

## Original Paper

# Does Financial Liberalization Lead to Poverty Alleviation?

## New Evidence from Nigeria

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### Abstract

*The study examined anew the empirical question of whether financial liberalization induces poverty alleviation. There is a theoretical expectation that liberalizing the financial market will lead to greater savings mobilization, greater access to credit facilities and poverty alleviation. Using a time-series data spanning 38 years (1980-2018), the study analyzed the effect of financial liberalization on credit availability to the private sector, the manufacturing sector especially the small & medium enterprises and the agricultural sector in Nigeria. The Bounds testing approach to co-integration employed within the framework of Autoregressive Distributed Lag model (ARDL) was used to generate the coefficients. The coefficient of financial liberalization-though positive in all the parameter estimates, it is not significant. This lead us to the conclusion that despite the advantages of financial liberalization, its benefits is yet to bring about significant positive increases or changes in the volume of credit to the private sector and in poverty alleviation. Inferring upon this, we deduced that the continued liberalization of the financial system though indicating a positive long run impact on financial widening (or financial deepening as the case may be), its manifestation on quantum of credit to the private sector and on poverty alleviation is yet to be realized in Nigeria. The study recommended, amongst others, that government should re-think and re-tool the process in ways that will generate stability in the financial system and unleash the potentials of the process to generate greater savings and ultimately greater investment in the real sectors of the economy.*

### Keywords

*Financial liberalization, poverty alleviation, economic growth*

### 1. Introduction

Financial liberalization especially cross-border financial flows has been a reform feature of many economies since the 1980s. This approach was based on the seminal works of McKinnon (1973) and Shaw (1973). Based on the findings from their study, many scholars begin to argue for the removal of restrictions on the financial system. Many like Goldsmith (1969) were of the view that non-market restrictions on the functioning of the financial system could affect the efficiency of capital, savings and investment. For instance, if savings are not allocated efficiently to investment due to non-market

restrictions, productivity will be low. Low productivity and low savings will ultimately affect economic growth. Some of the non-market restrictions that affect efficiency of savings and investment include, high reserve requirement and directed credit allocation by the regulatory body.

To this end, scholars in several empirical works recommend for the removal of asymmetric corridors on interest rates, limit reserve requirements and remove directed credit allocation by the regulatory body.

Also, as the real rate of interest increases, saving and the total real supply of credit increases, this in turn will induce a higher volume of investment. Economic growth would, therefore, be stimulated not only through the increased investment but also due to an increase in the average productivity of capital. Moreover, the effects of lower reserve requirements reinforce the effects of higher saving on the supply of bank loans, whilst the abolition of directed credit programs would lead to an even more efficient allocation of credit thereby stimulating further the average productivity of capital.

These promising results have not been the case for many developing countries that liberalize their markets. Findings from several empirical studies show that the benefit of liberalization has accrued to the developed nations. For the developing countries, it has another kettle of fish. Many of the developing countries that liberalize their economies only have tale of woes. In particular, poverty has remained a feature of most economies in developing countries. It could rightly be argued that the salutary effects promised by financial liberalization thesis, has not been realized in Africa.

There are not many studies that are solely dedicated to establishing the link between financial liberalization and poverty alleviation in Sub-Saharan Africa (SSA). The few studies that try to explore this link had inconsistent results. In other words, the actual link between financial liberalization and poverty alleviation is not yet unequivocal. Extant literature has largely been based on growth channel—which focused on financial liberalization and savings and allocation of capital to productivity. The trickle-down effect of economic growth increases income; reduces poverty and improves income distribution. The country-specifics and institutional dynamics that could make financial liberalization have greater impact on the living conditions of the poor have not been fully explored. Theoretically, there are other channels that financial liberalization could impact more meaningfully on the poor. These include: access to credit channel, financial crises channel, financial services channel and the income share of labour channel. These channels have received very little attention in empirical literature especially in developing economies.

Our work adds to extant literature by interrogating the link between financial liberalization and credit delivery link to poverty alleviation. This channel works via changes in poverty level through access to credit by private operators influenced by the financial liberalization process (Arestis & Caner, 2009). To achieve our objective, we provide an analysis of the theoretical links between financial liberalization policies and poverty alleviation. Before this, we reviewed first the financial liberalization and economic growth channel. Later on, we do a post-mortem evaluation on the role of financial liberalization policies on poverty alleviation in Nigeria through the access to credit channel for the period 1980 to 2018.

The study hypothesized that financial liberalization has not impacted positively on poverty alleviation through the quantum of credit to the private sector, the manufacturing sector especially the small and medium enterprises and agriculture where majority of the poor operates.

## 2. Research Context

For more than two decades after independence, the Nigerian financial system was repressed, as evidenced by ceilings on interest rates and credit expansion, selective credit policies, high reserve requirements, and restriction on entry into the banking industry. This situation, according to Ikhide (2006) inhibited the functioning of the financial system and especially constrained its ability to mobilize savings and facilitate productive investment. To reverse this situation and in line with the orthodoxy of the time, Nigeria like other developing countries embraced financial liberalization as one of the major planks of Structural Adjustment Programme in 1986.

The history of financial reforms in Nigeria shows that the reforms have come under five broad categories. These include: financial architecture reform, monetary policy, foreign exchange, capital account and capital market reforms. The summary of these reforms was to increase private sector participation and competition, empower the regulatory authorities to effective oversight and enhancing bank efficiency. For instance, the reforms led to a comparable increase in the number of non-bank financial institutions occurred. Strengthening banks supervision and increasing their viability through adequate regulations regarding minimum capital requirements, specifying the range of assets and liabilities they can acquire, introduction of uniform accounting standards for banks to ensure accuracy, reliability and comparability.

There was also monetary policy reforms designed mainly to stabilize the economy in the short run and to induce the emergence of a market-oriented financial sector. Such reforms included: rationalization of credit controls; although credit ceilings on banks were not completely removed, the sector specific credit distributions target were compressed from 18 in 1985 to 2 in 1987-priority (agriculture and manufacturing) and non-priority (others). Other credit measures enacted were the elimination of exceptions within the ceiling on bank credit expansion, giving similar treatment to commercial and merchant banks in relation to required liquidity ratios and credit ceiling, the modification of cash reserve requirements which was based on the total deposit (demand, savings, and time deposits), rather than on time deposits only, and the reintroduction of stabilization securities (CBN, 2004).

Interest rate liberalization was aimed at enhancing the ability of banks to charge market-based loans rates and also guarantee the efficient allocation of scarce resources. In 1989, banks were encouraged to pay interest on current account deposits. The rate paid was negotiated between banks and their customers. There was a shift from direct to indirect system of monetary control in June 1993 with the introduction of Open-Market Operations (OMO). Under the scheme, OMO was to be conducted exclusively through licensed discount houses, which were supposed to constitute the open market for government securities. The introduction of OMO was meant to replace the use of direct controls for managing liquidity in the economy.

All these and the other reform measures were aimed at removing distortions in efficient allocation of resources to productive investments, boosting economic development and alleviating extreme poverty. However, evidence from extant literature suggests that the impact of financial liberalization on economic growth and poverty alleviation in Nigeria is at best marginal (Busari, 2007; Akinlo & Akinlo, 2007; Ayadi et al., 2009; Uchendu, 2013; Ndebibo, 2014). Poverty is still pervasive in Nigeria and the causality between financial liberalization policies and poverty alleviation has not even being fully explored and understood. We provide below, a brief theoretical review of the relationship between financial liberalization and poverty alleviation via the credit channel.

