FINANCIAL LIBERALISATION AND ECONOMIC GROWTH: FURTHER EMPIRICAL EVIDENCE FROM NIGERIA

ANIEKAN OKON AKPANSUNG

Abstract

For over three decades, Nigeria, like several other countries, has been involved in financial liberalization process, but the benefits of the policy on the economy have remained controversial. This paper empirically examined the impact of the financial liberalization policy on economic growth in Nigeria for the period 1986-2018, with a view to providing further evidence on the growth-enhancing effects, or otherwise, of financial liberalization in the long run and short run. It used data accessed from World Bank Data Base and Central Bank of Nigeria statistical bulletins which were subjected to stationarity tests before applying autoregressive distributed lag (ARDL) bounds approach and error correction mechanism (ECM). The results of Phillips-Perron statistical tests for the presence of unit roots indicate that some of the studied time series were stationary in levels, while others were first difference-stationary. The ARDL bounds tests show that the variables were cointegrated. The study found that the coefficients of the financial liberalization variables were positive and insignificant for Nigeria in both the short-run and long-run; net foreign direct investment and inflation rate exerted significant negative impact on economic growth; while

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current real effective exchange rate was positively significant both in the long-run and short-run. However, the coefficient of the ECM (−1) suggests a relatively slow rate of the adjustment process; systemic disequilibrium was totally corrected in about 10 years and 7 months, at a rate of 9.3 per cent per annum. This study, therefore, provides evidence to conclude that financial liberalization exerted a statistically insignificant growth-stimulating effect on Nigeria during the period under study. The inefficient functioning of Nigeria’s financial sector, sequencing of the liberalization process, and the hostile macroeconomic environment in Nigeria over the years may have combined to slow down the expected significant benefits of financial liberalization. The paper recommends that more robust and shrewd implementation of appropriate financial sector liberalisation policies could stimulate economic activities in Nigeria.

**Keywords:** Financial liberalisation, Economic growth, ARDL, ECM, Nigeria

**JEL Classification Codes:** C50, E16, E44, O40.

**Introduction**

Since the 1970s, several countries have liberalized their financial systems by opening the capital accounts and removing “financial repression” policies which hitherto distorted the functioning of financial systems. Financial liberalisation entails giving banks and other financial intermediaries more freedom of action, domestic financial

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Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria

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sector reforms, opening up of stock markets to foreign investors, allowing domestic firms access to international financial markets (Bekaert, Harvey & Lundblad, 2001), relaxing of special exchange rates for capital account transactions (Loots, 2003), permission of domestic firms to borrow funds from abroad (Schmukler & Vesperoni, 2006), and lowering of reserve requirements (Kaminsky & Schmukler, 2003). Generally, the policy involves deregulating interest rates, eliminating or reducing credit controls, allowing free entry into the banking sector, giving autonomy to commercial banks, removing restrictions on foreign financial transactions, permitting ownership of private banks, and removing entry barriers for foreign financial institutions (Odhiambo, 2011; Bumann, Hermes & Lensink., 2012; Akingunola & Adekunle, 2013; Precious & Asrat, 2014).

Both McKinnon (1973) and Shaw (1973) see “financial repression” (set of government legal restrictions imposed on the activities of financial intermediaries, preventing them from functioning at their full capacity level) as a major impediment to or a drag on economic growth in developing countries. The duo strongly argued in favour of liberalising financial markets on the grounds that the policy would lead to more saving as well as more efficient investment which, in turn, would lead to higher economic growth rates. This view is also supported by Greenwood

Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria
and Jovanovic (1990), and Bencivenga, Smith, and Starr (1995), among others. However, Arestis and Demetriades (1999) have pointed out that the financial liberalization hypothesis is based on a set of unrealistic assumptions, including perfect competition, perfect information, a sound institutional framework, and limited influence of stock markets. According to the authors, the fact that these assumptions are unlikely to be met in practice may explain the failure of the financial liberalization programs undertaken by many developing countries.

In the light of the potential economic benefits of financial liberalization, many developed and developing countries have adopted policies aimed at liberalizing their financial services sector. Data on financial liberalization collected by Kaminsky and Schmukler (2001), as cited by Galindo, Micco, and Ordoñez (2002), shows how liberalization policies were adopted in several regions of the World (Figure 1.1). Higher values indicate more liberalization.
The United States and the United Kingdom began to liberalize their financial sectors around the mid-1970s, Latin American countries (such as Argentina, Chile and Uruguay) towards the end of the 1970s, and the southern Asian countries (such as South Korea and Taiwan) at the beginning of the 1980s (Zagha & Nankani, 2005). Some Arab countries such as Egypt, Jordan, Tunisia, and United Arab Emirates reduced government intervention in credit allocation decisions, lifted bank interest rate ceilings, lowered the reserve requirement and entry barriers, and privatized many banks and insurance companies (Omar, Callie, & Chia, 2008). Many other developing countries such as Brazil, India, Indonesia, China and Malaysia liberalized their interest rate, thus achieving important accelerations in economic development rates, although in

*Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria*
some countries such policy was associated with excessively high and volatile real interest rates as well as inflation, which led to financial crisis (Zagha & Nankani, 2005). As noted by Cali, Ellis and te Velde (2008), careful sequencing of reform, appropriate regulation and other complementary policies are required to ensure liberalization delivers the expected benefits.

