Nexus between Financial Sector and Sustainable Development in Nigeria: A Principal Component Analysis

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Abstract: The financial sector has been recognized in the literature as a potential that could drive sustainable development in the developing nations and Nigeria is no exception. This study examined the link between financial sector and sustainable development in Nigeria. Specifically, study seeks to investigate the effects of the banking, stock market, and the insurance segments on sustainable development in Nigeria. Based on data availability, a time series data from 1986-2015 were obtained. The data for sustainable development-economic development, social development, and environmental quality were aggregated using the principal component analysis (PCA). The aggregated index for sustainable development and the financial sector data were subjected to ARDL-Bounds estimations. Findings reveal that the banking and the stock market subsectors positively and significantly propel sustainable development in Nigeria, while the insurance subsector drives sustainable development in Nigeria only in the short run. Study therefore; recommend policies strengthening these main segments of the financial sector in order to drive sustainable development in Nigeria. This study contributed to knowledge being a forerunner to holistically combine and study the three main pillars of sustainable development in Nigeria. Study also stands out by connecting the financial sector to sustainable development in Nigeria.

Keywords: economic; social; environmental; sustainability; Nigeria

JEL Classification: G2; F62; F63

1. Introduction

Nigeria targets to achieve sustainable development in year 2030, which implies that all indicators grouped under the three main pillars of sustainable development, which are economic sustainability, social sustainability, and environmental sustainability are to be given adequate attention. However, with just ten (10) years to achieving a sustainable Nigeria, problem still exist in the dimensions of sustainable development, as poverty and income distribution (measures of social development), economic development, and environmental quality are not in satisfactory conditions (Central Bank of Nigeria, 2017; Ademokoya & Abdullahi,

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2019a; 2019b). Further, for over forty years Nigeria's GDP growth rate is far less comparable with those of the developed countries as the growth rate of GDP collapsed from 2.7 percent in 2015 to -1.5 percent in 2016 culminating to a full negative growth in 25 years (National Bureau of Statistics, 2017; CBN, 2017; World Bank Group, 2017a; 2017b; Ademokoya & Abdullahi, 2019a). Also, the Sustainable Development Report (SDR) 2020 ranked Nigeria 160th out of the 193 countries surveyed, where other African nations such as Algeria, Tunisia, Ghana, and South Africa were ranked 56th, 63rd, 100th, and 110th respectively therefore, outperforming Nigeria in their sustainability rankings in the continent.

The United Nations (2015) recognizes a sound financial system as one of the major complement to achieving sustainable development especially in the developing nations. Ridzuan, Ismail and Hamat (2017) noted financial system as one of the potential drivers of sustainable development, and this is in consonance with the views of Klapper, El-Zoghbi, and Hess (2016) who submitted that financial system drives sustainable growth. Financial sector has been argued to fuel economic growth in evolving economies and that it can upsurge the efficiency and effectiveness of a nations financial structure, this is because it is both pro-poor and pro-growth (Beck, Levine & Loayza, 2000; Sardosky 2010). The Nigerian financial sector consist of numerous subsectors however, the main players are the banking, stock market, and the insurance subsectors (CBN, 2017; Umejiaku and Obumneke, 2017; Ademokoya & Abdullahi, 2019b). Despite the presence of these main subsectors of the financial system, the Nigeria's sustainability performance remains worrisome and thereby calls for attention. This therefore, serves as a motivation for this study. This study however, assessed how the major subsectors of the Nigerian financial sector-banking, insurance subsector, and the stock market could propel sustainable development in Nigeria in line with the views of (European Commission, 1997; United Nations, 2015; Klapper et al. 2016; Ridzuan et al. 2017) among others.

This study was organized into five sections. The first section introduced this study. The second section presents the existing studies in the literature. Section three considered the methodology adopted by this study. Section four revealed the empirical results and findings of this study, while the final section concluded and gave policy recommendations.

