Financial Structure and Economic Growth in Nigeria

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Abstract
This study investigates the financial structure and economic growth in Nigeria. This study is imperative to pursue due to scanty studies especially in this country and conflicting empirical results, which need reinforcing in one direction or the other. The study uses annualized data from the Central Bank of Nigeria and World Bank Development Indicators. The study adopts the Cobb-Douglas form of the production function and estimates the regression equation from the specified model. The study found out that financial structure matters to the economic growth of Nigeria and more to this, the financial structure of the country is a bank-based economy. The study suggests that policies towards capital market improvement should be formulated and implemented so as to assure its optimum credit provision in the economic growth and development.
Keywords: Time series data, capital productivity, financial market and financial structure.

1. Introduction

In the field of Financial Economics, after settling on the relevance of finance to growth, the relevancy of its structure to growth climbed the apex of discussion in the field. As the financial economists are of the magnanimous opinion, that financial structure has an impact on economic growth. Smith (1776) pointed to the role of money in lowering transaction costs, thus permitting greater specialization, and fostering technological innovation. Alexander Hamilton (1781) as captured by Beck (2011) argued that "banks were the happiest engines that ever were invented" for spurring economic growth. In the words of Stulz (2004) organization of financial activities within a country affects economic growth through its impact on how corporations raise and manage funds. If a financial system gives in to the delivery of its functions, it is sure of affecting economic growth positively. Levine (1997) as cited in Stulz (2004) pinpointed this as one of the functions expected of a financial system, the organisation of a country's payment system affects growth by making it easier for economic agents to trade (also see Merton, 1995; and Stulz, 2000). Stulz (2004) faulted the traditional neoclassical principles often swallowed hook and line by the policymakers and academics that savings will be invested efficiently, so that, firms do not matter. A country with available savings can still have its growth stunted if its financial system fails to direct these savings where they can be invested most efficiently.

On the standing, that savings can be invested inefficiently due to the organization of financial activities has been the major debate in the field of financial economics in relative to the comparativeness of benefits and costs of the "Anglo-Saxon" model and the "bank-centred" model. Stulz (2004) asserts that the difference observed between the United States and the Japanese economy in the 1980s was attributed to the "bank-centred" model in favour of the Japanese economy. Stulz's study further asserted that Thurow's argument in Thurow (1992) buttress this fact by asserting that 'The United States has organized a system that is the exact opposite of that of Germany and Japan. Those countries have organized a system (business groups) to minimize the influence of impatient shareholders, while the United States has organised a system (fund dominance) to maximize the influence of impatient shareholders'.

The lesson from the debate contrasting the "Anglo-Saxon" and the "bank-centred" models is that how financial activities are organized affects the type of projects firms undertake (Stulz, 2000). In line with Thurow (1992), it was found that project evaluation differs from one country to another based on the organisation of the financial activities in them. Comparing present value of the project with the discounted expected cash flows of the project at the cost of capital of the project, "if two firms located in different countries make different decisions on the same project, it has to be, because the cost of capital differs or because the incentives and monitoring of management differs" (Stulz, 2000). Schumpeter (1912) argues that well-functioning banks spur technological innovation by identifying and funding those entrepreneurs with the best chances of successfully implementing innovative products and production processes. The Central Bank of Nigeria (CBN) together with the Bank of Industry (BOI) has been toeing the path as identified by the Schumpeter (1912) in stimulating the national economy. Both the institution facilitated this through different borrowers' anchor schemes as touches, large-scale industries, small and medium scale businesses, and as well as start-ups entrepreneurs. Meanwhile, on the other hand, the development economists for many decades have ignored the financial system and focused on other policy areas. Robinson (1952) argued that financial development primarily follows economic growth.

The financial structure in the Sub-Sahara countries is expanding in both size and depths (Iganiga, 2008; Isedu, 2007); thereby, there is need to be re-examining it in order to capture what the expansion evolved to be in structure wise. Besides that, it is more conventional than some countries are market-based economy while some others are the bank-based economy, there is yet to be unison in the empirical findings in respect to financial structure and the economic growth. As some studies are of the opinion that financial structure is of the essence in

considering economic growth, while some actually against this based on their findings. In sine-qua-non to this development, this study tends to investigate the financial structure and economic growth in Nigeria. The rest of this study covers a literature review, which is inclusive of theoretical, conceptual and empirical review of the extant literature. From which the study established the basis of its method and supports for its findings. Section 3, captures method of data analysis, model specification and estimation, and econometric tests. Section 4 is all about empirical results from the analysis, as well as the findings of the study; while section 5 entails the conclusion of the study.