However, following its large-scale acceptance and adoption by many less developed countries, the Nigerian Government adopted financial liberalization policy under the World Bank and International Monetary Fund’s Structural Adjustment Programme (SAP) of 1986. Since then, the government has implemented quite a number of financial sector reforms aimed at liberalizing the sector and boosting economic growth (Akpansung & Gidigbi, 2014). The financial sector has undergone important structural changes with growing numbers of mergers and acquisitions and increased competition among different financial institutions in the country. Evidence from the World Bank reveals that in the financial sector’s activities, banks’ credit to the private sector (per cent of GDP) in Nigeria was 12.59 per cent in 2013. Its highest value was 38.35 per cent recorded in 2007, while the lowest value of 3.86 per cent was recorded in 1970. In the stock market, the turnover ratio for Nigeria declined from 12.53 per cent...
in 2010 to 9.21 per cent in 2011 and further down to 8.79 per cent in 2012 (World Bank, 2014).

Contrary to expectations, after nearly three decades, financial liberalization policies seem not to be growth-enhancing in Nigeria. Data from World Bank national accounts shows that the annual GDP growth rate in Nigeria has been fluctuating for the past 30 years (1986-2016). The country experienced negative growth rates of −8.75 per cent and −10.75 per cent in 1986 and 1987 respectively, during the start of the liberalization or Structural adjustment programme (SAP). As shown in Figure 1.2, relative improvement in the growth rate of the GDP was recorded in the years following the financial liberalization period. It grew at 7.54 per cent, 6.47 per cent and 12.77 per cent in 1988, 1989 and 1990, respectively, before shrinking to -0.62 per cent in 1991 and -0.31 per cent in 1995.

The country recorded unimpressive positive GDP growth rates between 1992 and 1999, during the reign of the then military government in the country. This may have resulted from several ostracized economic policies adopted by the administration. Nonetheless, the return to democratic governance in 1999 led to remarkable improvements in the real GDP growth, which increased from 5.32 per cent in 2000 to 10.53 per cent in 2003, and

*Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria*
reached an all-time high of 33.74 per cent in 2004. This improvement may have resulted from the implementation of National Economic Empowerment and Development Strategy (NEEDS) of 2003–2007. Although it dropped to 3.44 per cent in 2005, the growth rate has been relatively stable from 2006 to 2015, until it plummeted to -1.2 per cent in 2016, when the country experienced economic recession, and improved marginally to 0.82 per cent in 2017 after the emergence of the economy from recession in second quarter of 2017.

Figure 1.2: Annual GDP growth rate in Nigeria, 1986 -2016

Figure 1.3: GDP vs Financial liberalisation index growth rates in Nigeria, 1986 -2016

Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria
Over all, from 1986 to 2018, real GDP growth rate in Nigeria has declined at almost -0.81 per cent per annum (Author’s computation based on World Bank data). Like in most African countries, the adoption of bad policies may have contributed to this slow growth. The trends in financial liberalisation index and GDP growth rates are depicted in Figure 1.3, and the nature of their relationship can only be ascertained through empirical analysis. So far, the results of the empirical studies on this issue has remained controversial, inconclusive, and subject of extensive analysis and debate in both developed and developing economies. Misati and Nyamongo (2012), for example, believe that financial liberalization policies are still one of the most controversial policies because of its negative impact on the relationship between financial development and economic growth. Most of the relevant literature contend that financial liberalization creates financial market efficiency, thereby generating savings, investment and higher growth. Other authors have criticized financial liberalization policies and claimed that past financial crises are in fact linked with such policies.

The main objective of this study, therefore, was to empirically assess the impact of financial liberalisation policy on economic growth in Nigeria for the period, 1986-2018, with a view to provide further evidence on the growth-enhancing effects, or otherwise, of financial

Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria
The choice of the study period was deliberate and economically relevant: it utilised the most recent data; and within the period, Nigeria’s real GDP growth rate had been fluctuating despite concerted implementation of financial sector liberalisation policies. Apart from contributing to the existing body of knowledge on the impact of financial liberalisation policies on economic growth, the results and recommendations of the study would no doubt help government to be abreast with latest happenings in the Nigerian financial sector.

**Theoretical framework**

The theoretical bedrocks on financial liberalisation and economic growth nexus rest on the “prior-saving” approach and the “investment-led” approach. The prior-saving approach argues that financial liberalisation encourages economic growth by increasing the amount of loanable funds, increasing credit, and thus increasing investment (McKinnon, 1973; Shaw, 1973). This model stresses the significance and necessity of rules leading to increase saving levels, which would help find investment outlets. This approach also stresses the importance of a liberalized financial system as a means of increasing saving, investment and the productivity of investment. It strongly opposes any kind of government intervention in
the financial system, and criticizes the argument that market forces do not work in less developed countries. McKinnon (1973) and Shaw (1973) believe financial liberalization policies will eliminate distortion caused by administrative controls and could help to expand capital formation by augmenting aggregate demand in the real sector (Brownbridge & Harvey, 1998).

Contrary to McKinnon’s (1973) and Shaw’s (1973) views, the post-Keynesian theorists argue that high real interest rates negatively affect economic performance by discouraging both aggregate consumption and investment, therefore reducing the level of aggregate demand. On the contrary, the Neo-Structuralist approach, which remains within the prior-saving analytical framework, argues that financial liberalization might reduce the amount of loanable funds for the whole financial system, including those of the unofficial money and capital markets (World Bank, 1989). From the Washington consensus’ perspective, financial repression was understood as a situation in which government and Central Bank regulations tend to distort financial markets. These regulations mainly refer to reserve requirements on commercial banks, interest rates ceilings and compulsory credit allocations with or without subsidized interest rates. It was argued that the consequences of financial repression constrained the growth of savings, investment.
and economic performance (García-Páez & Dela-Cruz, 2012).