### *2.1 Financial Liberalization and Poverty Alleviation through the Growth Channel*

The link between financial liberalization and economic growth derive largely from the works of McKinnon (1973) and Shaw (1973). The focus of their studies was on the benefits of removing non-market restrictions on the functioning of the financial system. The central theses of their studies was on the removal of interest rates regulation, gain, the liberalization of the stock market and the capital market are assumed to have positive effects on economic growth. Stock markets can promote long-run growth through encouraging corporate control and acquisition and dissemination of information, and through savings mobilization. Capital account liberalization may increase economic growth through higher investment as capital flows in to earn higher returns, by lowering the cost of capital via improved risk allocation; through investment in high-risk/high return projects via global diversification of risk; through increased efficiency and productivity through transfer of technology and managerial know-how; through increasing incentives for improving the regulatory and supervisory framework for banking, by letting foreign banks introduce a variety of new financial instruments and techniques or by increasing competition; and through the disciplined effect by forcing governments to pursue better macroeconomic policies (Arestis & Carner, 2015).

However, financial liberalization could have a negative impact on economic growth if not properly implemented and sequenced. For instance, liberalizing the capital market too quickly without capital control could bring in liquidity surfeit and could destabilize the capital market and create stock price bubbles. Again, liberalizing the capital account without putting adequate regulatory measures could impact negatively on domestic savings by eliminating country-specific income risk and the impact of this risk is on savings (Arestis & Caner, 2015). Moreover, there is need to provide sound macroeconomic environment and boost household income before the benefits of liberalization could be realized in terms of making savings sensitive to interest rate.

Empirical evidence suggests that there is no consensus on the link between financial liberalization and economic growth with a trickle-down effect on poverty alleviation. A number of studies have evidence that financial liberalization has led to economic growth, but there are still ample of studies that found otherwise. Arestis and Carner (2015) argue that the effect depends on a country's specific dynamics. The experience of numerous countries reveals that financial liberalization is neither a necessary nor a sufficient condition for achieving a high growth rate. There may be "reverse causation", i.e., faster growing economies may be more likely to choose to liberalize their economies, rather than financial liberalization causing economic growth (Arestis & Demetriades, 1997; Arestis & Carner, 2015).

One possible reason for the ambiguity in empirical results is the difficulty of identifying and quantifying financial liberalization in a consistent manner across countries. Also there are differences in the country sample, the sample period, the dataset, and the estimation technique used in these studies (Arestis & Carner, 2009). Under these circumstances, financial liberalization and integration is unlikely to increase economic growth by itself. On the contrary, ill-sequenced financial liberalization may lead to financial sector crises. This has happened in a number of developing countries that implemented financial liberalization including Nigeria.

### *2.2 Financial Liberalization and Poverty Alleviation via Economic Growth*

Traditional theories on growth posit that poverty reduction depends on how the gains of economic growth accrue to the people. There could be economic growth without any trickle-down poverty effect from the growth if income distribution is disproportionate (World Bank, 2015). There are generally, two ways economic growth could have poverty-reduction effect, namely: when the growth is happening primarily from the sectors and areas where poverty is predominant. Another way involves

appropriate redistribution of income through fiscal measures especially taxation and government directed expenditure.

There is evidence that as countries records economic growth, the level of poverty declines, all other things being equal. Again, as countries share the gains of economic growth equitably, the gain between the rich and the poor shrinks (Ravallion, 2011; Beck et al., 2007b; World Bank, 2015). Poverty alleviation through the economic growth link is based on the trickle-down effect (Jalilian & Kirkpatrick, 2012). To this end, the study by Honohan (2014), shows that “a ten percentage point increase in the ratio of private credit to GDP should, even in the same mean income level, reduce poverty ratios by 2.5 to 3 percentage points” (p. 10). However, the author gave a caveat that his result is too generalized to be worthy of definitive conclusion.

The studies by Beck et al. (2007b) and Demirgüç-Kunt and Levine (2008) show that the poor do not benefit proportionately from the gains of financial liberalization, even in places where it is agreed that financial liberalization has led to economic growth. In particular, Arestis and Carner (2008) find no statistically significant effect of capital account liberalization on poverty in developing countries, controlling for the possible growth effect.

From the foregoing, there appears to be broad consensus among economists on the link between economic growth and poverty alleviation than on financial liberalization and poverty alleviation that financial liberalization brings economic growth is a strong assumption in many cases (Luintel et al., 2008). The economic growth and poverty alleviation effects of financial liberalization depend on the distributional changes induced by growth and the set of institutional framework that accompany financial liberalization.

### *2.3 Financial Liberalization and Poverty Alleviation via Credit Growth Channel*

It has been argued that poverty can be reduced drastically by provision of financial services especially credit (Soludu, 2015). Provision of credit enhances household ability to increase productive capacity for growth and poverty alleviation. Part of the reasons for the increased level of poverty in many developing countries is lack of credit availability. This explains why many governments in developing countries resorting to non-market approach to promote access to credit through interest rate regulation in a bid to make finance more affordable, through directed lending, or through requirements for banks to set up branches in rural areas, have been distortionary and often counterproductive and destabilizing (Ellis, 2018).

These government attempts to promote access have often been undone in response to traditional policy prescriptions to promote financial sector development, which have focused on: deregulation—including the withdrawal of government intervention through the privatization of state owned banks and the freeing up of interest rates, and financial liberalization—the removal of restrictions on market entry for domestic and foreign financial providers. By promoting new entry and greater competition, this is expected to result in more dynamism, innovation, and efficiency in the financial services sector—and the evidence supports this claim.

The implicit assumption has been that it would also promote better access to financial services, by reducing spreads and hence reducing the cost of credit, and by incentivizing financial services providers to expand their client base. But the evidence to support this has been much weaker. Most foreign banks have focused on areas where local profit opportunities are perceived to be the greatest—providing financial services to large firms in urban areas. There is evidence that access to credit for SMEs is improved indirectly by foreign entry, as the increased competition from foreign banks in the corporate sector forces domestic banks to seek new markets that they might not previously

have served (Brownbridge & Gayi, 2016). But this does not appear to extend to households, and the poor majority of the population often still has very limited access to formal financial services even after liberalization. So it seems that liberalization by itself is not enough to ensure greater financial inclusion.

According to Ellis (2018), provision of formal financial services has not improved in many developing countries even after financial liberalization due largely to lack of necessary infrastructures that support financial services expansion especially electricity, information and communication technology.

In some cases, allowing the market to expand may not benefit the economy due to market failures occasioned by financial liberalization. For instance, financial liberalization has led weak competition and overconcentration in some developing countries that liberalized their financial market. Even expanding access by the financial institutions could become unprofitable if the expansion necessitates going into unfamiliar terrain and risky market without adequate information on the credit characteristics of these new market segments (Clarke & Peria, 2011).

### 3. Methodology

#### 3.1 Data

Data for the study consists largely of secondary data and were sourced from the Central Bank of Nigeria (CBN) Annual Statistical Bulletins and the World Bank Development Indicator for the period 1980-2018. The study employed the standard economic model specified in the literature and following the works of King and Levine (1993), King Ross and Levine (1997), Levine and Zervos (1998), Levine et al. (2000) and Wachtel (2001), Shrestha and Chowdhury (2005).

The model specified the demand for money and savings function subjected to testing the effects of financial liberalization on credit availability as:

$$m/p_t = \alpha_0 + \alpha_1 y_t + \alpha_2 s/y_t + \alpha_3 i-p_t^e + \mu_t \quad (1)$$

Where  $m/p$  is the demand for money, dependent on the level of income  $y$ , volume of accumulated average savings  $s/y$ , the real interest rate  $i-p^e$  and  $e$  is the error term.