2. Literature Review
2.1 Theoretical Framework
Over the decades, theoretical literature has explained the endogenous emergence of financial institutions and markets and has explored their impact on real sector outcomes, including economic growth and income inequality (Beck, 2011). Both seminal works of McKinnon (1973) and Shaw (1973) tallies with Schumpeter's argument to promote the development of the financial sector for economic growth. According to Kargbo and Adamu (2009), some economists have generally emphasized the central role of financial markets in economic growth, the empirical evidence on the relationship between financial development and economic growth is apparently inconclusive. Even though Lucas (1988) asserts that the role of finance in economic growth is overemphasized while the development economists frequently express their scepticism about the role of the financial system by ignoring it (Chandavarkar, 1992). The existence of a relationship between the financial structure and economic growth can be discussed based on competing theories of financial structure, which has been the focus of the theoretical debate over the years (Gerschenkron, 1962; Allen & Gale, 1999; Levine, 2002). According to Beck (2011), Stulz (2000), and Merton (1995) financial system helps in affecting economic growth through the following means:

i.   It supports the efficient exchange of goods and services by providing payment services and thus reducing transaction costs. By this, it fosters specialization by enabling more transactions, thus fostering productivity growth, which is tantamount to entrepreneurship expansion.
ii. It helps overcome investment indivisibilities and allow exploiting scale economies by pooling savings from many individual savers.
iii. It economizing on screening and monitoring costs and thus allowing more investment projects to be financed and, ex-ante, increasing the aggregate success probability.
iv. It helps in monitoring enterprises and reduces agency problems within firms between management and majority and minority shareholders, again improving resource allocation.
v.   It helps reduce liquidity risk and thus enable long-term investment.
vi. It allows cross-sectional diversification across projects, allowing risky innovative activity while guaranteeing an ex-ante contracted interest rate to savers.

Looking beyond theoretical models, economists have explained the take-off of the Industrial Revolution in some countries earlier than others due to the availability of finance. Hicks (1969) argued that the Industrial Revolution in the United Kingdom was possible due to the British developing financial system as at the time. Although many inventions were made before the Industrial Revolution, liquid capital markets enabled investment in long-term projects that could use these inventions. Similarly, the Netherlands and the United States experienced financial deepening before their economic and political rise in the seventeenth and twentieth centuries, respectively

It is generally recognized that financial systems contribute to high long-run economic growth. However, there is a debate as to whether some financial structures are more efficient than others in allocating saving to investment; prominent among these views are intermediation growth theory and market based economic growth theory. However, some analysts, Levine (2002), Beck and Levine (2002) are of the view that a well-developed financial system whether banks or market based tends towards development. In particular, well developed financial intermediaries and well-functioning markets can generate growth by improving the effectiveness and efficiency with which savings are used and increasing the amount of funds allocated to firms for investment.

2.2 Conceptual Review
Financial structure has four components but which of it is better between bank-based and market-based financial structure is an essential concern for the policymakers. As the two strived for a positioning, which was trying to be justified by the financial view (Arestic, et al., 2004). In the words of Merton (1995) as cited in Stulz (2000) financial structure implies that a financial system provides the following, which can be provided differently in different economies: i. A payment system; ii. A mechanism for pooling funds; iii. A way to transfer resources across space and time; iv. A way to manage uncertainty and control risk; v. Price information to allow the economy to implement a decentralized allocation of investment; vi. A way to deal with the asymmetric-information problems that arise when one party to a financial transaction has information that the other party

does not have. However, the existing relationship between financial structure and economic growth can be examined based on competing theories of financial structure. The theories are a bank-based view, the market-based view, the financial services view and the legal based view (Gerschenkron, 1962; Levine, 2002; Beck & Levine, 2002).

The bank-based theory pinpoints the positive roles of banks in development and growth, also stresses the shortcomings of market-based financial systems. It argues that banks can effectively finance development more than the market in developing economies, and in the case of state-owned banks, market failures can be overcome and allocation of savings can be undertaken strategically (Gerschenkron, 1962). There is a conviction that the "Intermediary-Based" banks are more growth-enhancing than the market at early stages of economic growth and development. Prominent among these views are the works of Frank and Major (1996), and Singh (1997). In fact, these authors are of the view that financial intermediaries are also a vital participant in the market. They specifically contribute to the effective functioning of the market by providing liquidity, which is essential in the transaction and in a critical time of crisis. The bank-based view, also stresses the shortcoming of market-based systems by asserting that it reveals information publicly, thereby reducing incentives for investors to seek and acquire information (Boyd & Prescott, 1986). Thus, a distortion that emanates from asymmetric information can be alleviated through banks by forming long-run relationships-with firms and through monitoring (Bhide, 1993; Stiglitz, 1985).