Empirical Literature Review

The financial liberalization policy has been applied in many developed and developing nations, in order to develop their financial sector and raise economic growth. Therefore, a significant amount of literature on this subject has appeared, and produced a wider scope of opinions, views and ideas. According to Akinsola and Odhiambo (2017), the empirical literature on financial liberalization is like a two-sided coin: where one side examines the positive relationship between financial liberalization and economic growth, while the other side examines whether financial liberalization is actually responsible for financial fragility and banking crises in most SSA countries. As confirmed by Loizos (2017) the literature on financial liberalisation remains controversial on its theoretical conclusions and policy implications. Some of the recent studies are reviewed in this section.

Anward (2018) recently examined the impact of financial liberalization on economic growth and other macroeconomic variables in Indonesia, using de facto and de jure measure of financial liberalization. Estimation of the Vector Autoregression (VAR) model in de jure approach shows that financial liberalization index
statistically has no significant effect on economic growth and other macroeconomic variables (inflation, exchange rate and interest rate). In *de facto* approach, the results of cointegration test reveals the existence of long run relationship between economic growth and all the indicators used as a proxy for financial liberalization. The estimation results in *de facto* approach through the Vector Error Correction Model (VECM) indicates that financial liberalization has a negative effect on economic growth via the increase of banking credit to the private sector. Overall, the results cannot provide robust evidence related to the positive impact of financial liberalization on economic growth in the small open economy of Indonesia.

The study by Azmeh, Al-Samman and Mouselli (2017) covers a set of 33 developing countries that have a GDP per capita of less than 3,595 dollar, for the period between 1995 and 2006. Relative number and share of foreign banks are used as proxies for financial liberalisation, while liquid liabilities and claims on private sector as share of GDP proxied financial development. The study finds a negative real effect of the level of foreign banks entry on the size of and activity of financial development, while the effect of financial development on economic growth is positive. This result contradicts the first component of Levine’s theory that foreign bank’s entry has positive effect on financial development, but confirms
the second component the financial development has positive effect on economic growth. The finding is consistent with Ghosh (2017) who finds that a greater banking sector openness reduces economic growth in developing and low income countries.

Akinsola and Odhiambo (2017) applied a dynamic panel estimation to examine the impact of financial liberalization on economic growth using a sample of 30 sub-Saharan African (SSA) countries for the period 1980–2015. Findings indicate that the coefficient of the financial liberalization variable was positive and significant for SSA. However, the financial liberalization dummy sign changed to negative for low-income countries, even though it was statistically insignificant. The results also showed that there is a negative relationship between a banking crisis and economic growth, showing that the period of a banking crisis can drastically affect economic growth in sub-Saharan Africa.

Similarly, Njikam (2017) examined whether the effect of financial liberalization on economic growth depends on reform complementarities. A non-linear growth regression specification that interacts a proxy of financial liberalization with proxies of reform complementarities is estimated using a panel of 45 Sub-Saharan Africa (SSA) countries. The cross-country, panel-data evidence shows
no clear relationship between financial liberalization and growth. The study however finds that financial liberalization is more likely to positively and significantly increase growth across the SSA region if complementary reforms like improvement in educational attainment, macroeconomic and external stability, and overall governance are undertaken.

Emhemed (2016) employed time-series econometric techniques and semi structured interviews to assess the impact of financial liberalization on economic growth in Libya from 1978 to 2011. The results show that despite the reforms and liberalization in the financial sector, there was a negative relationship between financial liberalization in Libya and economic growth during this period. This disproves the theory of financial liberalization that claims a positive co-relation between financial liberalization and economic growth. Orji, Ogbuabor and Anthony-Orji (2015) adopted the ordinary least squares methodology and cointegration analysis to investigate the impact of financial liberalization on economic growth in Nigeria from 1981 to 2012. The result reveals that financial liberalization and private investment have significant positive impact on economic growth in Nigeria. However, real lending rate proved to be negatively related to economic growth in Nigeria within the period under review. Similar result was obtained by

Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria
Nwadiubu, Sergius and Onwuka (2014) using Johansen co-integration test and error correction mechanism (ECM) and annual time series data for the period 1987 to 2012. The result shows the existence of a long-run equilibrium relationship among the variables and co-integration equation at 5 per cent significance level.

Similarly, Sulaiman, Oke and Azeez (2012) explored the effect of financial liberalization on the economic growth in developing nations with particular focus on Nigeria with annual time series data from 1987-2009. The study employs co-integration and error correction model (ECM) by making Gross Domestic Product as a function of lending rate, exchange rate, inflation rate, financial deepening (M2/GDP), and degree of openness as its financial liberalization indices. Co-integration result confirms the existence of long run equilibrium relationship while the ECM result shows a very high R-squared in both the over-parameterized model (95 per cent) and parsimonious model (91 per cent). The study hence concludes that financial liberalization has a growth-stimulating effect on Nigeria.

Using meta-analysis as a tool to investigate the financial liberalisation–growth nexus, and based on 441 t-statistics reported in 60 empirical studies, Bumann, Hermes and Lensink (2012) noted that financial liberalisation policies
carried out during the 1970s seemed to have had a stronger negative relationship with growth. Their results also show that studies that take into account a measure of the level of development of the financial system report lower t-statistics for the relationship between liberalisation and growth.

Generally, the studies reviewed above suggest that economists differ in their viewpoints relating to the role of financial liberalization in economic growth. There are studies that support McKinnon’s and Shaw’s idea that liberalization of the financial sector is the best way to promote economic growth; while other studies suggest that financial liberalization may potentially have a negative impact on growth. This implies that the link between financial liberalisation and growth is at best inconclusive. These studies vary considerably in their country coverage, sample period, and estimation techniques.

**Methodology**

**Sources of data**

The data for this study were sourced from the Central Bank of Nigeria (CBN) Annual Statistical Bulletin, World Bank Development Index and International Financial Statistics.

*Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria*
Method of data analysis

The study adopts the Auto-Regressive Distributed Lag (ARDL) bounds testing approach developed by Pesaran, Shin and Smith (2001), because it yields consistent estimates of the long-run coefficients that are asymptotically normal irrespective of whether the underlying regressors are I(1) or I(0). The key elements of this approach are that none of the data should be I(2), the errors should be serially independent, and the model should be dynamically stable. The ARDL approach has better properties in small sample sizes than traditional co-integration methods, which typically require a large sample size for the results to be valid (Pesaran & Shin, 1997).

Model specification

There has been general recognition that financial liberalisation is difficult to measure in a form suitable for econometric analysis and any approach will be less than ideal (Groenewold, Peng, Li & Fan, 2008). This study utilizes ARDL approach to examine the effects of financial liberalisation on economic growth in the long-run and the short-run in Nigeria. With this approach, economic growth is expressed as a function of the lagged value of itself and the current and the lagged values of the
explanatory variables. Thus, the ARDL regression model is expressed as:

$$
\Delta \log RGDP_t = \mu_0 + \beta_1 \log RGDP_{t-1} + \beta_2 FINDEX_{t-1} + \beta_3 FDI_{t-1} + \beta_4 INF_{t-1} + \beta_5 \log REX_{t-1} + \beta_6 RIR_{t-1} + \epsilon_t
$$

(3.1)

Where $\Delta$ represent the first difference operator; $\mu_0$ is the drift component, $\beta_1, \beta_2, ..., \beta_6$ give the coefficient of the independent variables, $t$ is the time trend.

RGDP = real GDP (proxy for economic growth); measured in billions of local currency at 2010 constant basic prices; comprising of 46 activity sectors; formerly, there were 33 activity sectors (CBN, 2018). Two financial liberalization policy variables, FINDEX and real interest rate (RIR), are included in this study.

$FINDEX =$ the index of financial liberalisation, proxied by private sector credit/GDP ratio ($\frac{PSC}{GDP}$). This indicator measures the quantity and quality of investment financed by the banking sector; and has been used by many researchers as a proxy for financial sector development (King & Levine, 1993; Levine, 1997; Abu-Badar & Abu-Qarn, 2005; Gounder, 2007; Pill & Pradhan, 1995, Akpansung & Babalola, 2012; and Agu & Chukwu, 2012).

Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria
2014). Real interest rate has been used by Bashar and Khan (2007) as a financial liberalization policy variable. As noted by Balassa (1989), higher real interest rates increase financial intermediation, which in turn raises the rate of economic growth in developing countries. FDI = Net Foreign direct investment (inward flow less outward flow) has been included in the model to capture the effects of external investment in the Nigerian economy; it is expressed as percentage of GDP ratio; REX = Real effective exchange rate (the Naira/US dollar exchange rate). In the model, INFL = Inflation rate is used as a proxy for domestic policy environment; $\varepsilon_t$ is a random stochastic error term, assumed to be well-behaved or serially independent.

A priori, the financial liberalisation proxy (FINDEX) is expected to be positively correlated with the economic growth according to the supply leading argument. Net foreign direct investments (FDI) are known to have positive effects on economic growth. High inflation can destabilize the economy; and, consequently, inflation (INFL) and real exchange rate (REX) are expected to be negatively related to economic growth. The “neo-structuralist” approach (Lin, 2011) predicts a stagflation, i.e., accelerating inflation and slowing economic growth as a result of financial liberalization in the short term. Real interest rate can be negatively related to economic growth.
Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria

(Tobin, 1965; Jorgenson, 1963; Wickens, 2008); as well as have a positive effect on economic growth rates (McKinnon, 1973; Shaw, 1973).

Based on Pesaran et al (2001) ARDL approach, the Unrestricted or Conditional Error Correction Model (UECM) of Equation 3.1 becomes:

\[
\Delta \log RGDP_t = \mu_0 + \beta_1 \log RGDP_{t-1} + \beta_2 FINDEX_{t-1} \\
+ \beta_3 FDI_{t-1} + \beta_4 INFL_{t-1} \\
+ \beta_5 \log REX_{t-1} + \beta_6 RIR_{t-1} \\
+ \sum_{i=1}^{p} \gamma_{1i} \Delta l RGDP_{t-1} \\
+ \sum_{i=1}^{p} \gamma_{2i} \Delta l FINDEX_{1_{t-1}} + \sum_{i=1}^{p} \gamma_{3i} \Delta FDI_{t-1} \\
+ \sum_{i=1}^{p} \gamma_{4i} \Delta INFL_{t-1} \\
+ \sum_{i=1}^{p} \gamma_{5i} \Delta log REX_{t-1} + \sum_{i=1}^{p} \gamma_{6i} \Delta RIR_{t-1} \\
+ \epsilon_t
\]

Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria
Though the same lagged levels are included in the above equation, their coefficients are not restricted. The parameters $\beta_i$, (where $i = 1$ to 6), are the respective long-run multipliers while the parameters $\gamma_i$ are the short-run dynamic coefficients of the underlying ARDL model in the equation. The lag structure is determined using the Schwartz (Bayesian) Information criterion (SC) as it is a consistent model selector. Though the ARDL-AIC and the ARDL-SC estimators have very similar small-sample performances, the ARDL-SC perform slightly better in the majority of the experiments (Pesaran & Shin, 1997).