If the case of a transitory demand for cash balance prevails in a constrained situation, we can assume further that credit demand equals the money demand. Also when the effect of financial liberalization reform is to be tested, equation one seems restrictive as it has no variable therein to really reflect the degree of liberalization effect thus the equation is restated as;

$$LCrdp/y_t = \alpha_0 + \alpha_1 y_t + \alpha_2 Ls/y_t + \alpha_3 i-p_t^e + \alpha_4 FinLb_t + \mu_t \quad (2)$$

Where;  $Crdp/y_t$  is credit to the private economy/credit components as a ratio of aggregate output.  $y_t$  is economic growth,  $i-p^e$  (afterward represented as  $RINTR$ ) is the real interest rate,  $s/y$  is the savings output ratio and  $FinLb$  is the financial liberalization measure.  $\mu_t$  is the error term,  $L$  (in front of variables) is the Logarithmic/log indicator for growth rate (it is not included for real interest rate because of the presence of negativity, and financial liberalization index) and  $\alpha_0 - \alpha_4$  are the parameters coefficients.  $\alpha_0, \alpha_1 \dots \alpha_4 > 0$

$$L(Crdp/GDP) = \alpha_0 + \alpha_1 LGDP + \alpha_2 LSavgdp + \alpha_3 RINTR + \alpha_4 FinLb + \mu_t \quad (3)$$

$\alpha_0, \alpha_1 \dots \alpha_4 > 0$

Given the objective of the paper, equation three will be the basic equation for the study.

Most of the studies that involve financial liberalization use individual financial liberalization policies such as real interest rate, credits as a ratio of economic output proxied with gross domestic products, or the money supply as a ratio of gross output, either treated the partial financial liberalization as the full liberalization. While others measure liberalization and use dummy variables of zero and one (0- for pre

liberalization and 1—for liberalization period) to capture liberalization; this technique fails to capture the progression sequence of liberalization in the system ignoring the fact that liberalization at various point in time may differ given that liberalization is a dynamic exercise involving different aspects and in aggregate reflects varying level of degree in liberalization. To avoid paying for the penalty of losing full liberalization information, we construct an index to measure the degree of financial liberalization in aggregate. To do this we consider seven components of financial liberalization in the system and record a 0 or 1 score for each following components following observations as various reforms are implemented in the country overtime. After which, an aggregate of the scores is taken to give us a close proxy of the degree of financial liberalization (See table in appendix).

The study used a fitting co-integration technique for empirical analysis of the time-variant relationship between financial liberalization indicators and poverty alleviation.

The study made use of co-integration techniques of Johansen-Juselius (1992) and Engle Granger (1987). This approach imposes a restriction that the variables must have the same order of integration. The study also aligns with the bounds testing technique of co-integration under the assumption of Autoregressive Distributed Lag model proposed by Pesaran et al. (1997).

Unlike most other co-integration approaches, this method has advantage of minimizing the problem of endogeneity and the inability to test hypothesis on the coefficients in time-variant situations. Again, the method has superior empirical outcome in terms of treating every variable in the model as endogenous. By this assumption, there will be no need to border with the order of integration of the variables as the Autoregressive Distributed Lag approach is fitted for all order of integration.

The ARDL bounds test is based on the F-statistic, which has a non-standard distribution. Two critical bounds are given by Pesaran, et al. (1997) for co-integration test. The lower critical bound assumes that all the variables are  $I(0)$ , while the upper bound assumes all the variables to be  $I(1)$ .

Following Unrestricted Error Correction Model, the general form of ARDL is given as;

$$\Delta y_t = \alpha_0 + \lambda_1 y_{t-1} + \lambda_2 x_{t-1} + \sum_{i=1}^k \alpha_i \Delta y_{t-i} + \sum_{i=1}^k \alpha_2 \Delta x_{t-i} + \mu_t$$

At start, the test for null hypothesis of no co-integration against alternative of the existence of a long run relationship is tested by using F-test such as;

$$H_0 = \lambda_1 = \lambda_2 = \dots = \lambda_n = 0$$

$$H_1 = \lambda_1 = \lambda_2 = \dots = \lambda_n \neq 0$$

If the computed F-statistic falls above the upper bound critical value of F-tabulated developed by Pesaran, the null of no co-integration is rejected which implies that long run relationship exists among the variables of interest. On the contrary, if it falls below the lower bound, then the null of no co-integration cannot be rejected. Finally, if it lies between these two bounds, the result seems inconclusive.

Having confirmed the existence of a cointegrating relationship among the variables, we determine the lag order of the variables this was done using Akaike Information Criteria, or Schwarz Bayesian Criteria or  $R^2$ . After determining the lag order, the long run coefficients of the model are estimated and then short run estimations are carried out followed by the Error Correction Model (ECM). The ECM estimation coupled with ARDL model is obtained from the ARDL equation terms of the lagged levels and the first differences of the dependent and independent variables (Pesaran et al., 1997).

Specifying the credit equation three in an Autoregressive Distributed Lag (ARDL) form along with its testable components, have the following series of ADRL with the following interchanging credit component variables:

$Crdpgdp_t^{Agg}$  = Aggregate Credit to the Private Sector as a ratio of current GDP

$Crdpgdp_t^{Agri}$  = Credit Loan and advances to Agriculture as a ratio of current GDP

$Crdpgdp_t^{manf}$  = Credit Loan and Advances to manufacturing as a ratio of current GDP

$Crdpgdp_t^{SMEs}$  = Credit Loan and Advances to SMEs as a ratio of current GDP

#### Equation 1:

$$\Delta LCrdpgdp_t^{agg} = \alpha_0 + \sum_{i=1}^{k_1} \alpha_1 \Delta Lgdp_{t-i} + \sum_{i=1}^{k_2} \alpha_2 \Delta LSavgdp_{t-i} + \sum_{i=1}^{k_3} \alpha_3 \Delta Rint r_{t-i} + \sum_{i=1}^{k_4} \alpha_4 \Delta Finlb_{t-i} + \sum_{i=1}^{k_5} \alpha_5 \Delta LCrdpgdp_t^{agg} + \lambda_1 Lgdp_{t-1} + \lambda_2 LSavgdp_{t-1} + \lambda_3 Rint r_{t-1} + \lambda_4 Finlb_{t-1} + \lambda_5 LCrdpgdp_t^{agg} + ECM_{t-1}$$

#### Equation 2:

$$\Delta LCrdpgdp_t^{agric} = \alpha_0 + \sum_{i=1}^{k_1} \alpha_1 \Delta Lgdp_{t-i} + \sum_{i=1}^{k_2} \alpha_2 \Delta LSavgdp_{t-i} + \sum_{i=1}^{k_3} \alpha_3 \Delta Rint r_{t-i} + \sum_{i=1}^{k_4} \alpha_4 \Delta Finlb_{t-i} + \sum_{i=1}^{k_5} \alpha_5 \Delta LCrdpgdp_t^{agric} + \lambda_1 Lgdp_{t-1} + \lambda_2 LSavgdp_{t-1} + \lambda_3 Rint r_{t-1} + \lambda_4 Finlb_{t-1} + \lambda_5 LCrdpgdp_t^{agric} + ECM_{t-1}$$

#### Equation 3:

$$\Delta LCrdpgdp_t^{Manft} = \alpha_0 + \sum_{i=1}^{k_1} \alpha_1 \Delta Lgdp_{t-i} + \sum_{i=1}^{k_2} \alpha_2 \Delta LSavgdp_{t-i} + \sum_{i=1}^{k_3} \alpha_3 \Delta Rint r_{t-i} + \sum_{i=1}^{k_4} \alpha_4 \Delta Finlb_{t-i} + \sum_{i=1}^{k_5} \alpha_5 \Delta LCrdpgdp_t^{Manft} + \lambda_1 Lgdp_{t-1} + \lambda_2 LSavgdp_{t-1} + \lambda_3 Rint r_{t-1} + \lambda_4 Finlb_{t-1} + \lambda_5 LCrdpgdp_t^{Manft} + ECM_{t-1}$$

#### Equation 4:

$$\Delta LCrdpgdp_t^{SMEs} = \alpha_0 + \sum_{i=1}^{k_1} \alpha_1 \Delta Lgdp_{t-i} + \sum_{i=1}^{k_2} \alpha_2 \Delta LSavgdp_{t-i} + \sum_{i=1}^{k_3} \alpha_3 \Delta Rint r_{t-i} + \sum_{i=1}^{k_4} \alpha_4 \Delta Finlb_{t-i} + \sum_{i=1}^{k_5} \alpha_5 \Delta LCrdpgdp_t^{SMEs} + \lambda_1 Lgdp_{t-1} + \lambda_2 LSavgdp_{t-1} + \lambda_3 Rint r_{t-1} + \lambda_4 Finlb_{t-1} + \lambda_5 LCrdpgdp_t^{SMEs} + ECM_{t-1}$$

In the above equations, the terms with the summation signs represent the error correction dynamics while the terms with  $\lambda$ s show the long run relationship between variables.