2. Review of Literature

Studies have been conducted on sustainable development and evidences exist in different climates around the globe. For example, studies linked to economic sustianability such as Rajan and Zingales (2003), and Christopoulos and Tsionas (2004) hold that a large body of empirical investigations supports that the financial sector spurs economic growth. Apergis, Filippidis and Economidou (2007) submitted that measures of financial development such as stock market capitalization, domestic credit to private sector, assets or liquid liabilities of financial institutions have been found to be positively related to economic growth. Similar findings exist in Abu-Bader and Abu-Qarn (2008); and Bongini, Iwanicz-Drozdowska, Smaga and Witkowski (2017) in the case of Egypt, and Central, Eastern, and South-Eastern (CESSE) countries respectively. Same Evidence exists in the case of Nigeria as revealed in the findings of Ogwumike and Salisu (2009); Solarin and Jauhari (2011); and Balago (2014).

On environmental quality studies of Dar and Asif (2017) studied financial sector development and carbon mitigation in India from 1971 to 2013 and opined that financial sector degrades the environment in India. Moghadam and Lotfalipour (2014) found that financial indicators accelerate environmental abuses in Iran. In the case of Malaysia Islam, Shahbaz, Ahmed and Alam (2013) revealed that financial sector positively and significantly affect energy consumption. Volz (2018) submitted that the financial system plays crucial role in green transformation in Asian countries such as Viet Nam, India, China, Mongolia, Bangladesh, Indonesia, Laos, Nepal, Thailand, Singapore, Philippines, and Pakistan. The study concludes that for the Asian economies to succeed there is need to align their financial system with sustainable development. Okeke, Izeueke and Nzekwe (2014) opined that sustainable development is driven by energy security in Nigeria.

This study deviates from these existing studies by holistically combining the main dimensions of sustainable development in Nigeria using the PCA. This study also stands out being a forerunner to connecting the financial sector to sustainable development in Nigeria in line with the views of the United Nations (2015); United Nations and Environmental Programme (UNEP) Finance Initiative (2016); and Agha, Robins, and Zadek (2018) among others, that the financial sector is a possible catalyst of sustainable development especially in the developing nations.

3. Methodology

3.1. Model Specification

The model specification of Ridzuan, Ismail, & Hamat (2018) on economic sustainability was adapted and modified to capture the desired variables of this study. The model of Ridzuan, et al. (2018) is specified as:

$$LNGDP_t = \beta_0 + \beta_1 LNLAB_t + \beta_2 LNDI_t + \beta_3 LNFDI_t + \beta_4 LNHC_t + \beta_5 LNTO_t + \beta_6 LNFD_t + \mu_t \quad (1)$$

The variable inclusion in Ridzuan et. al. (2018) stemmed from the cob-Douglas and the Endogenous growth models. Where LN represents log-linear values, GDP is gross domestic product, labour is represented as LAB, DI is gross capital formation, FDI is direct foreign investment, HC stands for enrolment in secondary school, TO represents openness of trade, and financial development is FD. This study however, adapts the explanatory variables in the model of Ridzuan et. al. (2018) to include the financial sector variables focusing on the major subsectors of the Nigerian financial sector-banking, stock market, and the insurance subsector in line with the views of the Central Bank of Nigeria (2017). The explained variable, which is the log of GDP (LNGDP) in Ridzuan et. al. (2018) represents economic sustainability; this was modified and replaced in this study by an aggregated sustainability index pooled from the three dimensions of sustainable development using the principal component analysis. Therefore, the model of this study is specified as:

$$SD_t = f(CPS_t, BM_t, MCAP_t, TST_t, ISP_t, GR_t) \quad (2)$$

The structural and econometric form of model (2) is therefore given as follows:

$$SD_t = \alpha_0 + \alpha_1 CPS_t + \alpha_2 BM_t + \alpha_3 MCAP_t + \alpha_4 TST_t + \alpha_5 ISP_t + \alpha_6 GR_t + \epsilon_t \quad (3)$$

Where: SD is the aggregated sustainable development index computed from the three dimensions of sustainable development using the principal component analysis (PCA). The CPS is domestic credit to the private sector as a percent of GDP, BM is broad money supply as a percent of GDP, MCAP is stock market capitalization as a percent of GDP, TST is total shares traded as a percent of GDP, ISP is gross insurance premiums as a percent of GDP, and GR represent government reforms (control variable), noting that government reform is an important factor that could propel healthy competition of the sector. The various financial sector variables used in the model of this study conform to the studies of Levine (1997); Beck, Thornsten and Webb (2003); Alfaro, Chanda, Kalemli-Ozcan, and Sayek (2004); World Bank, (2006); Marco (2008); Ozturk and Acaravci (2010); Beck, Dermirguc-Kunt, and Levine (2010); and Ghildiyal, Pokhriyal, and Mohan (2015).

