FINANCIAL MARKETS DEVELOPMENT AND PRIVATE SECTOR GROWTH IN NIGERIA 1989-2016: A TIME SERIES ECONOMETRICS INVESTIGATION

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Abstract

This study examined the relationship between financial markets development and private sector growth in Nigeria for the period, 1989-2016. The study adopted time series data obtained from Central Bank of Nigeria Statistical Bulletin. The study employed Private Sector Output as proxy for Private Sector Growth and used as the dependent variable; whereas, Broad Money Supply, Credit to the Private Sector, Interest Rate and Market capitalization are used as the explanatory variables to measure financial markets development. Hypotheses were formulated and tested using time series econometrics techniques. The study revealed that all the variables of the study are stationary at first difference. The study showed the existence of at least one co-integrating relationship at 5% level of significance. The study revealed no short-run equilibrium significant relationship between financial markets development and the private sector growth in Nigeria. There is no causal relationship between financial markets development and private sector growth in Nigeria. The study concluded that financial markets development has not significantly contributed to the growth and development of the private sector-led economy in Nigeria. The study recommended that for the private sector to grow, the sector should be encouraged in form of concessional and reduced interest rate. The study suggested that regulatory authorities should stabilize the interest rate which is capable of ensuring price stability and maintaining inflation to a single digit. This may build confidence in the financial institutions and will enable them to introduce innovations to boost the private sector output in the economy. CBN and policy makers should adopt vibrant economic policies; such as, interest rate stability, flexible exchange rate, indigenization and economic diversification which will encourage the financial institutions in financing the private sector led-economy.

Keywords: Financial, markets, development, private, sector, growth, Nigeria.

Introduction

The theoretical literature on financial markets development and growth relationship had remained controversial, because of different views; supply-leading and demand-following propositions (Andabai, 2016). The supply-leading hypothesis is traceable to the work of Schumpeter (1934) on the role of financial institutions and growth. The study indicates that financial institutions promote growth in an economy through efficient allocation of loanable funds to the productive sectors. Several scholars such as Mushin and Eric (2000), Ikeora (2007), Dermigue-Kunt and Levine (2008) also supported the proposition that financial development contributes to growth. They posit that an efficient financial market is a necessary requirement for the overall achievement of growth and development in any modern economy. Based on these authors' views, the study conclude that the argument behind financial sector development promote private sector growth is consistent with the supply-leading hypothesis. Hence, the demand-following proposition posits that it is the growth of the economy that leads to financial markets development.

The studies conducted by Busari and Olayiwola (2001), Afolabi (2004) and Egbon (2008) who in their separate studies observed that Nigeria like most African countries at independence, relied heavily on public sector-led economy. But presently these arrangements are changing gradually; because, government at all levels has embraced privatization of its public enterprises and this explains the emphasis now being laid on private sector-led economy. Before the Structural Adjustment Programme (SAP) was introduced in 1986, the Central Bank of Nigeria had been using direct controls to influence credit allocation to both the preferred and less preferred sectors of the economy. Hence, this was in line with the financial repression system.

Thus, the advent of financial liberalization policy in 1986 has drastically reduced financial repression in the Nigerian financial system. This is consistent with the financial liberalization theory by McKinnon (1973) and Shaw (1973), which addresses the problems caused by the repressive financial policies in most developing economies such as Nigeria. This corroborates the work of Ogiriki and Andabai (2016), which shows a positive significant relationship between financial services and real sector growth in Nigeria. Hence, the study concludes that provisions of financial services stimulate the productive sectors such as: manufacturing, oil and gas, agriculture, construction, communication, solid minerals, real estate, trade, utilities etc.

Theoretical Framework

This study is anchored on the financial intermediation theory by Gurley and Shaw (1967). The theory explains the role of bank credit in an economy. The theory stated that the business of financial intermediation in any modern economy is to provide a mechanism to draw financial flows from financially exceeding agents to those having a financial need in the economy. This means that banking institution can influence private sector growth by extending credit to the sector. Recent studies such as Akpansung and Babalola (2012), Imoughele and Ismaila (2014), Nwaru and Okorontah (2014) reveal that financial markets also promotes the function of financial intermediation in the private sector-led economy. They conclude that the function of financial services had enhanced private sector growth and development through an effective capital accumulation and investments in the sector.

