuaibu, 2011).

It is believed to decrease real estate growth. Exchange rate is the market value for which a unit of domestic currency would be exchanged for a unit of foreign currency at a given date a time (Uchenna, Modebe, Ofure & Ezeji, 2016). It is expected that exchange rate should negatively influence real estate growth. Interest rate is the bank lending rate. This is the rate at which banks give out loans to deficit units in the economy (Ojeaga, & Odejimi, 2014). Interest rate is believed to negatively affect growth.

4. Results and Discussion

4.1. Unit Root Test

Variables	Augmented Dicker Fuller (ADF)					Philip Peron (PP)			
	T- Stat	At 1%	At 5%	At 10%	Integration level	T-stat	At 1%	At 5%	At 10%
REG	-7.13***	-3.71	-2.98	-2.62	I(1)	-6.08***	-3.69	-2.97	-2.62
DCPS	-4.49***	-3.72	-2.98	-2.63	I(1)	-3.58**	-3.69	-2.97	-2.62
INFL	-3.72**	-3.72	-2.98	-2.63	I(1)	-6.30***	-3.69	-2.97	-2.62
EXR	-4.95***	-3.69	-2.97	-2.62	I(1)	-4.95***	-3.69	-2.97	-2.62
LNTR	-6.71***	-3.69	-2.97	-2.62	I(1)	-8.08***	-3.69	-2.97	-2.62

Table 1
Source: Author's Compilation; (*), (**) and (***) Represents 1%, 5% and 10% Significant Level Respectively

Unit root test is an appropriate test employed to check the stationarity of a time series data in order to prevent spurious regression results. A time series data is stationary when the mean and variance do not change over time (Gujarati, 2004). The Augmented Dickey-Fuller (ADF) and Philip Perron (PP) tests were used to test for unit root in the series. Diehold & Kilian (2000) stated that unit root test is a useful tool in determining the estimation method to use. It is argued that rather than using econometrics models by default, a unit root test should be used to diagnose the appropriate model for the analysis. The results are shown in table 1, with the variables stationary at first difference. This implies the variables are integrated of same order I(1). This signals a long term relationship between the variables.

4.2. Correlation Analysis

Variables	DREG	DDCPS	DINF	DEXR	DINTR
DREG	1.000000				
DDCPS	-0.571838	1.000000			
DINF	0.445346	-0.534925	1.000000		
DEXR	0.153512	-0.109925	-0.325076	1.000000	
DINTR	0.420005	-0.600524	0.536585	-0.339779	1.000000

Table 2
Source: Author's compilation

According to (Gujarati, 2004) when the coefficients between the variables exist within certain thresholds, it signals weak, moderate and strong correlation in both positive and negative directions. If the coefficients lie below 0.5 (-0.5), it is described as weak correlation, when it is between 0.5 (-0.5) and 0.8 (-0.8), it is qualified as moderate correlation and if it is found above 0.8 (-0.8), indicates strong multicollinearity. The results from table 2 show that the variables are not highly correlated. From the results, all explanatory variables are positively correlated to real estate growth except DCPS which is negatively signed to real estate growth at a moderate range.

4.3 Co-integration

Hypothesized No. of CE(s)	Eigen Value	Trace Statistic	0.05 Critical Value	Eigen Value	Max-Eigen Statistic	0.05 Critical Value
None ***	0.900952	136.8075	95.75366	0.900952	55.49169	40.07757
At most 1 ***	0.833409	81.31582	69.81889	0.833409	43.01312	33.87687
At most 2	0.525841	38.30270	47.85613	0.525841	17.90911	27.58434
At most 3	0.372529	20.39359	29.79707	0.372529	11.18538	21.13162
At most 4	0.244813	9.208206	15.49471	0.244813	6.738959	14.26460
At most 5	0.097770	2.469247	3.841466	0.097770	2.469247	3.841466

Table 3
Source: Author's Compilation; (*), (**) and (***) Represents 1%, 5% and 10% Significant Level Respectively

The Johansen co-integration test was utilized to establish the long run association between the variables in the model. In table 3 using the Trace and Max-Eigen statistics, the results indicate two co-integrating equations in the models. The variables are co-integrated given that the Trace and Max-Eigen statistics values for the first two equations are higher than their respective critical values at 5%. The results reveal that there is a long run relationship between banking sector development and real estate growth. This paves the way for the utilization of the ARDL and the vector error correction model (VECM) to check the short and long runs dynamics.