3.2. Data Sources and Measurement of Variables

This section presents the summary of all sources from which data were obtained for this study, as well as the measurement of all variables and are contained in the Table 1 below.

Table 1. Summary of Data Sources and Measurement of Variables.

Variables	Sources	Description/Measurement
Ratio of CPS to GDP	CBN Statistical Bulletin	It is an indicator that measures the banking sector intermediation level and it is expected to propel economic development. It is measured as credit to the private sector as a percent of gross domestic product.
Ratio of Broad Money to GDP	CBN Statistical Bulletin	It is a banking sector indicator that captures the degree of monetization in the system. It is measured as M2 as percent of gross domestic product.
Ratio of Stock Market Capitalization to GDP	World Development Indicator	It indicates the size of the stock market relative to the size of an economy. It is measured as stock market capitalization as a percent of gross domestic product.
Ratio of Total Shares Traded to GDP	World Development Indicator	It indicates the total shares traded as a share of national output and therefore, reflects the level of stock market liquidity in an economy. It is measured as the total shares traded as a percent of gross domestic product.
Ratio of gross insurance premium to GDP	CBN Statistical Bulletin ; & NAICOM Annual Reports.	It indicates the level of penetration of the insurance sector on life and non-life policies in an economy. It is measured as the ratio of gross premiums to gross domestic product.
Government Reform	Author	A dummy variable which indicates the reforms exercised by the government in the Nigerian financial system. A score of 1 is allocated to years of reforms in the financial system otherwise 0 is allocated.
Sustainable Development	Author	An aggregated index for economic, social, and environmental safety pooled using PCA.

Note: CBN means the Central Bank of Nigeria

Source: Author's Compilation (2020)

3.3. Method of Analysis

The unit root test was applied on the time series data in order to check for stationarity in data using the Augumented Dickey-Fuller and Phillips-Perron tests. This was necessary in order to be sure that no single variable was integrated at second difference I(2). Also, different diagnostics tests were also conducted before determining whether long run associations exist among variables using the bounds test to cointegration. Further, the Autoregressive Distributed Lag (ARDL) short run and long run elasticities were obtained in order to see the effect of each of the financial sector indicators on sustainable development both in the short and long runs respectively.

4. Empirical Results

4.1. Trend Analysis of variables

Figure 1 below shows the time plot of each of the variables employed in the analysis of this study. The figure shows line graph for variables such as sustainable development index (SD), domestic credit to private sector (CPS), broad money supply (BM), stock market capitalization (MCAP), total stock trade (TST), and insurance sector premium (ISP). Government reform was omitted from this analysis because it's a dichotomous variable, a time plot of which would not be meaningful.