Their argument further corroborate the work of Anosike (2013) which states that financial institutions acts as a shock absorber to growth and development of productive sector. The study conducted by Andabai (2016) stated that the under-development of the financial sector is one of the reasons why, private sector investment in developing countries tend to produce lower output than that of advanced countries.

The empirical work by Bazere (2014) observed that the role of financial institutions to private sector in stimulating economic growth and development cannot be over emphasized. As a result, this is one of the most important sources of financing firms; especially, in countries where capital markets are not fully developed. Studies conducted by Nzotta (2014), Andabai and Bingilar (2015) posit that bank credit is one of the important aspects of financial services that provide funds to economic entities that can put them to the most productive investment in an economy. The study conclude that credit availability for consumption and investment are capable of raising the level of private sector output and create employment opportunities in the economy. Hence, financial institutions should finance any positive net present value project if the cost of investment is below the expected returns. Based on these contributions, there is a justification for anchoring this study on the financial intermediation theory.

Empirical Review

Andabai (2014) employs Ordinary Least Square (OLS) to examine the relationship between private sector development and economic growth in Nigeria using time series spanning data of 18 years (1997-2014). Gross Domestic Product, Manufacturing Sector Growth, Agricultural Sector Growth and Oil and Gas Sector Growth were used as variables for the study. The results show a positive significant relationship between private sector development and Gross Domestic Product in Nigeria.

Uduak and Chinedu (2014) used Ordinary Least Square (OLS) to examine the relationship between financial development and construction sector growth in Nigeria for a period of 29 years (1985-2013). Gross Domestic Product, Bank Credit to Private Sector, Interest Rate, Broad Money Supply, and Exchange Rate were used as variables for the study. The results show a positive significant relationship between financial development and construction sector growth in Nigeria. The study concludes that the construction sector in Nigeria is growing, therefore should be encouraged by government and investors.

Leonard (2012) adopted time series econometrics technique to establish the relationship between financial development and manufacturing sector growth in Italy which spanned a period of 25 years (1986-2010). Variables used for the study includes Gross Domestic Product, Bank Credit to the Sector, Lending Rate and Exchange Rate. The study reveals a negative significant relationship between financial development and manufacturing sector growth in Italy.

Obamuyi, Edun and Kayode (2013) employed Vector Error Correction Model (VECM) to investigate the relationship between bank lending and the performance of the manufacturing sector output in Nigeria, covering a period of 36 years (1973-2009). Manufacturing Production, Lending Rate, Exchange Rate, Inflation, Gross Domestic Product and Financial Deepening Ratio were used as variables for the study. The study

reveals a positive significant relationship between manufacturing sector output and bank lending in Nigeria. Based on the foregoing results, they posit that the importance of the financial system as a catalyst for the manufacturing sector growth and development cannot be over-emphasized.

Tonye and Andabai (2014) used Granger-causality to investigate banking institutions and private sector-led growth in Nigeria using time series data over the period (1987-2013). The variables of the study are as: Gross Domestic Product, Credit to Private Sector, Interest Rate and Broad Money Supply. The study reveals a causal relationship between banking institutions and private sector-led growth in Nigeria.

Aliyu and Yusuf (2013) used a multiple regression analysis to ascertain the impact of private credit on the real sector growth in Nigeria over the period of (1986-2010). Gross Domestic Product, Demand Deposit, Credit to the private sector and Lending Rate were used as the variables for the study. The study shows a positive significant impact of bank credit to private sector on the real sector growth in Nigeria.