The fact that savings can be invested inefficiently because of how financial activities are organized has been at the core of the intense debate on the comparative benefits and costs of the "Anglo-Saxon" model and the "bank-centred" model. When the U.S. economy's performance seemed poor in contrast to the performance of the Japanese economy in the 1980s, the "bank-centred" model was viewed as a key determinant of why the performance of the two economies differed (Stulz, 2000). However, the market-based theory highlights the advantages of well-functioning markets and stresses the problems of bank-based financial systems. Big, liquid and well-functioning markets foster growth and profit incentives, enhance corporate governance, and facilitate risk management, diversification and the customization of risk management devices. Market-based financial systems reduce the inherent inefficiencies associated with banks and are, thus, better in enhancing economic development and growth.

The financial services view (Levine, 1997), is actually consistent with both the bank-based and the market-based views. It embraces both, but minimizes their importance in the sense that the distinction between bank-based and market-based financial systems matters less than was previously thought; it is financial services themselves that are by far more important, than the form of their delivery. In the financial services view, the issue is not the source of finance.

The financial systems can be divided into two broad categories namely, the formal and informal sectors. The formal sector is regulated by governmental institutions such as Central Banks, Ministry of Finance, Securities and Exchange Commission, etc. The informal sectors are a non-regulated sector which comprises; local money lenders, thrift, saving association etc. The exact size and influences of this sector on the society remain unknown. It is on the basis of these characteristics (Iganiga, 2008; Isedu, 2007), it is important to distinguish financial structure from financial development. Research has focused on the relation between financial development and economic growth. Indicators of financial development that have been used in the literature consist of measures like the turnover of the stock market, stock market trading relative GDP, stock market capitalization relative to GDP, the proportion of funds raised externally by firms, and so on. All these measures of financial development can be dramatically different for the same financial structure. Hence, there is no one-to-one relationship between financial development and financial structure. For instance, reliance on external funding might be the same in an economy where the stock market plays an important role and in an economy where banks play an important role.

The financial structure can hinder or promote financial development, however. Policies can have a direct impact on the financial structure, but they can only have an indirect impact on financial development. Policymakers cannot legislate changes in the degree of financial development but they can legislate changes in the financial structure. This makes it especially important to understand how financial structure affects economic growth. Hence, studies such as Mork and Nakamura, (1999), Weinstein and Yafeh (1998) conclude that financial structure matters. However, facts arising from the cross-country studies on the financial structure by Levine (1997), (2002) and (2003), Beck and Levine (2002), found that financial structure is irrelevant to economic growth. Neither bank nor market-based financial structure can explain growth, but rather is the overall provision of financial services both in banks and capital market taken together that affect growth. In this sense instead of Bank and Market substituting each other, it rather performance a complementary role on economic growth. This is the desired state in the financial structure and development, where neither bank-based nor market-based financial structure will be mattered to the economic growth but both seeing as a complement to each other. We can simply say that both the market and bank have grown considerably well without an imbalance in one.

2.3. Empirical Framework

Onwumere, Onudugo and Ibe (2013) investigate the financial structure and economic growth in Nigeria using annual data between the periods of 1988 to 2011. The study can be classified as encompassing one, as its incorporate both the variables of bank-based and market-based financial structure proxies, without fixing on one. The study working in-line with Demirguc-Kunt and Levine (1999) and Guha Deb and Mukherjee (2008) considered the three core sectors of the Nigerian financial sector, which were said to represent the total financial structure viz banking, the stock market, and insurance sectors. The study regress economic growth on total financial structure, which include the following; gross domestic product per capita growth rate (%), total financial assets percentage of gross domestic product, domestic credit provided by the banking sector percentage of gross domestic product, market capitalization percentage of gross domestic product, total value of shares traded percentage of gross domestic product, and insurance premium percentage of gross domestic product.

The study found out that the impact of the insurance sector on economic growth was found to be negatively significant. The study thereby accounts for some reasons, such as an unfavourable macroeconomic environment, poor regulatory framework; and market suspicion of insurance companies among others. In another way, bank-based financial indicators exhibited positive impact on economic growth. The study attributed this to recent reforms in the financial sector of the economy, especially banking consolidation of the year 2005.

Oima and Ojwang (2013) investigate market-based and bank-based financial structure on economic growth in some selected ECOWAS countries using annual data from International Financial Statistics (IPS) and Annual Report of Security and Exchange Commissions of various countries. The study regresses real growth of gross domestic product on financial structure, which is defined as the stock market capitalization ratio over banks' credit to private sector ratio, the ratio of banking sector domestic credit to GDP, domestic investment, as well as stock market capitalization as a percentage of GDP, and broad money supply. The study's model specification follows the pattern of Levine (2002), Olofin and Udoma (2008). The study employs an unrestricted error correction model (UEGCM), which follows the order of Autoregressive Distributed Lag (ARDL). The study found out that some economies are more of bank growth while the others are markets led growth. The Gambia and Sierra Leone were bank-based, while Nigeria and Ghana were market-based within the period of consideration.