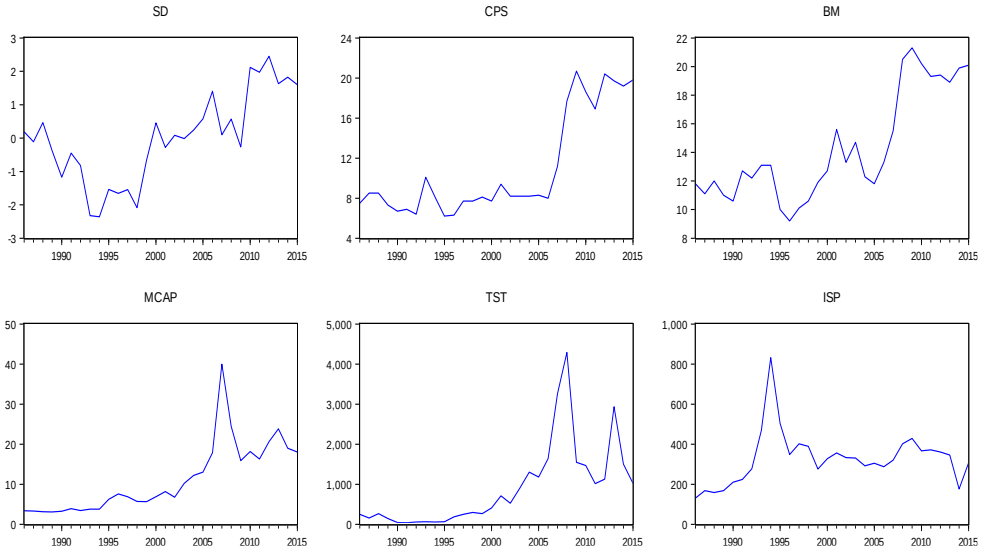

Figure 1. Time Plot of Variables

Figure 1 shows that sustainable development index exhibit an upward trend despite its somewhat stochastic movement. This is shown by the fact that its values are increasing with time. Similar trend is shown for broad money which also exhibits an upward trend even though there is evidence that its movement is stochastic. For the Credit to private sector, broad money supply, stock market capitalization, and total stock traded, Figure 1 shows that these four financial sector indicators exhibit upward trend over time, meaning that their values have continued to be on an increase since the beginning of the period till the end. Insurance sector almost remained around the same value throughout the period. Although its value surged upward towards the beginning but immediately revert back to its normal long run path and remain around this path till the end.

4.2. Summary Statistics

The summary statistics is presented in Table 2 (see appendix), depicting the mean, standard deviation, minimum, and maximum values as well as normality distribution of variables employed in this study. The index for sustainable development averaged 0.075 with standard deviation of 1.34, and minimum and maximum values of -2.36 and 2.45 respectively. Credit to private sector as percent of GDP has a standard deviation of 5.163 with an average value of 10.94. Its maximum and mimimum values are respectively 20.7 and 6.2. The averaged value of broad money supply as percent of GDP is 14.27 and has a value of 3.784 as standard deviation, and maximum and minimum value of 21.3 and 9.2 respectively. The maximum and minimum values of stock market capitalization as a percent of GDP 39.95 and 3.053 respectively, with an average value of 11.14 and standard deviation of 8.733. The standard deviation of total stock traded as percent of GDP averaged 898.74 is 1042.8, and with maximum and minimum values of 4288.1 and 40.618 respectively. The averaged value of 328.68, standard deviation of 132.9, and maximum and minimum values of 839.29 and 130.26 respectively has gross insurance premium as percent of GDP.

The Jarque-Bera statistic implies a rejection of null hypothesis for broad money supply while total stock traded, credit to private sector, market capitalization, and insurance sector premium are not normally distributed and imply non-rejection.

4.3. Correlation Analysis of Variables

The correlation coefficient of the relationship among the sustainable development index, domestic credit to private sector, broad money supply, stock market capitalization, total stock trade, and gross insurance premium is revealed on Table 3 (see appendix). Results indicate that none of the relationships among the

explanatory variables is as high as 0.8 which is the threshold above which the model would have problem of multicollinearity.

4.4. Unit Root Test

The unit root test presented in Table 4 (see appendix) follows the Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) procedures. The test was carried out to examine the order of integration of each of the variables used in the model. The test statistic of each of the variables in their level and first difference are presented to verify the hypothesis that a variable has unit root (i.e. not stationary). Results indicate a mix stationarity among variables as the sustainable development index exhibit I(0),while other explanatory variables are of I(1) series.

4.5. ARDL Bounds Test Procedure

The cointegration test was conducted using Bounds test in order to confirm whether or not long a run association exist among the variables used in the model. Results in Table 5 indicate a presence of long run association among the variables of aggregated sustainable development model. The F-statistic value of 24.976 is larger than the upper and lower critical bounds values at 1%, 5%, and 10% significance level. Therefore, there is sufficient evidence to reject the null hypothesis of no long-run relationship.

4.6. ARDL Short run and Long run Estimates

The short run and long-run coefficients of ARDL estimation are shown on Table 6. The results for the short run estimates were interpreted based on their current coefficients values only (without lag).Also, the interpretations of the short run coefficients were done concurrently with their corresponding long run coefficients to give a clearer picture of their implications both in the short and long-runs respectively.