Methodology

The study applied *ex-post-facto* research design to source requisite information. An *ex-post-facto* research design is a systematic empirical inquiry that requires the use of variables which the researcher does not have the capacity to change its state or direction in the course of the study (Onwumere, 2009). Data for this study were sourced from the Central Bank of Nigeria Statistical Bulletin, 2016, Online Edition available in: <u>www.cenbank.org</u>. Data collected and used for the variables form the basis of this study which covered the period of 28 years (1989-2016). The variables used for this study are stated as follows: (PSO), CPS, INT, M₂ and MAC. Where: PSO = Private Sector output used as the dependent variable of the study. CPS= Credit to the Private Sector. INT=Prime Lending Rate. M₂=Broad Money Supply. MAC= Market capitalization

Model Specification

Multivariate linear regression model is used to test the null hypotheses proposed for this study: There is no long-run equilibrium relationship between financial markets development and private sector growth in Nigeria. There is no causality between financial markets development and private sector growth in Nigeria. Based on these hypotheses, a model was adopted from the work of Aniekan and Babalola (2009) and stated as: GDP = $f(CPS, INTR, MAC, M_2)$

Where:

GDP = Gross Domestic Product as proxy for economic growth as the dependent variable. CPS= Credit to the Private Sector

 $M_2 = Broad Money Supply$

INTR= Interest Rate

MAC= Market capitalization.

The above model is modified in this study by introducing private sector output as prox	y
for GDP and was employed as dependent variable. The modified model can be written as	s:
$PSO = f(CPS, INTR, M_2, MAC).$	1)
The equation becomes:	

 $LnPSO = d_0 + d_1LnCPS + d_2LnM_2 + d_3INT$ $+d_4MAC$ +μ(2)

Where:

PSO = Private Sector Output is proxy for Gross Domestic Product as dependent variable

CPS = Credit to the Private Sector

 $M_2 = Broad Money Supply$

INTR= Interest Rate (Prime Lending Rate).

MAC= Market capitalization, d_0 = intercept and d_1 , d_2 , d_3 and d_4 are the coefficients of the regression equation. μ is the stochastic or error term while Ln is the natural log of the variables. Log transformation is necessary to reduce the problem of heteroskedasticity because it compresses the scale in which the variables are measured, thereby reducing a tenfold difference between two values to a twofold difference (Gujarati, 2004).

Data Presentation and Discussion

A sample of 28-year observations of time series data for the period, 1989-2016 were collected from CBN Statistical Bulletin as represented in appendix 1. Hence, time series econometrics techniques were used to test the hypotheses: (i) There is no long-run equilibrium relationship between financial markets development and private sector growth in Nigeria, (ii) There is no causality between financial markets development and private sector growth in Nigeria.

Unit Root Test

The Augmented Dickey-Fuller (ADF) and the Philips-Perron (PP) tests are conducted on the variables, to determine whether they are stationary or non-stationary series as presented in table 1.

Table 1: The Unit Root Test Results for the Selected Variables					
Variables		Augmented	Phillips-	Order of	Remark
		Dickey-	Perron test	Integration	
		Fuller test			
PSO	1 st Difference	-0.515213	2.040291	1(1)	Stationary at
	1 st Difference	-5.612242*	-1.562233		1 st Difference

difference

Table 1: The Unit Root Test	Results for the	Selected V	Variables
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	CPS	1 st Difference	0.354163	0.323728	1(1)
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	1 st Difference	-4.224177*	-4.041604*		Stationary at 1 st Difference difference
MAC	1 st Difference 1 st Difference	-1.298462 -4.772822*	-2.823710 -7.764415*	1(1)	Stationary at 1 st Difference
M_2	1 st Difference 1 st Difference	-0.438135 -3.306049**	0.115207	1(1)	Stationary at 1 st Difference
INT	1 st Difference	-3.324502**	-3.283532**	1(1)	Stationary at 1 st

Note: The critical values are -3.64, -2.95 and -2.61 at 1%, 5% and 10% significance levels respectively; Significance of coefficients are reported using p-values. * denotes significant at 1%, ** denotes significant at 5%. **Source:** Author's computation from E-views 8.0

Decision rule: Reject the null hypothesis when the test statistical value is less than the critical value. Otherwise accept and test at difference (1 or 2). The significance level for the analysis is 5%. The results of the stationarity tests are shown in table 1, and reveals that the variables are stationary at first difference.

Co-integration Test

Having established that all the variables in the model are stationary, the study then moves on to test for long-run relationship between the dependent and the independent variables using the Johansen Co-integration test (Johansen, 1991).