## 4. Estimation of Research Equations and Analysis of Findings

### 4.1 Unit Root Test

The unit root test is conducted to check the order of co-integration even though this is not required with the bounds test for cointegration. This is done nevertheless, to be doubly sure the resultant coefficient is not spurious.

The outcome of the Dickey Fuller Generalized Least Square for unit root test in the table below:



**Table 1. DF-GLS (Intercept and No Trend and Intercept with Trend)**

DF-GLS {Intercept and No Trend}					DF-GLS {Intercept and Trend}				
	At Level		At First Difference			At Level		At First Difference	
Variables	Lag	T-Statistics	Lag	T-Statistics	Lag	T-Statistics	Lag	T-Statistics	
LogCrdpgdp <sup>Agg</sup>	0	0.628132	0	-4.258540***	1	-1.494015	0	-4.486770***	
LogCrdpgdp <sup>Agri</sup>	0	-1.206339	0	-6.125741***	0	-1.251523	0	-6.667546***	
LogCrdpgdp <sup>Manf</sup>	0	-1.773658**	0	-6.928168***	0	-2.064873	0	-7.106866***	
LogCrdpgdp <sup>SMEs</sup>	0	-2.498796**	0	-8.486537***	0	-2.754934	0	-8.538023***	
LogSavgdp	1	-1.059173	0	-3.956053***	1	-1.199463	0	-3.899653***	
LogRgdp	0	2.285067**	0	-5.358386***	0	-1.073132	0	-5.981510***	
RINTR	0	-3.809840***	3	-1.253165	0	-5.172495***	0	-7.236657***	
FinLb	0	-0.502907	0	-8.355731***	0	-2.838236	1	-6.783784***	
Critical Levels of Significance:					Critical Levels of Significance:				
1%		-2.625606	1%	-2.627238	1%	-3.770000	1%	-3.770000	
5%		-1.949609	5%	-1.949856	5%	-3.190000	5%	-3.190000	
10%		-1.611593	10%	-1.611469	10%	-2.890000	10%	-2.890000	

Source: Author's Computation.

Note. \*\*\*, \*\*, \*Indicates critical values; 1%, 5%, and 10% respectively.

Table 1 of the unit root test shows that the variables are stationary at difference I(1) in the presence or absence of trend, as their absolute DF-GLS t-statistics values exceeds the critical values at minimum five percent. There was no I(2) among the variables. Real interest rate variable, real GDP logged, logged value of loans to the manufacturing sector were stationary at level I(0), the remaining variable were non-stationary at level but became stationary after taking their first difference, i.e., I(1) when the test was done without trend. Considering the variables given their trend at level, only the Real Interest Rate (RINTR) was integrated at level.

The resultant coefficients show that the estimated maximum lag length is three. Therefore, we restrict the maximum lag length for all the variables to three. Again, the lags were subjected to a model that minimizes the Schwarz Information criteria (SIC) and increasing R-Squared to get the optimal lag combination.

#### Cointegration Test-Bounds testing procedure:

The result of the unit test suggests that Autoregressive Distributed Lag can be used to generate the coefficients for the equations raised for the study. But only the upper bounds will be used for reporting the cointegration in line with approach suggested by Pesaran et al. (2010). For this, we estimate the equations using Ordinary Least Squares (OLS) in order to test for the existence of a long-run and short run relationship among the variables by having determined the optimal lag combinations and the conducted a Wald Test (F-test) for the joint significance of the coefficients of the long run lagged one levels of the variables.

The resultant coefficients are shown below:

#### Equation One: Aggregate Credit

The resultant coefficients, based on the calculated F-statistics for the joint significance of variables with  $\lambda$ s signs when one lag is imposed, shows a strong evidence of existence of co-integration among the variables. The  $F_{Crddp}^{AGG} (LCrddp^{AGG} | LSavgdp, Lrgdp, RINTR, FinLB) \approx 4.027$  for ARDL (1, 0, 0, 1, 1) is higher than the upper bound critical Value 4.01 at 5% significance level (Pesaran et al., 2001,

see Appendix for extract).

Therefore, there exist co-integrating long-run relationships among the variables

Null hypothesis: the regression parameters are zero for the variables

LCrdgdp<sup>AGG</sup> (-1), LSavgdp (-1), Lrgdp(-1), RINTR (-1), Finlb (-1)

$H_0: \lambda_1=\lambda_2=\lambda_3=\lambda_4=\lambda_5=0$

$H_1: \lambda_1=\lambda_2=\lambda_3=\lambda_4=\lambda_5 \neq 0$

Asymptotic test statistic:

Wald chi-square(5)=20.136, with p-value=0.00117836

F-form: F(5, 27)=4.02721, with p-value=0.00736351

Source: Authors analysis.

Having satisfied ourselves that long-run cointegration relationship exists, we analyze the long and short run coefficients of the variables.

**Long Run:** Model 1-using observations 1980-2018 (T=38).

**Table 2. OLS Regression (Dependent Variable: LCrdpgdp<sup>Agg</sup>)**

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	<i>Significance</i>
const	0.035066	0.272167	0.1288	0.89822	
RINTR	0.005711	0.001861	3.0691	0.00413	***
Fiblb	0.018541	0.018713	0.9908	0.32858	
LSavgdp	0.783536	0.081865	9.5711	<0.00001	***
Lrgdp	0.065602	0.033998	1.9296	0.0618	*
R-squared		0.893271	Adjusted R-squared		0.881073
Schwarz criterion		-26.4334	Durbin-Watson		1.195819

Note. \*\*\*, \*\*, \*Indicates critical values; 1%, 5%, and 10% respectively.

The OLS in Table 2 shows that financial liberalization indicators, namely total financial domestic savings, real interest rate and growth in GDP affected the aggregate credit to private sector. The coefficient of the growth rate per financial savings is positive ( $\approx 0.783536$ ) and highly significant at 1 percent. That is a 1 percent change in the financial savings per GDP leads to a 0.78% increase in the volume of financial credit to private sector per GDP. This is in conformity with the apriori expectation. The overall model is good. For instance, the Schwarz criterion is minimal at -26.43343, while the R-squared adjusted shows that the explanatory variables explained approximately 89% of the variations in the dependent variable. The remaining 11% variation in the dependent variable is accounted for by other factors embedded in the error term.

#### **ARDL (1, 0, 0, 1, 1) Model ECM-Short Run Result for Model 1**

Using observations 1980-2018 (T=38).