The Bounds cointegration test involves estimating the Unrestricted or Conditional Error Correction Model and restricting the parameters of the lag level variables to zero. Based on this equation, we tested for the absence of a long-run equilibrium relationship between the variables. The rejection of the null hypothesis ($H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = 0$ = absence of a long-run equilibrium relationship) would imply that there is a long-run relationship. The ARDL bound test is based on the Wald-test (F-statistic). As a rule for the Bounds test, if the computed F-statistic falls below the Pesaran et al.’s (2001) lower bound critical value, we conclude that the variables are I(0), hence no cointegration is possible. If the computed F-statistic is greater than the upper bound critical value, we conclude that there is cointegration.

*Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria*
However, the test would be considered inconclusive if the F-statistics falls in between the bounds.

Once cointegration is established based on bounds test, the second step involves estimating the long-run ARDL model for LogRGDP$_t$ as:

$$
LogRGDP_{t} = \mu_0 + \beta_1 logRGDP_{t-1} + \beta_2 FINDEX_{t-1} + \beta_3 FDI_{t-1} + \beta_4 INFL_{t-1} + \beta_5 logREX_{t-1} + \beta_6 RIR_{t-1} + \epsilon_t \quad (3.4)
$$

The Error Correction Model (ECM) based on equation (3.4) is of the form:

$$
\Delta logRGDP_{t} = \mu_0 + \sum_{i=1}^{p} \gamma_{1i} \Delta lRGDP_{t-1}
+ \sum_{i=1}^{p} \gamma_{2i} \Delta lFINDEX_{t-1}
+ \sum_{i=1}^{p} \gamma_{3i} \Delta FDI_{t-1}
+ \sum_{i=1}^{p} \gamma_{4i} \Delta INFL_{t-1}
+ \sum_{i=1}^{p} \gamma_{5i} \Delta logREX_{t-1}
+ \sum_{i=1}^{p} \gamma_{6i} \Delta RIR_{t-1}
+ \Omega Z_{t-1} + \epsilon_t
$$

Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria
Where: $Z$, the error correction term is the Ordinary Least Square residual series from the long-run cointegration regression. The summation is from 1 to 6.

Therefore, the error correction term can be expressed as follows:

$$Z_{t-1} = \log RGDP_t - \mu_0 - \beta_1 \log RGDP_{t-1} - \beta_2 \text{INDEX}_{t-1} - \beta_3 FDI_{t-1} - \beta_4 \text{INFL}_{t-1} - \beta_5 \log REX_{t-1} - \beta_6 \text{RIR}_{t-1}.$$ 

This is the error correction mechanism lagged for one period; $\Omega = \text{the coefficient for measuring the speed of adjustment from any disequilibrium that may shock the system. The coefficient of the error correction term is expected to be negative and significant to express the speed of adjustment to the equilibrium.}$

**Results and Discussions**

**Stationary Test**

Since annual data are used in the study, it becomes necessary to test whether or not the variables are stationary. The ARDL bounds test is based on the assumption that the variables are I(0) or I(1). So, before applying this test, it was pertinent to determine the order of integration of all variables using the unit root tests. The

*Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria*
objective is to ensure that the variables are not I(2) so as to avoid spurious results. In the presence of variables integrated of order two, we cannot interpret the values of F statistics provided by Pesaran et al. (2001). Phillips-Perron (PP) [1988] test is used for this purpose. The test is similar to ADF but with automatic correction that allows autocorrelated residuals (Phillips & Perron, 1988). Compared to ADF, Phillips-Perron unit root test has become popular because the latter is proficient in dealing with heteroscedasticity and serial correlations in the error (Nazir, Tan, & Nazir, 2018). The null hypothesis for the P-P test is that each of the variables has unit root. The test was specified at constant level only without trend. The results of the P-P unit-root tests for the relevant variables are reported in Table 4.1.

**Table 1: Unit Root Tests Result**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level t-values</th>
<th>Level Prob.</th>
<th>1st Difference Test values</th>
<th>1st Difference Prob.</th>
<th>Lag length</th>
<th>Order of Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log(RGDP)</td>
<td>0.0015</td>
<td>0.9519</td>
<td>-3.1062</td>
<td>0.0365</td>
<td>1</td>
<td>I(1)</td>
</tr>
<tr>
<td>FINDEX</td>
<td>-1.5719</td>
<td>0.4850</td>
<td>-4.1433</td>
<td>0.0030</td>
<td>1</td>
<td>I(1)</td>
</tr>
<tr>
<td>FDI</td>
<td>-3.6539</td>
<td>0.0100</td>
<td>-7.8824</td>
<td>0.0000</td>
<td>1</td>
<td>I(0)</td>
</tr>
<tr>
<td>INFL</td>
<td>-2.8593</td>
<td>0.0615</td>
<td>-4.9645</td>
<td>0.0003</td>
<td>1</td>
<td>I(1)</td>
</tr>
<tr>
<td>RIR</td>
<td>-3.4412</td>
<td>0.0167</td>
<td>-7.1620</td>
<td>0.0000</td>
<td>1</td>
<td>I(0)</td>
</tr>
<tr>
<td>Log(REX)</td>
<td>-3.5208</td>
<td>0.0138</td>
<td>-5.9276</td>
<td>0.0000</td>
<td>1</td>
<td>I(0)</td>
</tr>
</tbody>
</table>

**Source:** Author’s computation, using Eviews 9.

*Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria*
The results of the unit root tests show that the null hypothesis of unit root is rejected for FDI, RIR and REX; implying that they are stationary in the level, I(0). The test indicates that RGDP, FINDEX and INFL are nonstationary in the level but are difference-stationary or integrated of order one, I(1). Thus, these series are non-mean reverting in levels and do not converge to their long-run equilibrium until they are first differenced. None of the variables is integrated of order more than 1, which is prerequisite of the ARDL co-integration test.