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Hypothesized	Ma	x-Eigen	Т	race	
No. of CE(s)	Statistic	Critical Value	Statistic	Critical Value	
None	31.77694*	33.87687	79.36525*	69.81889	
At most 1	24.16786	27.58434	47.58831	47.85613	
At most 2	13.96193	21.13162	23.42045	29.79707	
At most 3	9.096743	14.26460	9.458517	15.49471	
At most 4	0.361774	3.841466	0.361774	3.841466	

Table 2: Co-integration Test for PSO, CPS, M₂, INT, INFL

Trace test indicates 1 co-integrating equation(s) at 5% significant level Max-eigenvalue test indicates no co-integration at 5% significant level * denotes rejection of the hypothesis at 5% significant level

Source: Author's computation from E-views 8.0

The result in table 2 examines the presence of long-run relationship among the financial markets development variables (CPS, M_2 , MAC and INT) and private sector output. Based on the FPE and AIC lag selection criteria, the lag length adopted for the model is 1 to 2. From the results in table 2 Max-Eigen statistics indicates no co-integrating equation, while Trace Statistics shows one co-integrating equation. Based on the result of the Trace statistics, the study concludes that at least one co-integrating equation can be formed from the model.

Vector Error Correction Mechanism

Given the existence of co-integrating equations in the model employed for this study, it becomes ideal to carry out Error Correction Mechanism (ECM) test in order to determine the short-run dynamics of the relationships. Thus, the Vector Error Correction Mechanism (VECM) was conducted to determine the speed of adjustment between financial markets development and private sector growth relationship in Nigeria.

Error Correction:	D(PSO)	D(CPS)	D(MAC)	D(M ₂)	D(INT)
CointEq1	-0.041028 (0.03055)	-0.000814 (0.01648)	9.817969 (4.07452)	0.013063 (0.01298)	0.204744 (1.21583)
	[-1.34306]	[-0.04940]	[2.40960]	[1.00664]	[0.16840]

Table 3: Vector Error Correction Mechanism

() is standard error and [] are the t-statistics

Source: Author's computation from E-views 8.0

Table 3 shows the result of the short-run relationship between financial markets development and private sector growth in Nigeria. The Vector Error Correction Mechanism (VECM) result is -0.041028. This indicates that the model has a negative sign; and the magnitude of the error correction term coefficient lies between 0 and 1. This implies that the error term is rightly signed. This indicates about 4% adjustment speed to long-run equilibrium each year. Based on the rule of thumb, the t-statistics (-1.34306) is less than 2, thus the error term is statistically not significant. This reveals that the short-run adjustment to long-run equilibrium is statistically insignificant. Thus, the study concludes that financial markets development has no significant short-run equilibrium relationship with private sector growth in Nigeria.

Granger Causality Analysis

Granger causality test is used to examine the causal direction; that is, which of the variables (dependent and independent variable) influences the relationship between them. The null hypothesis is: Independent variable does not granger cause the dependent variable. The decision rule is to reject the null hypothesis, when the Chi-Square statistics and their corresponding probability values are less than (5%) level of significance. Otherwise, do not reject the null hypothesis.

Table 4: Granger Causality/Block Exogeneity Wald Test for financial development and Private Sector Growth

Variable	Chi-sq	Df	Prob.	
CPS	0.022910	2	0.9886	

MAC	1 022101	2	0.2805
М	1.922181	2	0.3825
1 v1 2	0.064785	2	0.9681
INT	1.378188	2	0.5020
All	3.341901	8	0.9111

Note: Dependent variable: PSO, * denotes significant at 1%, ** denotes significant at 5%; *** denote significant at 10%. **Source:** Author's computation from E-views 8.0

Table 4 is the result of granger causality test for financial markets development and private sector growth. This indicates that financial markets development variables do not have a causal relationship with private sector output in Nigeria. Based on the Chi-Square statistics and its corresponding probability values; none of the financial markets development variables (CPS, MAC, M₂, and INT) granger-cause private sector growth in Nigeria. This suggests that all the exogenous variables jointly do not have causality with the dependent variable, private sector growth (PSO). Thus, the study concludes that there is no causality between financial markets development variables (CPS, MAC, M₂ and INT) and private sector growth in Nigeria.