**Table 3. OLS Regression (Dependent Variable:  $\Delta LCrdpgdp^{Agg}$ )**

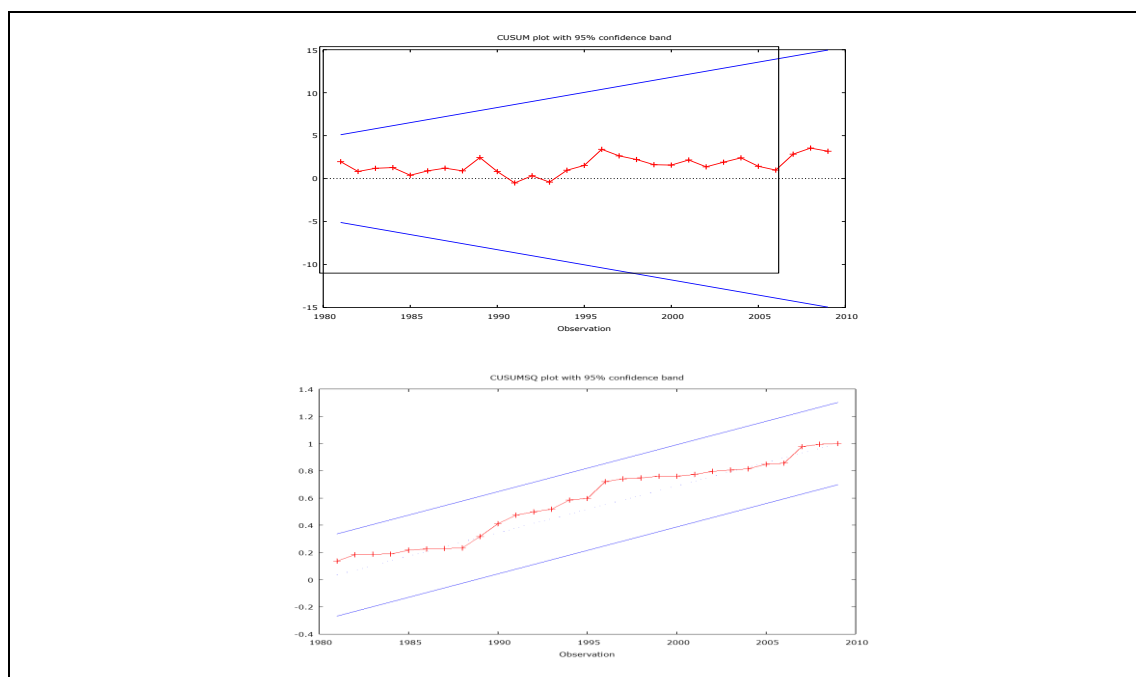
	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	<i>Significance</i>
Const	0.0123425	0.0230213	0.5361	0.59595	
$\Delta LCrdpgdp_{t-1}$	0.204697	0.117687	1.7393	0.09258	*
$\Delta Lrgdp_t$	0.0117796	0.0580816	0.2028	0.84070	
$\Delta LSavgdp_t$	0.760737	0.110317	6.8959	<0.00001	***
$\Delta RINTR_t$	0.00541813	0.00157966	3.4299	0.00183	***
$\Delta RINTR_{t-1}$	-7.51669e-05	0.00164577	-0.0457	0.96388	
$\Delta Finlb_t$	0.0053112	0.0301619	0.1761	0.86145	
$\Delta Finlb_{t-1}$	-0.0694576	0.027686	-2.5088	0.01796	**
$ECM_{t-1}$	-0.605576	0.152861	-3.9616	0.00044	***
R-squared	0.779194	Adjusted R-squared			0.718281
Schwarz criterion	-32.45371	Durbin's h			-0.006830

The lagged error correction variable ( $ECM_{t-1}$ ) is negative and significant at 1% level. The coefficients show a fair amount of speed of adjustment. For instance, approximately 61% of movement from the previous year is adjusted into long equilibrium in the current year. The resultant coefficient of lagged  $ECM_{t-1}$ , demonstrate the existence of long run relationship among the variables.

The financial liberalization policies, when lagged by one year, have insignificant negative effect, (significant at 5 percent) on the changes in aggregate credit to private sector in the short run. Its value -0.0694576 empirically reveals that a 1 percent increase in the financial liberalization index ( $\Delta Finlb_{t-1}$ ) leads to approximately 0.8522 (i.e.,  $10^{-0.0694576}$ ) percentage decrease in  $\Delta LCrdpgdp_t$ .

Moreover, the reliability and explanatory power of the short-run dynamic estimate is depicted by its goodness of fit  $R^2$  at 77.92%, further supported by a high adjusted  $R^2$  of 0.718281. The implication of this result is that the explanatory variables account for approximately 78% variation in the change of the dependent variable, while the remaining 22% is accounted by variables not explicitly included in the model but comprised in the random or error term.

Most empirical studies harp on the need to estimate the stability of result coefficients of the error correction model. This according to Pesaran and Shin (1999) should also be graphically represented. A graphical representation of the Cumulative Sum (CUSUM) and the Cumulative Sum of Square (CUSUMSQ) of the Recursive Residual is shown below to indicate stability in the coefficient over the sample periods:



**Figure 1. CUSUM and CUSUMQ Test for Equation One ECM Equation**

### Equation Two: Credit to Argicultural Sector

The F-statistics for  $F_{\text{Crdgdp}^{\text{Agri}}}$  ( $\text{LCrdgdp}^{\text{Agri}} \mid \text{LSavgdp}, \text{Lrgdp}, \text{RINTR}, \text{FinLB}$ ) suggest that there is no long run cointegrating relationship among the variables. Since the ARDL-bound testing regresses both the short run and long run, there is a need to investigate for the residual in the long run given the presence of information on the short run estimated parameters and further verify if indeed co-integration did exist given the magnitude, sign and whether or not it is significant (as a negative and significant ECM suggest the presence of a long run co-integrated relationship).

Null hypothesis: the regression parameters are zero for the variables

$\text{Lrgdp}(-1), \text{LSavgdp}(-1), \text{RINTR}(-1), \text{FINLB}(-1), \text{LCrdgdp}^{\text{Agri}}(-1)$

Asymptotic test statistic:

Wald chi-square(5)=7.19032, with p-value=0.206866

F-form:  $F(5, 25)=1.43806$ , with p-value=0.245336

Source: Authors analysis.

We therefore proceed to analyze the long and short run coefficients of the variables.

**Table 4. OLS Regression (Model 2: OLS, Using Observations 1980-2018 (T=38), Dependent Variable: CREDAGRI)**

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	Significance
Const	-2.91173	0.483713	-6.0195	<0.00001	***
Lrgdp	0.503488	0.13913	3.6188	0.00093	***
LSavgdp	0.39877	0.335015	1.1903	0.24194	
RINTR	-0.00194791	0.00330705	-0.5890	0.55963	
FINLB	-0.0675056	0.033258	-2.0298	0.05004	*
R-squared	0.543849	Adjusted R-squared			0.491717
F(4, 35)	10.43223	P-value(F)			0.000011
Log-likelihood	-0.564010	Akaike criterion			11.12802
Schwarz criterion	19.57242	Hannan-Quinn			14.18125
Rho	0.781523	Durbin-Watson			1.462137

Note. \*\*\*, \*\*, \*Indicates critical values; 1%, 5%, and 10% respectively.

Table 4 shows the result in the OLS for model 2 which confirms that credit to the agricultural sector has positive and significant effect on the growth of real domestic product. However, it was discovered that an increase in real domestic product produces a disproportionate increase in the growth of agricultural sector especially in crop production and fishery. This will appear that financial liberalization has not yielded the desired effect on the quantum of credit to the agricultural sector. Also, the real interest rate was also insignificant and negative. The R-squared (0.54) suggest that 54% variation in the dependent variable can be explained by the listed explanatory variables. Since the Durbin-Watson value exceeds the R-squared value, we follow the rule of thumb to conclude that the result is not spurious (Granger & Newbold, 1974; Gujarati, 1999).