**ARDL Bounds Cointegration Test Result**

The ARDL cointegration test assumes that only one long run relationship exists between the dependent variable and the exogenous variables (Pesaran, *et al.*, 2001). Hence, the F-statistics (Wald test) estimate for testing the existence of long-run relationship between financial liberalisation and economic growth in Nigeria are presented in Table 4.2. The estimated F-statistics of the normalized equations (F = 4.00) is greater than the lower and upper critical bound at 5 per cent significance level; hence, the null hypothesis of no (levels) long-run relationship is strongly rejected at 5 per cent significance level.

*Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria*
Table 2: ARDL Bounds Test Result for Cointegration

<table>
<thead>
<tr>
<th>Test Statistic</th>
<th>Value</th>
<th>Significance level</th>
<th>I(0)</th>
<th>I(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
<td>4.00</td>
<td>10%</td>
<td>2.26</td>
<td>3.35</td>
</tr>
<tr>
<td>k(Number of variables)</td>
<td>5</td>
<td>5%</td>
<td>2.62</td>
<td>3.79</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5%</td>
<td>2.96</td>
<td>4.18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1%</td>
<td>3.41</td>
<td>4.68</td>
</tr>
</tbody>
</table>

The implication of the above estimation is that economic growth (RGDP), financial liberalisation (FINDEX), net foreign direct investment (FDI), inflation rate (INFL), real effective exchange rate (REX), and real interest rate (RIR), all have equilibrium condition that keep them together in the long-run.

**Long run ARDL Result**

Having rejected the null hypothesis of no long run cointegrating relationship between the variables in specified econometric model, the ARDL model was estimated using univariate ARDL cointegration test option of Eviews 9. The study employed Schwartz's information criterion (SIC) in selecting the lag length on each first differenced variable. The automatic lag selection criteria were used for the maximum lags of dependent variable and the independent variables; and are shown in the result. In all, the number of models evaluated

Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria
was 243. The ARDL \((1, 1, 0, 2, 0, 2)\) estimates are presented in Table 4.3.
Table 3: Financial liberalization and economic growth—Long run ARDL Result

<table>
<thead>
<tr>
<th>Regressor</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistic</th>
<th>Prob*</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOG(RGDP(-1))</td>
<td>0.9070</td>
<td>0.0215</td>
<td>42.1810</td>
<td>0.0000</td>
</tr>
<tr>
<td>FINDEX</td>
<td>0.0004</td>
<td>0.0024</td>
<td>0.1622</td>
<td>0.8729</td>
</tr>
<tr>
<td>FINDEX(-1)</td>
<td>0.0038</td>
<td>0.0022</td>
<td>1.7087</td>
<td>0.1038</td>
</tr>
<tr>
<td>FDI</td>
<td>-0.0158</td>
<td>0.0060</td>
<td>-2.6071</td>
<td>0.0173</td>
</tr>
<tr>
<td>INFL</td>
<td>-0.0020</td>
<td>0.0005</td>
<td>-3.6361</td>
<td>0.0018</td>
</tr>
<tr>
<td>INFL(-1)</td>
<td>0.0013</td>
<td>0.0005</td>
<td>2.5282</td>
<td>0.0205</td>
</tr>
<tr>
<td>INFL(-2)</td>
<td>-0.0017</td>
<td>0.0005</td>
<td>-3.7074</td>
<td>0.0015</td>
</tr>
<tr>
<td>RIR</td>
<td>0.0001</td>
<td>0.0008</td>
<td>0.1435</td>
<td>0.8874</td>
</tr>
<tr>
<td>LOG(REX)</td>
<td>0.0629</td>
<td>0.0222</td>
<td>2.8400</td>
<td>0.0105</td>
</tr>
<tr>
<td>LOG(REX(-1))</td>
<td>-0.0566</td>
<td>0.0221</td>
<td>-2.5650</td>
<td>0.0189</td>
</tr>
<tr>
<td>LOG(REX(-2))</td>
<td>-0.0363</td>
<td>0.0172</td>
<td>-2.1039</td>
<td>0.0489</td>
</tr>
<tr>
<td>CONSTANT</td>
<td>1.1897</td>
<td>0.2267</td>
<td>5.2483</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Source: Author’s calculations, using Eviews 9.

The long run model corresponding to ARDL (1, 1, 0, 2, 0, 2) for the natural log of real gross domestic product can be written as:

\[
\text{Log(RGDP)} = 1.1897 + 0.9070 \times \text{Log(RGDP(-1))} + 0.0004 \times \text{FINDEX} + 0.0038 \times \text{FINDEX(-1)} - 0.0158 \times \text{FDI} - 0.0020 \times \text{INFL} + 0.0013 \times \text{INFL(-1)} - 0.0017 \times \text{INFL(-2)} + 0.0001 \times \text{RIR} + 0.0629 \times \text{Log(REX)} - 0.0566 \times \text{Log(REX(-1))} - 0.0364 \times \text{Log(REX(-2))}.
\]

As the table and estimated equation show, the coefficient of both current and one period lagged financial

Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria
liberalisation index (FINDEX) have positive signs, as expected; though not statistically significant at the 5 per cent level. The same result holds even in the short-run as can be seen in Table 4.4. The results imply that, in both the long run and the short run, a one (1) per cent increase in the financial liberalisation index leads to about a 0.04 per cent inconsequential increase in economic growth. Though the impact is statistically insignificant, the positive coefficient aligns with economic theory, which predicts that financial liberalisation leads to an increase in savings, which, in turn, leads to an increase in investments, and ultimately to economic growth. This finding tallies with that of Owusu and Odhiambo (2013), which found negligible effects of financial liberalization policies on economic growth in Nigeria both in the short run and in the long run.