Conclusion

This study indicates that financial markets development has no significant relationship with private sector growth in Nigeria. Hence, there exists a significant long-run relationship between financial markets development and private sector growth. Thus, financial development has no causal relationship with private sector growth in Nigeria. There is no significant short-run equilibrium relationship between financial market development and private sector growth in Nigeria. In conclusion, it can be stated that financial markets development has not significantly contributes to the growth and development of the private sector-led economy in Nigeria. This could be as a result of high interest rate, rising inflation, inconsistent monetary policies, inability to implement the formulated policies, economic and political instability; which is capable of eroding the benefits of financial services to the private sector-led economy (Andabai, 2017).

Policy Implications and Recommendations.

The study recommends that government should formulate functional policies such as price stability, full employment, exchange rate stability, economic growth and favourable balance of payment in order to cushion short-run economic problems such as inflation rate, interest rate and exchange rate fluctuations in the private sector-led economy. The regulatory authorities should encourage the private sector through concessional and reduced interest rate. The monetary authorities should stabilize the interest rate which is capable of ensuring price stability and maintaining inflation to a single digit. This may build confidence in the financial institutions and will enable them to introduce innovations to boost the sector output in the economy. CBN should reduce the legal reserve and liquidity ratios respectively in order to increase the flow of investable funds which may improve the capacity of banks to extend credit to the sector.

Contribution to Knowledge

The study was able to modify the model, expand the existing literature and updated data that will enable researchers and scholars to use it for further studies. The study concludes that financial market development has not significantly contributed to the growth and development of the private sector-led economy in Nigeria. The factors responsible for this can be traceable to inadequate provision of financial services by the financial intermediaries, economic and political instability and inability to implement the formulated policies by the regulatory authorities (Central Bank of Nigeria and Federal Ministry of Finance).

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Appendix 1: Private Sector Growth and F	inancial Development in Nigeria (1989)_
2016)		

Years	Private Sector Output (N' Billions)	Lending Rates (Prime)%	Broad Money Supply (N' Billions)	Market Capitalizati on (MAC) (N'Billion)	Credit to the Private Sector (N' Billions)
1989	311.8	26.80	45.90	15.46	30.40
1990	253.9	25.50	52.86	16.45	33.55
1991	453.9	20.01	75.40	23.13	41.35
1992	745.6	29.80	111.11	31.24	58.12
1993	896.4	18.32	165.34	47.54	127.12
1994	1,099.0	21.00	230.29	66.34	143.42
1995	2,417.3	20.18	289.09	180.43	180.00
1996	3,401.7	19.74	345.85	285.84	238.60
1997	3,474.6	13.54	413.28	281.90	316.21
1998	3,154.3	18.29	488.15	262.63	351.96
1999	3,727.0	21.32	628.95	300.04	431.17
2000	5,618.7	17.98	878.46	425.46	530.37
2001	5,353.4	18.29	1,269.32	662.53	764.96
2002	6,158.2	24.85	1,505.96	764.90	930.49
2003	7,946.8	20.71	1,952.92	1,359.3	1,096.54
2004	8,688.5	19.18	2,131.82	2,112.5	1,421.66
2005	11,069.5	17.95	2,637.91	2,900.1	1,838.39
2006	13,817.4	17.26	3,797.91	5,120.9	2,290.62
2007	15,321.9	16.94	5,127.40	13,181.7	3,668.66
2008	18,221.3	15.14	8,008.20	9,563.0	6,920.50
2009	17,820.4	18.99	9,419.92	7,030.8	9,110.86
2010	26,116.8	17.59	11,034.94	9,918.2	10,157.02
2011	28,324.0	16.02	12,172.49	10,275.3	10,660.07
2012	30,053.1	16.79	13,895.39	14,800.9	14,649.28
2013	30,278.2	16.72	15,158.62	19,077.4	15,778.31
2014	49,097.94	16.55	17,680.52	16,875.1	17,128.98

2015	53,278.52	17.72	15,158.62	17,003.4	15,778.31
2016	54,097.94	17.55	17,680.52	16,357.1	17,128.98

Sources: Central Bank of Nigeria Statistical Bulletin 2016.