**Table 5. OLS Regression (ARDL (2, 1, 2, 0, 3) Model ECM-Short Run Result for Model 2)**

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	Significance
Const	0.011467	0.0322007	0.3561	0.72515	
$\Delta \text{LCrdgdp}_{t-1}^{\text{Agri}}$	0.11613	0.196682	0.5904	0.56091	
$\Delta \text{LCrdgdp}_{t-2}^{\text{Agri}}$	-0.188443	0.194815	-0.9673	0.34391	
$\Delta \text{Lrgdp}_t$	-0.0148076	0.152862	-0.0969	0.92371	
$\Delta \text{Lrgdp}_{t-1}$	0.0110487	0.156472	0.0706	0.94434	
$\Delta \text{LSavgdp}_t$	0.0280612	0.403602	0.0695	0.94520	
$\Delta \text{LSavgdp}_{t-1}$	0.170376	0.372529	0.4573	0.65190	
$\Delta \text{LSavgdp}_{t-2}$	0.61612	0.354352	1.7387	0.09606	*
$\Delta \text{RINTR}_t$	0.0035229	0.0019408	1.8152	0.08315	*
$\Delta \text{FINLB}_t$	-0.0109771	0.0311902	-0.3519	0.72823	
$\Delta \text{FINLB}_{t-1}$	0.0146049	0.0350559	0.4166	0.68099	
$\Delta \text{FINLB}_{t-2}$	-0.0249959	0.0401074	-0.6232	0.53955	
$\Delta \text{FINLB}_{t-3}$	-0.0278567	0.0395197	-0.7049	0.48828	
$\text{ECM}_{t-1}$	-0.0630758	0.133567	-0.4722	0.64141	
R-squared	0.447157	Adjusted R-squared			0.120476
F(13, 22)	1.368790	P-value(F)			0.249752
Schwarz criterion	-11.30871	Hannan-Quinn			-25.74031
Rho	-0.018219	Durbin-Watson			1.995893

Note. Model 2: OLS, using observations 1978-2016 (T=38), Dependent variable:  $\Delta \text{LCrdgdp}^{\text{Agri}}$  \*\*\*, \*\*, \*

\*Indicates critical values; 1%, 5%, and 10% respectively.

Result from Table 5 shows that the ECM for the short run further supports that no long run relationship exist among the variables as earlier stated by the F-statistic having compared it with the Peseran table at  $k=4$  for intercept and no trend, as its coefficient is negative but not significant. The short run estimate indicates that in the short run, accumulated savings from past two years and the current real interest rate do have a positive effect on current changes in the credit to the agricultural sector. Financial liberalization was not all significant. However, the weak R-squared at 44.7 percent, suggests that in the short run, major changes in the credit to the agricultural sector are on account of other factors such as other informal financial corporative groups, donations from government and other Non-Governmental Organizations, International bodies that promote agricultural produce, support from family and friend, gains from reinvestment in the agricultural business, the fact that participant in these sector are limited in terms of access to formal financial institutions to demand for credit, etc. all captured in the random error term. The stability of the recursive estimation of the model two also suggest stability in the coefficient over the sample period.

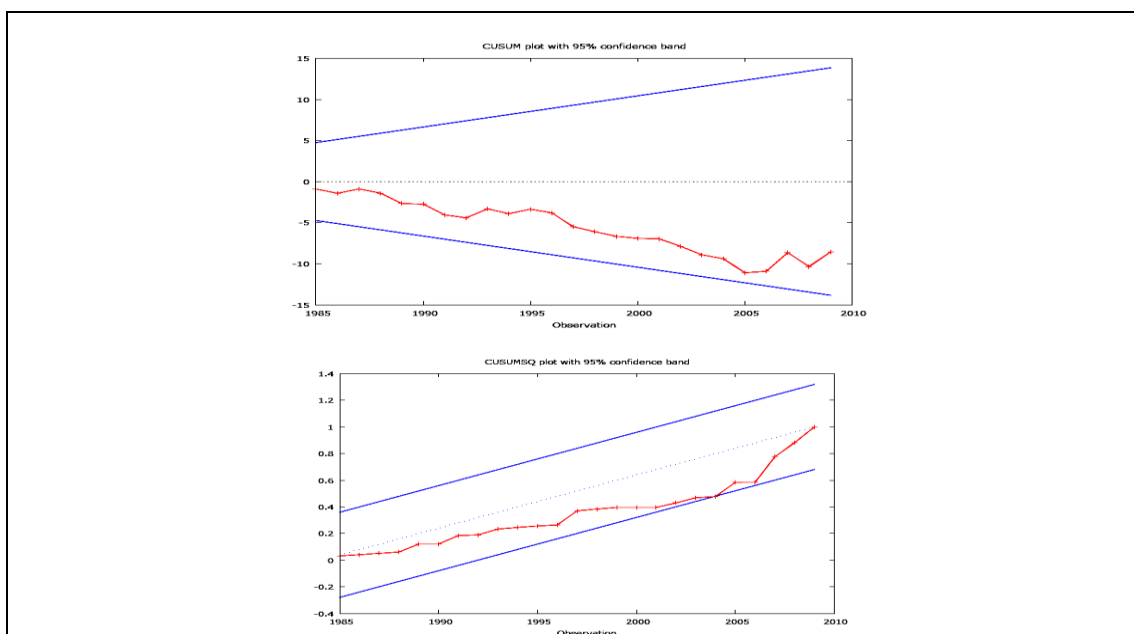


Figure 2. CUSUM and CUSUMQ Test for Equation Two ECM Equation

### Equation Three: Credit to Manufacturing Sector

On the credit to the manufacturing sector, the ARDL estimation for equation three, has a calculated F-statistics as  $F_{Cr\text{d}gdp}^{\text{Manf}} (LCr\text{d}gdp^{\text{Manf}} | LSavgdp, Lrgdp, RINTR, FinLB) \approx 50.1272$  for ARDL (3, 2, 0, 0, 1) is far higher than the upper bound critical Value 5.06 at 1% significance level (Peseran et al., 2001, see Appendix for extract). Therefore, there exist co-integrating long-run relationships among the variables.

Null hypothesis: the regression parameters are zero for the variables

$Lrgdp(-1), LSavgdp(-1), RINTR(-1), Finlb(-1), LCr\text{d}pgdp^{\text{Manf}}(-1)$

Asymptotic test statistic:

Wald chi-square(5)=250.636, with p-value=4.01479e-052

F-form:  $F(5, 25)=50.1272$ , with p-value=3.13729e-012

Source: Authors analysis.

We therefore proceeded to analyze the long and short run coefficients of the variables.

**Table 6. OLS Regression (Model 3: Using Observations 1980-2018 (T=38), Dependent Variable:  $\Delta \text{LCrdpgdp}^{\text{Manf}}$ )**

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	<i>Significance</i>
Const	-4.15019	0.975841	-4.2529	0.00015	***
Lrgdp	0.438068	0.121898	3.5937	0.00099	***
LSavgdp	0.206602	0.293522	0.7039	0.48617	
Finlb	-0.156302	0.0670946	-2.3296	0.02572	**
RINTR	-0.00247794	0.00667165	-0.3714	0.71257	
R-squared	0.489044		Adjusted R-squared	0.430649	
Schwarz criterion	75.71716		Durbin-Watson	1.920635	

Note. \*\*\*, \*\*, \*Indicates critical values; 1%, 5%, and 10% respectively.

Table 6 shows that the OLS regression in Model 3 confirms that credit to the manufacturing sector had a positive and significant effect on the manufacturing sector. However, the result also shows that the growth in savings by the deposit money banks has not translated to the desired level of credit to the manufacturing sector as espoused by the financial liberalization advocates. The implication is that the increase in savings in deposit money banks had no significant contributing impact on the loans and advances to the manufacturing sector. This may suggest a discriminant behavior by the deposit money banks towards advancing loans to the manufacturing sector of the economy or that the banking sector may have preferred other sectors like commerce in loans and advances. Based on these findings, we can conclude that financial liberalization has not led to growth in credit delivery to the manufacturing sector contrary to theoretical expectations.