Table 6. ARDL Estimations

Short Run Estimates		**Long Run Estimates**	
Variable	Coefficient	Variable	Coefficient
D(SD(-1))	8.783**	CPS	0.479***
D(SD(-2))	7.733**	BM	0.193***
D(CPS)	0.737**	MCAP	0.454***
D(CPS(-1))	-1.736**	TST	0.142***
D(CPS(-2))	-0.305	ISP	-0.238***
D(BM)	0.776**	GR	-0.026***
D(BM(-1))	1.142**	C	13.03***
D(BM(-2))	-1.092**		
D(MCAP)	0.74**		
D(MCAP(-1))	-0.959**		
D(MCAP(-2))	-1.205**		
D(TST)	0.245**		
D(TST(-1))	0.831**		
D(TST(-2))	0.249**		
D(ISP)	0.177		
D(ISP(-1))	-0.103		
D(ISP(-2))	1.516**		
D(GR)	-0.251**		
CointEq(-1)	-0.63**		

Note: 1. ***, * and ** are 1%, 10% and 5% levels of significance respectively.
Source: Author's Computation from Eviews

From Tables 6 the short run coefficient ratio of credit to the private sector as a percent of GDP is 0.736 which is positive and significant at 5% level of significance. The long run coefficient of ratio of credit to the private sector as a percent of GDP on the other hand indicates a value of 0.478, which is also positive and significant at 1%. Results therefore, show that a percent point increase in credit to the private sector will lead to a rise in sustainable development by about 0.736 and 0.478 percent both in the short run and long run respectively. These imply that credit to the private sector (banking subsector proxy) is critical to attaining

sustainable development in the Nigerian economy both in the short and the long run and therefore, requires proper government attention in order to achieve required level of development which is critical to achieving sustainable development in Nigeria. The findings of this study corroborates the findings of frankel and Rose (2002); Levine (1997); and Tamazian and Rao (2010).

The short run coefficient of the ratio of broad money to GDP is 0.775 which is positive and significant at 5% level, while its long run coefficient is 0.193 which is also positive and significant at 1% level of significance. Results therefore, indicate that a percent point increase in ratio of broad money to GDP increases sustainable development by about 0.775 points in the short run and by 0.193 points in the long run. These imply that broad money (banking subsector proxy) contributes though, better in the short run than in the long run to sustainable development in Nigeria. The reason could be due to inadequate channeling of funds to sectors considered as growth driven by the Nigerian financial system in the long run and therefore, the lesser impact on sustainable development in the long run. Findings are in consonance with the submission of Clarke, Xu and Zou (2006); and Ogunlokun et al. (2018) among others.

The coefficient of the ratio of stock market capitalization to GDP in the short run is 0.740 which is positive and significant at 5% level of significance. Also, in the long run the coefficient of ratio of stock market capitalization to GDP is 0.454 which is also positive and significant at 1%. Results therefore, reveal that a percent point increase in stock market capitalization (stock market proxy) will lead to increase in sustainable development by about 0.74 and 0.454 points in the short run and long run respectively. These imply that the stock market capitalization is an important financial sector indicator that could drive sustainable development in Nigeria both in the short and long run. This is consistent with the findings of Ogunlokun et al. (2018).

The coefficient of the ratio of total shares traded to GDP in the short run is 0.244 and in the long run it is 0.141 and both are significant at 5% and 1% level of significance respectively. Results therefore, indicate that a percent point increase in the value of total shares traded (stock market proxy) will lead to increase in sustainable development by about 0.244 and 0.141 points in the short run and long run respectively. Although, the impact on sustainable development in the long run is lesser i.e.; (0.141 points) when compared to the short run impact of 0.244 points, and perhaps, this might be due to the fact that the investments on the stock market are targeted at investors' choice of assets or risk appetite of investors and not necessarily on investments or assets that could directly impact on sustainable development but rather on owner's welfare in the long run. Nonetheless, the level of stock market capitalization positively and significantly influences sustainable

development both in the short and the long run in Nigeria. Findings, is in line with the views of Ridzuan et al. (2017).

The coefficient of the ratio of gross insurance premium to GDP in the short run is 0.177 which is positive and significant at 10% level of significance, while in the long run its coefficient is -0.238 which negative but significant at 1%. Results therefore, reveals that a percent point increase in the gross insurance premium (proxy for insurance subsector) will lead to about 0.177 points increase in sustainable development in the short run but will lead to decline in sustainable development in the long run by about 0.238 points. Therefore, these imply that the insurance sub-sector of the Nigerian financial system contributes to the sustainable development of Nigeria positively and significantly only in the short run but impact negatively on the Nigeria sustainable development in the long run. There is therefore, a need for appropriate policy that could ensure that the insurance sub-sector channel their funds into assets that could impact on sustainable development of Nigeria in the long run, noting that the insurance sector is also one of the major sub-sector of the Nigerian financial system.