4.4. Autoregressive Distributed Lag (ARDL)

VARIABLES	REG
REG(-1)	1.011487*** (5.312777)
REG(-2)	-0.571881** (-2.764021)
DCPS	0.018532 (0.101380)
INF	0.172632*** (4.399243)
EXR	-0.009867 (-0.707873)
EXR(-1)	0.017108 (0.986656)
EXR(-2)	0.025205** (2.229774)
INTR	-0.269555 (-1.209159)
INTR(-1)	0.349763 (1.503069)
C	7.300341 (1.018689)

Table 4
Source: Author's Compilation from E-Views 9, (***) and (**) Represents 1% and 5%
Significance Level Respectively, T-Statistics Values In Parenthesis

From table 4 above, the maximum lag used is 2, determined by the Alkaike information criterion (AIC), Swatz information criterion (SIC) and the Hanna-Quinn criterion. The results show that the first lag of real estate growth, inflation rate and the second lag of exchange rate positively and significantly influence real estate growth. The second lag value of real estate growth negatively and significantly impacts real estate growth. These findings indicate that a year previous value of real estate growth, inflation rate and a two year past value of exchange rate promotes real estate growth in Nigeria. The results of inflation rate contradict the economic expectation while that of exchange rate follows the expectation.

On the other hand, a two year past value of real estate growth decreases real estate growth. Domestic credit to the private sector, first lag of exchange rate and first lag of interest rate positively and insignificantly influence real estate growth in Nigeria. Domestic credit to the private sector exerts an insignificant impact on real estate growth probably given the fact that the credit provided to the private sector is directed to investments in other sectors of the economy than the real estate sector. This result is in tandem with (Gounder 2012; Oriavwote, & Eshenake, 2014) who viewed that bank credit has no effect on real estate development and contradicts (Aliyu, & Yusuf 2013; Udoh & Ogbuagu 2012). This result meets the a priori expectation. The bound test of co-integration reveals a long run relationship within the series since the F-statistics value of 5.18 is greater than I(1) upper bound of 3.09 and the null hypothesis is not accepted.

4.5. Error Correction Model (ECM)

VARIABLES	REG
D(REG(-1))	0.571881***
	(4.017105)
D(EXR)	-0.009867
	(-0.987859)
D(EXR(-1))	-0.025205***
	(-2.959379)
D(INTR)	-0.269555*
	(-1.928334)
ECT_{t-1}	-0.560395***
	(-6.343362)

Table 5
Source: Author's Compilation from E-Views 9, (***), (**) and (*) Represents 1%, 5% and 10%
Significance Level Respectively, T-Statistics Values In Parenthesis

Table 5 presents the ECM short run dynamic relationship between the variables. These findings illustrate that the differenced first lag value of real estate growth positively influence real estate growth while exchange rate negatively influence real estate growth in the short run at 5% level. The differenced value of interest rate negatively affects real estate growth at 10% level. The error correction term (ECT_{t-1}) appears with a negative sign and is statistically significant. This indicates stability in the model and convergence in the long run to the equilibrium position at an adjustment speed of 56% annually. This implies that deviations from the real estate sectors equilibrium are corrected approximately after two years. Diagnostically, the Wald test is used to check the short run coefficients; serial correlation is checked using the serial correlation LM test which indicates no evidence of serial correlation while heteroskedasticity test is done using the Beutch Pagan Godfrey test which revealed absence of heteroskedasticity. For model stability, the cumulative sum (CUSUM) test is applied which showed a stable model as it lies within the confidence interval bounds. These are procedures employed by (Pesaran & Pesaran, 1997) for diagnostics.

5. Conclusion

The vitality of real estate sector attracts researches on the bond between banking sector and real estate growth worldwide. This research examines the long term bonding of banking sector development and real estate growth in Nigeria employing multi-causality checks in the ARDL and VECM systems. Co-integrating connection among the variables exists given that the unit root results show first difference stationarity. Causality is absent between banking sector development and real estate growth in Nigeria. This study finalizes that banking sector development proxied by domestic credit to the private sector has a positive and an insignificant influence on real estate growth in Nigeria.

It is recommended that regulatory authorities of the commercial banks and Central Bank of Nigeria (CBN) should adjust the regulatory policies guiding the provision of credit to private sector so that the credit should be directed to specific sectors like real estate. Additionally, the Nigerian government through the (CBN) should improve real estate financing due to its strategic importance to the growing population and contribution to economic growth. Finally, the Nigeria government should encourage venture capital funding for the real estate sector and promote public-private partnership (PPP) in the sector. These recommendations are expected to increase the impact of credit to real estate growth in the Nigerian economy. This study reveals that banking sector development makes an insignificant contribution to real estate growth in Nigeria.

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