Ujunwa, Salami, Nwakoby, and Umar (2012) investigate the financial structure and economic growth in Nigeria using time series data for a 17-year period covering 1992 to 2008. The study regresses the growth rate of the gross domestic product per capita on the conglomerate index of bank-based, market-based, financial service-based, and legal-based financial structures. The study found out that the coefficients of bank-based and legal-based were positive in promoting economic growth. Thus, the study suggests that policymakers should focus their attention on legal, regulatory and policy reforms towards encouraging the proper functioning of banks, than being concerned with banks and market reforms.

Olofin and Afangideh (2008) investigate a macro-econometric approach of financial structure and economic growth in Nigeria using aggregate annual data from 1970 to 2005, and three-stage least square estimation technique for analysis. The study major outcome holds that financial structure has no independent effect on output growth through bank credit and investment activities, but financial sector development merely allows these activities to positively respond to growth in output. The study thereby suggests that effort should be made towards reducing transaction cost such as the enforcement of creditors and investors rights in the financial system, but not on the specific type of financial system. The study opines that this step in the right direction would bring about development in both banks and the capital market, and in turn, stimulate growth in the economy.

Arestis, Luintel and Luintel (2005) investigate the financial structure and economic growth in six countries (Greece, India, South Korea, Philippines, South Africa and Taiwan) using time series data and methods, along with the dynamic heterogeneous panel approach. The study specified its model based on Cobb-Douglas production function, in which per capita output of labour is a function of per capita and financial structure (defined as the market capitalization over bank lending). The study found out the significant effect of financial structure on output levels.

Chistopoulos and Tsionas (2004) conducted the study on 10 developing countries to examine the relationship between financial development and economic growth using panel analysis. The authors used the ratio of total bank deposits liabilities to nominal GDP as a measure of financial depth and included the ratio of investment to GDP and inflation rate as control variables. The results showed the presence of long-run causality running from financial development to economic growth but there was no evidence of bi-directional causality. In addition, the study did not find any short-run causality between financial deepening and output. The study suggests that improving financial markets will have an effect on growth that is delayed but significant.

Fatima (2004) examined the causal relationship between financial development and economic growth in Morocco for the period 1970-2000. The ratio of liquid liabilities (M3) to GDP, the ratio of domestic credit provided by the banking sector to GDP and domestic credit to the private sector to GDP were the financial depth

indicators used. Using the Granger causality test, the study found a short-run relationship between financial development and economic growth.

The World Bank (2001) provides a comprehensive summary of the available evidence, which reached similar conclusions. It argues strongly that the evidence should be interpreted as clearly suggesting that "both the development of banking and market promote economic growth: each can complement the other".

Also, Levine and Zevros (1998), employing cross-country regression for a number of countries covering the period 1976 to 1993, concluded that market-based systems provide different services from bank-based systems. In particular, market-based systems enhance growth through the provision of liquidity, thus enabling investors to be less risky, such that companies have access to capital through liquid equity issues (Atje & Jovanovic, 1993).

Demirguc-Kunt and Levine (1996), using data for forty-four industrial and developing countries for the period 1986 to 1993, concludes that countries with well-developed market-based institutions also have well-developed bank-based institutions; and countries with weak market-based institutions also have weak bank-based institutions, thereby supporting the view that the distinction between bank-based and market-based financial systems is of no consequence.

3. Method of Analysis
3.1 Data Required, Definition, and Sources of the Data
The following are the variables in the specified model below, and each of the variables is extracted thus:
$$(Q/L)_t = Per\ capita\ output\ at\ time\ t.$$
$$(K/L)_t = Per\ capita\ capital\ stock\ at\ time\ t.$$
$$(STR)_t = \text{Market capitalisation divided by bank lending at time t.}$$

Thereby, the variables needed are real gross domestic products to serve as an output and gross domestic investment as capital stock. Both variables stated earlier are sourced from the Central Bank of Nigeria Statistical Bulletin 2016. Then, the labour force population is sourced from the World Bank Development Indicators. The same is used to divide the first two variables stated in order to have them in per capita form. Nigeria capital market's market capitalisation and banking lending are extracted from the Central Bank of Nigeria (CBN) Statistical Bulletin as well.

3.2 Model Specification
Following the work of Arestis, Luintel and Luintel (2005) this study specifies a generalized Cobb-Douglas production function of the following form:
$$d(Log(Q/L))_t = a_0 + a_1 d(Log(K/L))_t + a_2 d(Log(STR))_t + ECM_{t-1} \dots\dots (1)$$
Q stands for output, L is labour, K is capital and STR is a financial structure (defined as the market capitalisation over bank lending). Higher STR means a system that is more of the market-based variety, while a lower STR means more of a bank-based system. In specification (1), financial structure directly accounts for Total Factor Productivity (TFP). In actual estimations, a log of per capita output is used and a log of per capita capital stock. It is important to note that for the purposes of this study, interest is in the significance or otherwise of the coefficient a_2, rather than its sign (Arestic, et al., 2004). In either case, a significant a_2 coefficient implies that financial structure matters; an insignificant a_2 coefficient implies that financial structure is of no consequence whatsoever (Arestic, et al., 2004).