The coefficient of current foreign direct investments (FDI) has the unexpected negative sign, both in long run and the short run. Both coefficients are statistically significant and economically relevant at 5 per cent level. The negative signs for this coefficient may indicate long-term and short-term capital flights from Nigeria during the study period. The non-positive impact of foreign investment on growth may also be due to non-existence of relatively developed domestic institutions and sound macroeconomic policy in the country over the study

Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria
period. This result is however contrary to Andikari (2014); Nwaogu and Ryan 2015; Chowdhury, 2016; Pradhan et al. 2016), Mahmoodi and Mahmoodi (2016), and Simionescu (2016) which concluded that economic growth can be stimulated by FDI inflows.

Both current and previous values of both inflation and real effective exchange rates exert significant impacts on economic growth in the long run as reported in Table 4.3. Current inflation and its two year lagged values exert negatively on economic growth, and conform to economic theory; while its immediate preceding value impacts positively and significantly. The coefficient of current real effective exchange rate (logREX) is positively significant both in the long-run and short-run. In both periods, a 1 percentage increase in real effective exchange rate will lead to a relative increase of 0.06 per cent in economic activities in the country. More so, the coefficients of both one - and two- periods lagged real effective exchange rate negatively significant both in the long-run and short-run (see Tables 4.3 and 4.4). Based on a priori expectation, the real interest rate (RIR) variable carries a positive, albeit insignificant coefficient, implying an insignificant positive impact on economic growth in the long run. Coincidently, the same impact is exhibited in the short-run (see Table 4.4). This finding aligns with McKinnon (1973) and Shaw (1973), which

Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria
noted that real interest rate has a positive short-and mid-term effect on economic growth in response to financial liberalization. These findings are however contrary to Tobin, 1965; Wickens, 2008; Orji et al. (2015), which hypothesized negative correlation between interest rate and economic growth Balassa (1989) found that excessively high interest rates will have unfavorable economic effects, and noted that such a situation can be avoided if the liberalization of the banking system takes place under appropriate conditions, including monetary stability and the government supervision of the banks.

**ARDL Error Correction Mechanism (ECM) Result**

An error correction model for the selected ARDL model was estimated. Table 4.4 presents the results of the estimated ECM corresponding to the long run estimates. The lag lengths were also selected based on Schwarz Bayesian Information Criterion (SIC). The estimated ECM has two parts. First part contains the estimated coefficients of short run dynamics and the second part consists of the estimates of the error correction term (ECT) that measures the speed of adjustment whereby short-run dynamics converge to the long-run equilibrium path in the model. Particularly, the coefficient of ECT(-1) is found to be statistically significant at the 5 per cent level, with the expected negative sign. This confirms the

*Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria*
existence of a long-run relationship among the variables considered in the study. The coefficient of the ECT(-1) of -0.092991 suggests a relatively slow rate of the adjustment process, and shows that any observed disequilibrium, resulting from a shock, is totally corrected in about 10 years and 7 months, at a rate of 9.3 per cent per annum. The sequencing of the liberalization process and the hostile macroeconomic environment in Nigeria over the years may have combined to slow down the expected significant benefits of financial liberalization.

Table 4: Economic growth and financial liberalisation: ARDL ((1, 1, 0, 2, 2, 0) ECM Result Dependent Variable: ∆Log(RGDP)

<table>
<thead>
<tr>
<th>Regressor</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistic</th>
<th>Prob*</th>
</tr>
</thead>
<tbody>
<tr>
<td>∆ (FINDEX)</td>
<td>0.000395</td>
<td>0.002435</td>
<td>0.162174</td>
<td>0.8729</td>
</tr>
<tr>
<td>∆ (FDI)</td>
<td>-0.015761</td>
<td>0.006045</td>
<td>-2.607089</td>
<td>0.0173</td>
</tr>
<tr>
<td>∆ (INFL)</td>
<td>-0.001977</td>
<td>0.000544</td>
<td>-3.636123</td>
<td>0.0018</td>
</tr>
<tr>
<td>∆ (INFL(-1))</td>
<td>0.001689</td>
<td>0.000456</td>
<td>3.707367</td>
<td>0.0015</td>
</tr>
<tr>
<td>∆(RIR)</td>
<td>0.000113</td>
<td>0.000787</td>
<td>0.143514</td>
<td>0.8874</td>
</tr>
<tr>
<td>∆LOG(REX)</td>
<td>0.062905</td>
<td>0.022150</td>
<td>2.839952</td>
<td>0.0105</td>
</tr>
<tr>
<td>∆ (REX(-1))</td>
<td>0.036277</td>
<td>0.017243</td>
<td>2.103850</td>
<td>0.0489</td>
</tr>
<tr>
<td>ECT(-1)</td>
<td>-0.092991</td>
<td>0.021503</td>
<td>-4.324609</td>
<td>0.0004</td>
</tr>
</tbody>
</table>

Source: Author’s computations, using Eviews 9.