**Table 7. OLS Regression (ARDL (3, 2, 0, 0, 1) Model ECM-Short Run Result for Model 3)**

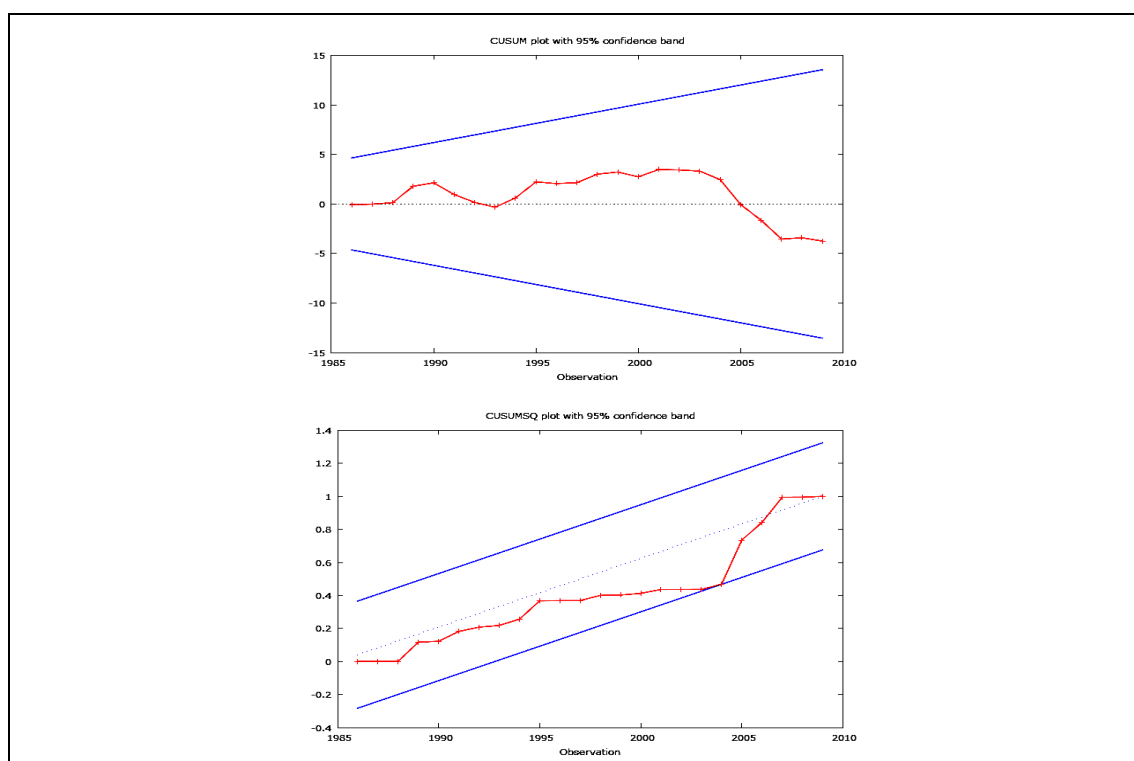
	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	<i>Significance</i>
Const	0.0260383	0.0504058	0.5166	0.61018	
$\Delta \text{LCrdpgdp}^{\text{Manf}}_{t-1}$	-0.0639774	0.131475	-0.4866	0.63095	
$\Delta \text{LCrdpgdp}^{\text{Manf}}_{t-2}$	0.0658493	0.100225	0.6570	0.51742	
$\Delta \text{LCrdpgdp}^{\text{Manf}}_{t-3}$	0.0504633	0.0658303	0.7666	0.45081	
$\Delta \text{Lrgdp}_t$	0.398621	0.118003	3.3781	0.00249	***
$\Delta \text{Lrgdp}_{t-1}$	0.0715002	0.13891	0.5147	0.61146	
$\Delta \text{Lrgdp}_{t-2}$	-0.0669595	0.137797	-0.4859	0.63142	
$\Delta \text{LSavgdp}_t$	0.327509	0.226868	1.4436	0.16178	
$\Delta \text{RINTR}_t$	-0.00159359	0.00281963	-0.5652	0.57720	
$\Delta \text{Finlb}_t$	-0.108353	0.0507604	-2.1346	0.04321	**
$\Delta \text{Finlb}_{t-1}$	-0.00371593	0.0542616	-0.0685	0.94597	
$\text{ECM}_{t-1}$	-0.765612	0.163249	-4.6898	0.00009	***
R-squared	0.869671		Adjusted R-squared	0.809937	
Schwarz criterion	24.41014		Durbin's h	12.04020	

Note. Using observations 1980-2016 (T=36), Dependent variable:  $\Delta \text{LCrdpgdp}^{\text{Manf}}$ .

Table 7 shows that the ARDL result confirms that in the short run, the lagged error correction term ( $ECM_{t-1}$ ) is negative and significant at 1 percent. The coefficient at (-0.765612) indicates that the speed of adjustment back to equilibrium is slow. In other words, approximately 76.6% of disequilibria from previous period shocks are adjusted into long run equilibrium in the current period. This confirms the existence of long run relationship among the variables. The conclusion we can draw is that the lagged and current values of financial liberalization has no positive and significant effect on the quantum of credit to the manufacturing sector.

The coefficient of determination shows the model is fit with a reliability and explanatory power of 86.97% and a high adjusted  $R^2$  of 0.809937. This implies that the explanatory variables in the short-run model account for approximately 87% variation in the change of the dependent variable, while the remaining 13% is accounted by variables not explicitly included in the model.

The stability of estimated coefficient of the ECM model was graphically demonstrated in the Cumulative Sum (COSUM) and the Cumulative Sum of Squares (CUSUMSQ) of the Recursive Residual as shown below.



**Figure 3. CUSUM and CUSUMQ Test for Equation Three ECM Equation**

The CUSUMSQ unlike the CUSUM showed a troublesome stability at periods 2000 to 2005. However, it did not break the lower bound negative line but strolls along its border before returning to perfect stability. So we can rely on the variables as stability is established.

#### Equation Four: Credit to SMES

On the credit to the Small and Medium Enterprises, the ARDL estimation for equation four, has a calculated F-statistics as  $F_{Crdgdp}^{SMES} (LCrdgdp^{SMES} | LSavgdp, Lrgdp, RINTR, FinLB) \approx 6.20$  for ARDL (3, 1, 0, 0, 1) is far higher than the upper bound critical Value 5.06 at 1% significance level (Peseran et al., 2001, see Appendix for extract), Thus suggesting the possible existence of a co-integrating long-run relationship among the variables the model.



Null hypothesis: the regression parameters are zero for the variables

Lrgdp(-1), LSavgdp (-1), RINTR(-1), Finlb (-1), LCrdpgdp<sup>SMEs</sup>(-1)

Asymptotic test statistic:

Wald chi-square(5)=30.9871, with p-value=9.42228e-006

F-form: F(5, 3)=6.19742, with p-value=0.0820801

Source: Authors analysis.

To the long and short run coefficients estimation

**Table 8. OLS Regression (Long Run: Model 4: OLS, Using Observations 1992-2010 (T=18), Dependent Variable: LCrdpgdp<sup>SMEs</sup>)**

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	<i>Significance</i>
Const	36.9981	4.9627	7.4552	<0.00001	***
Lrgdp	-2.67889	0.440381	-6.0831	0.00004	***
LSavgdp	-0.284336	0.356415	-0.7978	0.43934	
RINTR	-0.00355898	0.00821744	-0.4331	0.67204	
FinLB	-0.406256	0.265682	-1.5291	0.15020	
R-squared	0.898185	Adjusted R-squared		0.866857	
Schwarz criterion	31.26380	Durbin-Watson		1.357474	

Note. \*\*\*, \*\*, \*Indicates critical values; 1%, 5%, and 10% respectively.

Table 8 shows the OLS regression for model 4 in the long run. It should be noted that data for SMEs is for a period of 18 years only which is less than 30 years required for reliability in forecasting. However, going by the rule of thumb, the Durbin-Watson value exceeds the R-Squared which means the regression result is not spurious even though the data is less than 30 years. In this case the DW has a higher value. The long run results on the growth rate of Credit Loan and advances to the Small and Medium Enterprises as a ratio of the Gross Domestic Product (LCrdpgdp<sup>SMEs</sup>), shows that only the growth in real gross domestic product had a significant value at 1 percent which was negative -2.67889; a unit increase in economic growth ceteris paribus, induces a fall in the average growth in credit to the SMEs by -2.68% in the steady long run suggesting a total neglect of the SMEs. The conclusion we can draw is that financial liberalization has not led to significant increase in the quantum of credit to the SMEs contrary to apriori expectation.