3.3 Estimation Techniques
Ordinary Least Square techniques are used in estimating the model coefficient, after which, the necessary econometric diagnostic had been taken place.
3.3.1. Econometrics Diagnostic
3.3.1.1. Unit Root Tests
In econometric methodologies, it is assumed that stationary in the time series data should be in existence even though they are non-stationary in the real sense. Time series data to be used are expected to be stationary in the sense that its mean and variance are constant over time and the value of the covariance between the two time periods depends only on the distance or gap or lag between the two time periods and not the actual time at which the covariance is computed Gujarati and Porter (2009).

It becomes imperative to test for stationarity of the variables of concern, in order to rule out the presence of serial autocorrelation from the study analyses, which may result in spurious statistical outputs. The study prefers Augmented Dickey-Fuller unit root test to Phillips-Perron, since, the data of concern are time-series and the variance is expected not to be wide as it could be experienced if the study makes use of cross-sectional data. X in the model below implies a particular variable of interest, which its stationarity is to be tested at that particular time.

Augmented Dickey-Fuller unit root test specification:

$$\Delta x_t = \rho_t + \rho x_{x-1} + \sum_{i=1}^{n} \delta_i \Delta x_{t-1}$$

The expectation about the variables to be used prior to the estimation as stated in the models above, is that it should be $-1 \leq \rho \leq 1$ in order to disprove the issue of non-stationary/random walk/unit root as it may be called; because the existence of unit root in the test will signify the autoregressive model.

3.3.1.2. Cointegration Test

Cointegration test serves the purpose of pre-test to avoid spurious regression situation. It is expected that in the model's specification highlighted above; economically speaking, variables therein should have a long-run, or equilibrium relationship within each one of them. The variables involve were subjected to Johansen and Juselius Cointegration test to verify the existence of the long-run relationship. The method adopted in investigating the existence of a long-run relationship between the variables of consideration is the co-integration test developed in Johansen (1991, 1995). The variables of interest are per capita output, per capita capital stock and financial structure.

$$\Delta Log(Q/L)_t = \prod Log(Q/L)_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Log(Q/L)_{t-1} + aLog(K/L)_t + \epsilon_t \quad (1)$$

$$\Delta Log(Q/L)_t = \prod Log(Q/L)_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Log(Q/L)_{t-1} + aLog(STR)_t + \epsilon_t \quad (2)$$

$$\Delta Log(K/L)_t = \prod Log(K/L)_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Log(K/L)_{t-1} + aLog(STR)_t + \epsilon_t \quad (3)$$

4. Empirical Results and Discussion

4.1. Unit Root Results:

The outcome of unit root tests in table 1 shows that the variables in the specified model are all of the induced stationarity at the first difference without trend. Log of per capita output is stationary at first difference, and this is statistically significant at 10 per cent. Log of per capita capital stock is stationary at first difference, and this is statistically significant at 1 per cent. While the proxy of financial structure is stationary at the first difference and statistically significant at 1 per cent. Also, the ECM variable is stationary at the level, which implies cancellation of the random walk in the variables at the long-run. The appropriate estimation tool is the Error Correction Model (ECM) Regression, since, both the dependent and independent variables are stationary at first difference, while the residual of the variables when pooled together is stationary at level (Parker, 2018).

Table 1: Results of Unit Root Test Using ADF

Variable	With Trend				Without Trend			
	Level	1st Difference	Lag Length	Order of Integration	Level	1st Difference	Lag Length	Order of Integration
Log(Q/L)	-2.0457	-2.3560	9	I(>1)	-0.9027	-2.6758*	9	I(1)
Log(K/L)	-1.0686	-5.2147***	9	I(1)	0.7398	-4.8775***	9	I(1)
Log(STR)	-3.2011	-5.7803***	9	I(1)	-2.4954	-5.8072***	9	I(1)
ECM	-3.2024	-6.7270***	9	I(0)	-3.0095**	-	9	I(0)

Source: *Authors' Computation using Eviews 10.*

Cointegration Test:

Since all the variables of interest are stationary at first difference, cointegration analysis was carried out to see if the combination of the variables as specified the model have a long-run relationship. The use of Johansen Cointegration test indicated the existence of a long-run relationship among the variables. After lags interval in first differences of 1 to 3 adjustment the observation covers 37 years. Table 2 and 3 show the outputs of the cointegration test. Statistics based on trace indicated 3 cointegrating equations, while that of maximum eigenvalue only indicated 1 at 5% significance level.