Over all, the resulting cointegrating equation can be expressed as:

\[
\Delta \text{Log}(RGDP) = 0.0004 \Delta(CPS) - 0.0158 \Delta(FDI) - 0.0020 \Delta(INFL) + \]

Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria
\[
0.0017\Delta(INFL(-1)) + 0.0001\Delta(RIR) + 0.0629\Delta\log(REX) + 0.0363\Delta\log(REX(-1)) - 0.0930(\log(RGDP) - (0.0452\times CPS(-1)) - 0.1695\times FDI(-1) - 0.0259\times INFL(-1) + 0.0012\times RIR(-1) - 0.3222\times\log(REX(-1)) + 12.7933
\]

**Diagnostic tests**

The robustness of the ARDL results is examined along several econometric tests, including tests for heteroscedasticity, serial correlation, normality and stability (Greene, 2008; Gujarati & Sangeetha, 2007). The econometric tools employed included Breusch-Pagan-Godfrey, Breusch-Godfrey Serial Correlation LM Test, Jarque-Bera, Specification tests (Ramsey RESET test) and CUSUM tests respectively. The estimates based on Table 4.5 show that there is no evidence of diagnostic problem with the model. The Variance Inflation Factors (VIF) test shows that there is no problem of multicollinearity in the data, as the centered VIF values of all variables in the study are less than 10. The Jarque-Bera normality statistics suggest that the disturbances of the regressions are normally distributed, while the Breusch-Godfrey Lagrange Multiplier (LM) test of first and second order serial correlation suggests that the residuals are not serially correlated (the null hypothesis cannot be rejected.
at 5 per cent significance level). These properties are desirable properties of Ordinary Least Square (OLS) models. Since our model exhibit all the desirable properties of OLS, we conclude that our model is very reliable for economic analysis and forecasting.

**Table 5: Economic growth and financial liberalisation - ARDL model diagnostic tests.**

<table>
<thead>
<tr>
<th>Tests</th>
<th>Coefficients</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Normality:</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jarque- Bera</td>
<td>1.4114</td>
<td>0.4938</td>
</tr>
<tr>
<td><em>Breusch- Godfrey 1st and 2nd Serial correlation LM:</em></td>
<td>0.4136</td>
<td>0.6678</td>
</tr>
<tr>
<td>F-Statistic</td>
<td>1.4383</td>
<td>0.4872</td>
</tr>
<tr>
<td>Observed R-Squared</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Heteroscedasticity: Breusch- Pagan-Godfrey</em></td>
<td>2.1151</td>
<td>0.0731</td>
</tr>
<tr>
<td>F-Statistic ((11,19))</td>
<td>17.0644</td>
<td>0.1060</td>
</tr>
<tr>
<td>Observed R-Squared (Chi-Square (11))</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Ramsey’s RESET:</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>t-statistic</td>
<td>1.8472 (df: 18)</td>
<td>0.0812</td>
</tr>
<tr>
<td>F-statistic</td>
<td>3.4123 (df:1,18)</td>
<td>0.0812</td>
</tr>
</tbody>
</table>

**Source:** Author’s computations, using Eviews 9.

The Breusch-Pagan-Godfrey heteroscedasticity test suggests that the disturbance term in the equation is homoscedastic, implying time varying variance problem was not encountered. The Ramsey’s RESET (Regression Specification Test) statistic shows no serious omission of

*Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria*
variables, indicating the correct specification of the model. Accordingly, the model can be used for making inferences and valid economic policy suggestions.

The Cumulative Sum of Recursive Residuals (CUSUM) and Cumulative Sum of Squares of Recursive Residuals (CUSUMSQ) tests for model stability (shown in Figures 4.1 and 4.2) is equally satisfactory since their recursive residuals lie completely within the 5 per cent significance critical lines. This implies that there is no systematic change detected in the coefficient at a 5 per cent significance level over the sample period.

Figure 4.1: Plot of CUSUM Residuals

Figure 4.2: Plot of CUSUMSQ Residuals

Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria
Conclusion and Recommendations

This paper has empirically examined the impact of financial sector liberalisation policy on economic growth in Nigeria for the period spanning 1986 to 2018, with a view to provide further evidence on the growth-enhancing effects, or otherwise, of financial liberalization in the long run and short run. The paper utilised the Pesaran, Shin, and Smith (2001) ARDL bounds testing approach to cointegration analysis. The empirical analysis used a linear growth regression specification that interacts two proxies of financial liberalization (private sector credit as a percentage of gross domestic product, FINDEX, and real interest rate, RIR) with other control variables (net foreign direct investment, inflation stabilization, and real effective exchange rate).

The results of Phillips-Perron statistical tests for the presence of unit roots indicate that some of the studied time series were stationary in levels, while others were first difference-stationary. The ARDL bounds tests show that the variables were cointegrated. The results show that financial sector liberalisation policies exerted positive but statistically insignificant impacts on economic growth in Nigeria both in the long run and in the short run. The real interest rate variable exerted negligible positive impact on economic growth, evidencing that interest rate policies in

Financial Liberalisation and Economic Growth: Further Empirical Evidence from Nigeria
Nigeria were partially inefficient to spur economic activities in the country during the studied period. This suggests that effective and full implementation of appropriate financial sector liberalisation policies can spur economic growth in Nigeria. Net foreign direct investment and economic growth show a significant negative relationship, indicating that capital flights have severe negative effect on economic growth in Nigeria. The study also confirms the *a priori* negative relationship between inflation and economic growth, implying that macroeconomic instability hampers economic growth in Nigeria.

The study, therefore, recommends that appropriate and effective financial liberalisation policies should be pursued in Nigeria in order to foster economic growth. Apart from strengthening the regulatory and supervisory framework for the financial sector, the Government should pursue policies aimed at increasing the credit allocation to the private sector, as well as ensuring that there is efficient credit evaluation and public sector stakeout. As pointed out by Stiglitz (2000), financial and capital market liberalization done hurriedly, without first putting into place an effective regulatory framework can lead to a problem. Since financial intermediaries play crucial role in the economy, the study equally suggests that financial sector liberalization policies in the country
should be implemented with caution, since improper sequencing and timing of the policies could endanger financial stability. Government should also design economic policies aimed at discouraging capital flights and reducing high rates of macroeconomic instability (inflation) to ensure that gains from financial liberalisation policies are realized in the country. Appropriate interest rate policies should be pursued to reduce high real interest rate and boost economic growth.

References


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