The coefficient of government reform is -0.251 in short run, and -0.025 in the long run and are significant at 5% and 1% level of significance respectively. These imply that the impact of government reforms in the Nigeria financial sector has been significant but detrimental on sustainable development both in the short run and long run. This indicates that much need to be done since the impact has been negative on sustainable development. Further, the negative impact of government reforms on sustainable development in the long run is around 0.025 points (very low) which informs that the financial players still in one way or the other circumvent government policies and therefore, calls for proper monitoring to enable the financial sector to drive sustainable development in order to achieve the set goals of sustainable development in Nigeria. Further, findings of this study does not conform to the submissions of Marco (2008); and Beck, Thornstern and Webb (2003).

The error correction term (ECT) of the model is -0.630, which is negative and significant at 1% level of significance and therefore, lends support to the existence of long run relationship among the variables of sustainable development. This implies that the speed of adjustment that will enable the variables to converge in the long run is at approximately 63% per period.

4.7. Diagnostic Tests

This section reveal the diagnostics checks on the model of this study and these include the Serial correlation test, the Heteroskedasticity test, the Normality test, the Misspecification test, and the model Stability test.

Results from Table 7 (see appendix) shows that Serial correlation was conducted on the model using the Lagrange Multiplier (LM) tests noting that Durbin-Watson test is inappropriate to detect the existence of serial correlation when the lagged explained variable is used among the explanatory variables as in the case of ARDL models. The probability value of 0.280 of the f-statistic is not significant and implies absence of serial correlation.

Heteroskedasticity check was conducted using the Breusch-Pagan-Godfrey test. The f-statistic value is 0.420 with an attendant probability value of 0.886 which is not significant at 1%, 5% and 10% level of significance. This implies absence of heteroskedaticity problem in the model.

The probability of Jaque-Bera of 0.213 as indicated on Table 7 reveals that the data on sustainable development model is normally distributed and therefore, assumes the null hypothesis of normality of residuals which satisfies an assumption for estimating ARDL.

The misspecification check was conducted using the Ramsey's RESET test and the probability of the test as shown on Table 4.7 is 0.230 implying that it is above 10% level of significance and therefore, validates the null hypothesis of no misspecification of functional form in the model of sustainable development.

4.8. Stability Test

The stability check was conducted on the model of sustainable development using the CUSUM and CUSUM of Square (CUSUMSQ) tests, noting the plots (blue lines) and the critical bounds (red lines) in the graphs of CUSUM and CUSUMSQ.

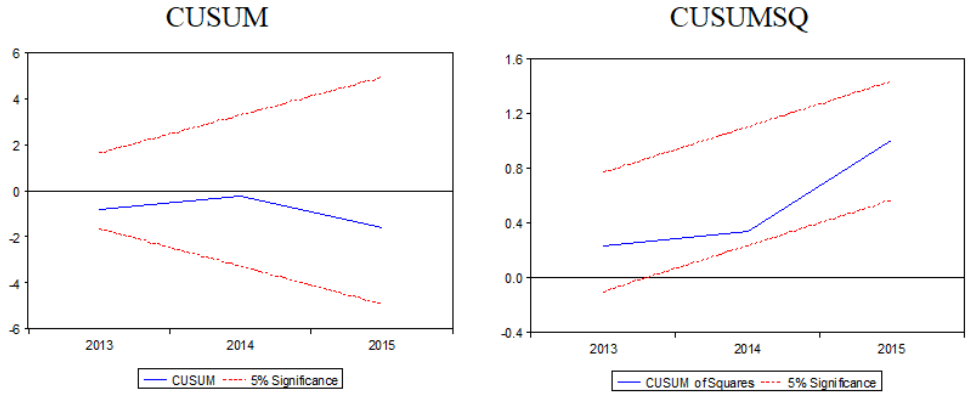

Figure 2. CUSUM and CUSUMSQ

The graphs on Figure 2 on CUSUM and CUSUM of Square (CUSUMSQ) tests confirm the structural stability of the model on sustainable development as opined

by Brown, Durbin, and Evans (1975). The stability of the model is confirmed as depicted in Figure 2 since the blue lines (plots) lie between the two dotted red lines (critical bounds) at 5% significance on the CUSUM and the CUSUMSQ graphs respectively. It is therefore, believed that this model will produce a reliable results for policy makers.