Table 2: Unrestricted Cointegration Rank Test (Trace)

Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.
0.3811	31.6875	29.7970	0.0299**
0.2839	15.8524	15.4947	0.0442**
0.1361	4.8301	3.8414	0.0280**

Table 3: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.
0.3811	15.8350	21.1316	0.2346
0.2839	11.0223	14.2646	0.1531
0.1361	4.8301	3.8414	0.0280**

Source: *Authors' Computation using Eviews 10.*

4.2. ECM Estimation

The stationarity of the variables in the specified model 1 suggested the use of the error correction model, which was estimated and reported in table 4. All coefficients in the model are statistically significant at 1 per cent. At the short-run, the per capita capital formation still impact the output growth positively. This is rightly signed and in consonance to the theoretical expectation. Also, the focus variable, that is the financial structure equally matters in the output growth at the short-run. Furthermore, the low coefficient signals the prevailing bank-based structure in the country. The economy is more of bank-based or intermediary in structure; this is in tandem with the work of Arestis, Luintel and Luintel, (2005). The constant interventions of the Central Bank of Nigeria go in a long way in influencing this finding because the bank has been prompt in ensuring credit flow in the economy through different anchor borrowers' scheme. In addition, the continual banking reforms in the country have a way of entrenching banking performance in line with Gidigbi (2017), which asserted that the banking reforms tends towards bank performance and economic growth. The error correction coefficient suggested that any deviation would be corrected within one and a half period. The R-squared shows that the model is very robust, by implication, the independent variables account for approximately 94.12 per cent of the change in the dependent variable. F-statistics has validated the joint significance of the model, and this is statistically significant at 1 per cent.

Table 4: ECM Estimates

Dependent variable: d(Log(Q/L))

	Coefficient	Std. Error	t-Statisitcs	Significance Level	Comment
Const	0.5571	0.0217	25.6736	1 per cent	Nil
d(Log(K/L))	2.1135	0.1175	17.9754	1 per cent	Rightly signed
d(Log(STR))	0.0946	0.0202	4.6670	1 per cent	Ambivalence
ECM(-1)	0.6120	0.1469	4.1636	1 per cent	
R-squared	0.9463				Very Robust
Adjusted R-squared	0.9412				
F-statistics	188.0141			1 per cent	Jointly significant
DW-statistics	1.6857				No Autocorrelation

Source: *Authors' Computation using Eviews 10.*

Table 5 shows the output of the Serial Correlation LM test carried out. The test showed that pass error in the variable did not influence the present error, past and present errors were actually independent of each other.

Table 5: Breusch-Godfrey Serial Correlation LM Test

F-statistic		1.4097	Prob. F(2,30)	0.2599
Obs*R-squared		3.0927	Prob. Chi-Square(2)	0.2130

Source: *Authors' Computation using Eviews 10.*

Figure 1 showed the graphical stability test called CUSUM Test. It is based on the cumulative sum of the recursive residuals (Brown, et al., 1975). The plots showed the cumulative sum together with the 5 per cent critical lines. Since the cumulative line stays within the two critical lines, the model's parameters are said to be stable.
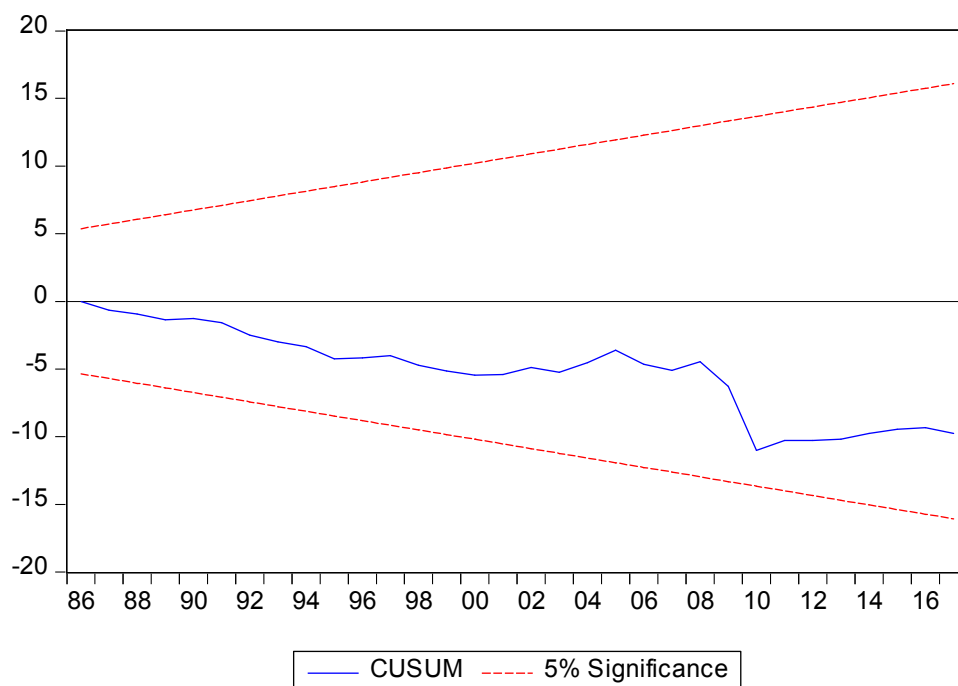
Figure 1: Stability test