**Table 9. OLS Regression (ARDL (3, 1, 0, 0, 1) Model ECM-Short Run Result for Model 4)**

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	<i>Significance</i>
Const	-1.10321	0.382802	-2.8819	0.06343	*
$\Delta$ LCrdpgdp <sub>t-1</sub> <sup>SME</sup>	1.54425	0.827486	1.8662	0.15885	
$\Delta$ LCrdpgdp <sub>t-2</sub> <sup>SME</sup>	2.09463	1.05471	1.9860	0.14123	
$\Delta$ LCrdpgdp <sub>t-3</sub> <sup>SME</sup>	0.566683	0.422177	1.3423	0.27204	
$\Delta$ Lrgdp	9.25515	5.87455	1.5755	0.21323	
$\Delta$ Lrgdp <sub>t-1</sub>	7.32432	5.31821	1.3772	0.26221	
$\Delta$ LSavgdp <sub>t</sub>	3.99024	2.30671	1.7298	0.18210	
$\Delta$ RINTR <sub>t</sub>	-0.0147645	0.0116633	-1.2659	0.29492	
$\Delta$ FinLB <sub>t</sub>	1.34402	1.05825	1.2700	0.29363	

$\Delta \text{FinLB}_{t-1}$	1.34915	0.631637	2.1360	0.12232
$\text{ECM}_{t-1}$	-1.49713	0.670381	-2.2333	0.11166
R-squared	0.898617	Adjusted R-squared		0.560672
Schwarz criterion	14.39691	Durbin-Watson		1.962152

Note. Model 4: OLS, using observations 1996-2009 (T=14), Dependent variable:  $\Delta \text{L Crdpdp}_{t-1}^{\text{SME}}$

The result in Table 9 shows that the ARDL estimates based on the F-statistics shows that the lagged error correction term ( $\text{ECM}_{t-1}$ ) has negative and insignificant effect on the variables—an indication that long run relationship does not exist among the variables of interest. This could be as result of short time horizon imposed by the lag. Indeed, given the short time horizon (T=14), the Durbin Watson value is satisfied at 1.96, which is greater than the R-squared and fits well at approximately 90 percent. Therefore, we can confidently conclude that the regression is not spurious and thus reliable for analysis.

Moreover, the estimated coefficients for the lagged and current period were insignificant in the short run. This is an indication that financial liberalization has not led to increase in the quantum of credit to the SMEs over the period under review.

As usual, the stability of the coefficients was demonstrated through the Cumulative Sum (CUSUM) and the Cumulative Sum of Square (CUSUMSQ) of the Recursive Residual. This is shown below.

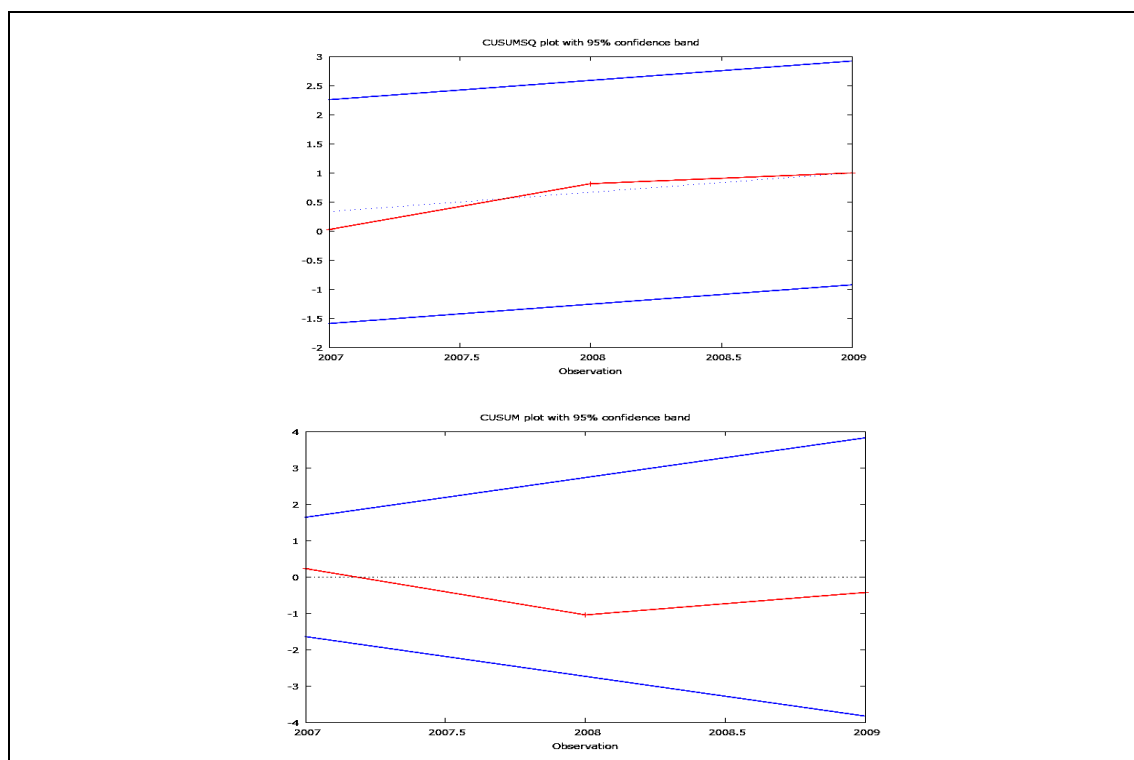


Figure 4. CUSUM and CUSUMQ Test for Equation Four ECM Equation

## 5. Summary, Conclusion and Recommendations

### 5.1 Summary and Conclusion

The study examined the effect of financial liberalization on poverty alleviation using the link between financial liberalization indicators and credit to the real sectors of the Nigerian economy. The study utilized an Autoregressive Distributed Lag (ARDL) Model and secondary data from 1980 to 2018 for the analysis. The overall results suggest that financial liberalization has not led to increase in the quantum of credit to the real sectors which could have a significant trickle-down effect on poverty alleviation.

### 5.2 Recommendation

Based on the findings of the study, the study recommends as follows:

- a. The federal government (FGN) should improve on the ease of doing business in Nigeria. The business environment in Nigeria is stifling the growth of small and medium scale enterprises. Under such an environment, the deposit money banks may find it difficult to extend credit facilities to the real sectors that could drive growth, increase productivity and alleviate poverty.
- b. The government through the Central Bank of Nigeria may have to enforce the prudential guidelines on sectorial allocation of credit to the real sectors of the economy especially in agriculture, manufacturing and small & medium enterprises. These are sectors that have greater potentials to boost productivity and generate employment needed to lift more people out of poverty.
- c. The deposit money banks in Nigeria should be proactive and creative in churning out innovative financial offerings that is tailored to the needs of the poor and those at the lower strata of the financial ladder who are usually neglected and underserved by conventional services.
- d. The Central Bank of Nigeria as the apex regulator in the financial system should encourage the banks by way of moral suasion, perhaps accompanied by the provision of better information about lower income market segments, which may be needed to help kick-start the process. For instance, the South African Financial Sector Charter, which was developed voluntarily by deposit money banks in response to moral suasion from the government, and which set targets for improving access, has been very successful. It resulted in impressive growth in access to financial services and showed that it can be profitable for banks to sell to lower income groups. This was assisted by the provision of detailed data on patterns of demand for financial services across the population through household surveys, which helped banks to identify potentially profitable customers and design new, more suitable products.
- e. The Central Bank of Nigeria may well take a second look at the liberalization process in Nigeria and tinker with it in ways that will generate stability in the financial system and unleash the potentials of the process to generate greater savings and ultimately greater investment in the real sectors of the economy. The financial inclusion strategy which was launched in 2012 should be pursued with greater vigor to ensure that more of the private sector actors in the informal sector are brought into the financial services net. With greater access to credit and other financial services, more people will be empowered to increase their productivity and means of livelihood.

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