5. Conclusions

This study examined the nexus between the financial sector and sustainable development in Nigeria. Results revealed that both the banking and stock market subsectors in positive terms do significantly affect sustainable development in Nigeria both in the short and long runs. The insurance subsector also, in positive terms do significantly influence sustainable development in the short run, but in the long run exerts negative influence on sustainable development in Nigeria. Based on the findings of this study, it is therefore recommended that the government through relevant monetary and regulatory authorities should put in place policies that can further strengthen the main subsectors of the Nigerian financial sector to enable them provide the appropriate intermediation needed to drive sustainable development in Nigeria.

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Appendices

Table 1. Summary Statistics

	SD	CPS	BM	MCAP	TST	ISP
Mean	0.075	10.94	14.27	11.14	898.74	328.68
Median	0.04	8.2	12.9	7.209	466.2	328.52
Maximum	2.45	20.7	21.3	39.95	4288.1	832.29
Minimum	-2.36	6.2	9.2	3.053	40.618	130.26
Std. Dev.	1.34	5.163	3.784	8.733	1042.8	132.9
Skewness	0.01	0.984	0.651	1.368	1.7154	1.6456
Kurtosis	2.24	2.195	1.946	4.914	5.6072	8.0549
Jarqu-Bera	0.73	5.65	3.505	13.93	23.211	45.481
Probability	0.69	0.059	0.173	0.000	0.000	0.000

Source: Author's Computation from Eviews

Table 2. Correlation Matrix

Variables	SD	CPS	BM	MCAP	TST	ISP
SD	1.0					
CPS	0.679002 (0.0000)	1.0				
BM	0.697531 (0.0000)	0.649878 (0.0000)	1.0			
MCAP	0.589801 (0.0006)	0.663124 (0.0001)	0.684874 (0.0000)	1.0		
TST	0.513733 (0.0037)	0.610315 (0.0003)	0.660259 (0.0001)	0.688375 (0.0000)	1.0	
ISP	-0.377583 (0.0397)	0.087031 (0.6475)	0.114676 (0.5462)	0.056937 (0.7651)	0.041386 (0.8281)	1.0

Source: Author's Computation from Eviews

Table 3. Stationarity Test

VARIABLES	STATIONARY	ADF	PP	Order of Integration
SD	Level	-4.0781***	-3.9963***	I(0)
CPS	Level	-2.2887	-1.6669	
	First Diff.	-4.7145***	-6.9614***	I(1)
BM	Level	-2.9528	-2.3532	
	First Diff.	-4.3765***	-5.1570***	I(1)
MCAP	Level	-3.2172	-3.1925	
	First Diff.	-5.7708***	-7.7979***	I(1)
TST	Level	-2.9754	-2.9088	
	First Diff.	-4.8821***	-8.5357***	I(1)
ISP	Level	-2.8430	-2.7591	
	First Diff.	-5.0461***	-5.7872***	I(1)

Note: 1. ***, * and ** are 1%, 10% and 5% levels of significance respectively.

Source: Author's Computation from Eviews

Table 4. Results from Bound Test

F statistics	24.976	
Critical Value Bounds	Lower I(0)	Upper (1)
10%	2.26	3.35
5%	2.62	3.79
1%	3.41	4.68

Source: Author's Computation from Eviews

Table 5. Results on Diagnostic Checks

Serial Correlation (Lagrange Multiplier test)	Heteroskedasticity (Breusch-Pagan-Godfrey Test)	Normality (Jarque-Bera)	Misspecification (Ramsey's RESET Test)
F-stat. 11.721 P-val.(0.280)	F-stat. 0.420 P-val. (0.886)	Jar-Bera 3.087 P-val. (0.213)	F-stat. 6.995 P-val. (0.230)

Source: Author's Computation using Eviews