5. Conclusion

This study investigates the financial structure and economic growth in Nigeria, as it becomes necessary to do the same. Largely, attention is on a few developed countries. Further, it was discovered from the extant literature that most empirical works did not agree with their findings. This study will reinforce the existing empirical findings in this field of Financial Economics.

This study thereby concludes that financial structure matters to economic growth in Nigeria, in line with some studies (Mork & Nakamura, 1999; Weinstein & Yafeh, 1998), against the findings of Levine (1997), (2002), and Beck and Levine (2002), which found out that financial structure, does not matter. Furthermore, Nigeria economy is bank-based and this is in line with the finding of Ujunwa, Salami, Nwakoby and Umar (2012) on Nigeria. However, this against the finding of Oima and Ojwang (2013), which found out that Nigeria economy is market-based. The successive banking reforms are welcome initiative as banking sector in Nigeria has been providing credit to both private and public bodies (as bank loans and advances extended to the three tiers of government are included in the financial structure proxy). More policies towards efficient capital market operations and the financing of economic growth and development should be formulated and implemented, without retarding effort in boosting banking performance. Precisely, the country should strive to the point whereby neither bank-based nor market-based would be matter but both serve complementarily role as posited in Levine (1997), (2002), and Beck and Levine (2002), then, the country can boast of the consolidated financial structure.

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APPENDICES

Null Hypothesis: D(Q_L) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.675834	0.0883
Test critical values:	1% level	-3.632900	
	5% level	-2.948404	
	10% level	-2.612874	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Q_L,2)
Method: Least Squares
Date: 07/25/18   Time: 21:32
Sample (adjusted): 1983 2017
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(Q_L(-1))	-0.409957	0.153207	-2.675834	0.0115
C	5411.918	5404.960	1.001287	0.3240

R-squared	0.178289	Mean dependent var	-1043.864
Adjusted R-squared	0.153388	S.D. dependent var	31098.07
S.E. of regression	28613.80	Akaike info criterion	23.41661
Sum squared resid	2.70E+10	Schwarz criterion	23.50549
Log-likelihood	-407.7907	Hannan-Quinn criteria.	23.44729
F-statistic	7.160088	Durbin-Watson stat	1.902154
Prob(F-statistic)	0.011514		

Null Hypothesis: D(K_L) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.877511	0.0003
Test critical values:	1% level	-3.632900	
	5% level	-2.948404	
	10% level	-2.612874	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(K_L,2)
Method: Least Squares
Date: 07/25/18   Time: 21:24
Sample (adjusted): 1983 2017
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(K_L(-1))	-0.841758	0.172579	-4.877511	0.0000
C	5736.890	3850.165	1.490037	0.1457

R-squared	0.418913	Mean dependent var	-175.5426
Adjusted R-squared	0.401304	S.D. dependent var	27941.06
S.E. of regression	21619.52	Akaike info criterion	22.85603
Sum squared resid	1.54E+10	Schwarz criterion	22.94490
Log-likelihood	-397.9804	Hannan-Quinn criteria.	22.88671
F-statistic	23.79011	Durbin-Watson stat	1.969872
Prob(F-statistic)	0.000026		

Null Hypothesis: D(STR) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.807236	0.0000
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(STR,2)
Method: Least Squares
Date: 07/25/18   Time: 21:37
Sample (adjusted): 1984 2017
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(STR(-1))	-1.422680	0.244984	-5.807236	0.0000
D(STR(-1),2)	0.359770	0.169116	2.127363	0.0415
C	0.019148	0.068965	0.277642	0.7831

R-squared	0.581143	Mean dependent var		-0.006621
Adjusted R-squared	0.554120	S.D. dependent var		0.600845
S.E. of regression	0.401210	Akaike info criterion		1.095433
Sum squared resid	4.990052	Schwarz criterion		1.230112
Log-likelihood	-15.62237	Hannan-Quinn criteria.		1.141363
F-statistic	21.50545	Durbin-Watson stat		2.011412
Prob(F-statistic)	0.000001			

Null Hypothesis: ECM has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.009551	0.0435
Test critical values:	1% level	-3.626784	
	5% level	-2.945842	
	10% level	-2.611531	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(ECM)
Method: Least Squares
Date: 07/26/18   Time: 06:45
Sample (adjusted): 1982 2017
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ECM(-1)	-0.421939	0.140200	-3.009551	0.0049
C	-0.001275	0.009307	-0.136951	0.8919

R-squared	0.210356	Mean dependent var		-0.001663
Adjusted R-squared	0.187132	S.D. dependent var		0.061933
S.E. of regression	0.055838	Akaike info criterion		-2.878776
Sum squared resid	0.106008	Schwarz criterion		-2.790802
Log-likelihood	53.81796	Hannan-Quinn criteria.		-2.848071
F-statistic	9.057397	Durbin-Watson stat		1.769642
Prob(F-statistic)	0.004903			

Date: 07/25/18 Time: 21:45
Sample (adjusted): 1985 2017
Included observations: 33 after adjustments
Trend assumption: Linear deterministic trend
Series: Q_L K_L STR
Lags interval (in first differences): 1 to 3
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.381123	31.68752	29.79707	0.0299
At most 1 *	0.283953	15.85249	15.49471	0.0442
At most 2 *	0.136161	4.830166	3.841466	0.0280

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.381123	15.83503	21.13162	0.2346
At most 1	0.283953	11.02233	14.26460	0.1531
At most 2 *	0.136161	4.830166	3.841466	0.0280

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values
Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

Q_L	K_L	STR
-2.00E-05	4.36E-05	-0.443881
-2.40E-05	5.44E-05	4.143707
-1.63E-05	1.24E-05	3.846407

Unrestricted Adjustment Coefficients (alpha):

D(Q_L)	-6025.665	-5746.841	7731.027
D(K_L)	-8097.504	-3861.612	90.89638
D(STR)	0.125124	-0.168289	-0.008426

1 Cointegrating Equation(s):		Log likelihood	-745.8677

Normalized cointegrating coefficients (standard error in parentheses)

Q_L	K_L	STR
1.000000	-2.182687	22224.41
	(0.28989)	(49426.1)

Adjustment coefficients (standard error in parentheses)

D(Q_L)	0.120349
	(0.10553)
D(K_L)	0.161729
	(0.05370)
D(STR)	-2.50E-06
	(1.5E-06)

2 Cointegrating Equation(s):		Log likelihood	-740.3566

Normalized cointegrating coefficients (standard error in parentheses)

Q_L	K_L	STR
1.000000	0.000000	5206486.
		(1650033)
0.000000	1.000000	2375174.
		(742388.)

Adjustment coefficients (standard error in parentheses)

D(Q_L)	0.258381	-0.575283
	(0.16056)	(0.35829)
D(K_L)	0.254480	-0.563056
	(0.07996)	(0.17843)
D(STR)	1.54E-06	-3.70E-06
	(2.1E-06)	(4.6E-06)

Dependent Variable: Q/L

Method: Least Squares

Date: 07/26/18   Time: 07:00

Sample (adjusted): 1982 2017

Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.557147	0.021701	25.67362	0.0000
K/L	2.113580	0.117582	17.97543	0.0000
STR	0.094652	0.020281	4.667050	0.0001
ECM(-1)	0.612006	0.146986	4.163695	0.0002

R-squared	0.946313	Mean dependent var	0.778073
Adjusted R-squared	0.941279	S.D. dependent var	0.234267
S.E. of regression	0.056768	Akaike info criterion	-2.795232
Sum squared resid	0.103125	Schwarz criterion	-2.619285
Log-likelihood	54.31417	Hannan-Quinn criteria.	-2.733822
F-statistic	188.0141	Durbin-Watson stat	1.685770
Prob(F-statistic)	0.000000		

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.409739	Prob. F(2,30)	0.2599
Obs*R-squared	3.092712	Prob. Chi-Square(2)	0.2130

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 07/26/18   Time: 07:02
Sample: 1982 2017
Included observations: 36
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.006707	0.021798	-0.307687	0.7604
K/L	0.011951	0.119591	0.099934	0.9211
STR	0.005750	0.020379	0.282136	0.7798
ECM(-1)	-0.058058	0.408957	-0.141965	0.8881
RESID(-1)	0.241989	0.411759	0.587696	0.5611
RESID(-2)	-0.229195	0.311734	-0.735224	0.4679

R-squared	0.085909	Mean dependent var		-1.24E-16
Adjusted R-squared	-0.066440	S.D. dependent var		0.054281
S.E. of regression	0.056055	Akaike info criterion		-2.773945
Sum squared resid	0.094266	Schwarz criterion		-2.510026
Log-likelihood	55.93102	Hannan-Quinn criteria.		-2.681830
F-statistic	0.563896	Durbin-Watson stat		1.912044
Prob(F-statistic)	0.726794			