



THE EFFECT OF RISING CONSUMER CREDIT ON THE ECONOMIC GROWTH OF NIGERIA

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Abstract

This study employed the Non-Linear Auto Regressive Distributed Lag model (NARDL) and Threshold estimators to investigate the independent effect of consumer credit on economic growth, this to ascertain whether consumer credit has a significant effect on economic growth focusing on Nigeria. The annual World Bank and Central Bank of Nigeria data between 1981- 2021 were used for the analysis. The findings revealed a long-run co-integration between consumer credit and economic growth. There is also an evident of a short-run asymmetric relationship between Nigeria's economic growth and consumer credit. A threshold of 10.91% was disclosed between consumer credit and economic growth. Finally, economic growth increases in the early phases of rising consumer credit but depreciates at later stages when consumer credit grows above the threshold. Hence, policies promoting and supporting a balance between benefits and associated risks of consumer credit are paramount.

1. Introduction

One of the benefits of rising consumer credit is the welfare and allocating available resources to varying forms of consumption in the core economic decision of the consumer. It has been recognized by recent theoretical and empirical research that the abrupt increase in consumer credit, in conjunction with monetary and fiscal policy constraints, can result in a negative effect on subsequent output growth. The economy may be susceptible to excessive credit growth due to households not internalizing the macroeconomic effects of their borrowing (Mian, Sufi, & Verner, 2017). Their inability to service and repay the principal loans when the interest rate is high (Lay, 2020) may result in financial crises, unsustainable asset bubbles, low saving rates, inflation, unemployment, and, consequently, recession.

In other words, consumer credit is a wheel for consumption and built-up to economic growth.

Consistent with some literature (Ho & Saadaoui, 2022; Borowski, Jaworski, & Olipra, 2017; Ding, 2015), consumer credit positively influences economic growth. It allows households to make investments. It also increases consumer spending on durable and non-durable commodities, purchasing assets such as shares, houses, going to school, buying luxury goods, and repaying other forms of debt. It also fills the household's dearth of income for financing their daily consumption outlays. Bakari, Donga, Idi, Hedima, Wilson, Babayo and Ibrahim, (2019); Sakanko, David and Onimisi (2020) opined that the growing consumer access to credit through financial inclusion reduces inequality and poverty and improves general living standards through additional or new income, which induces inclusive growth. Equally, the new Keynesian multiplier effect argues that new income increases household consumption expenditure,

increasing demand, and consumption, thus accelerating economic growth (Mose, 2021).

Interestingly, to construe the trend of consumer borrowing, one needs to comprehend that the increasing consumer credit has heightened the understanding of the household sector to changes in interest rates and other identified economic factors. A higher interest rate means a greater sacrifice of future income for a given level of consumption financed by future income (Grant, 2007). Economic confidence - borrowing decision of consumers depends on their confidence in the economic future because future income is uncertain, and purchasing goods on credit is an act of financing current consumption with anticipated future income (Hoang, Nguyen, Luu, & Vu, 2021). In addition, a household with a stable income, a higher level of education, and assets may actively borrow to finance current consumption (Borowski et al., 2017). Others include the concentration and development of banking sector, the young population, and improved technology (Thomas, 2010; Pattarin & Cosma, 2012), which had permitted individual households to attain a more desirable consumption.

Consumer credit continues to grow in Nigeria. Accessible statistics have shown that it kept an expansionary stance even during the period of economic fluctuations between 1981 and 2021. It rose from 9.79% to 15.57% (CBN, 2022), however, evidence on its relationship with economic growth is largely unavailable or limited in Nigeria. Few studies that focused on the interaction were outside Africa (Lindholm, 1964; Galor & Zeira, 1993; De Gregorio, 1996; Beck, Büyükkarabacak, Rioja & Valev, 2012; Sassi & Gasmi, 2014; Ding, 2015; Armeanu, Pascal, Planta, & Doia, 2015; Borowski et al., 2017; Mian et al., 2017). Consequently, there is a paucity of studies in Nigeria, and the relationships are still unclear due to the contradiction in the past findings. Likewise, the effects have not been empirically established in Nigeria to the best of my knowledge, and past studies have ignored modeling its non-linearity. Thus, the objective of this study is to provide an empirical explanation for the consumer credit-economic growth nexus focusing on Nigeria.

Nigeria has been witnessing inconsistent economic growth with low income and rising poverty (Orimogunje, 2019; Sakanko, et al., 2020). Macroeconomic policy suggestions that will improve welfare can be very paramount. Therefore, consumer credit is considered to have a significant impact in improving business activity and income, thus, economic growth (Galor & Zeira, 1993; De Gregorio, 1996; Ding, 2015; Borowski et al., 2017). Thus, the researcher employed the Non-linear Auto-Regressive Distributive Lag model and Threshold regression to empirically analyze the impact of consumer credit on economic growth in Nigeria. The NARDL is used to capture both positive and negative shocks of the impact of consumer credit which is volatile to changes in interest rates, inflation, exchange rate, household income, employment, wealth/assets among others. The researcher considers this relationship on a sample of 41 observations in Nigeria from 1981–2021. At the same time, the threshold estimator was used to determine the turning point of consumer credit and economic growth in Nigeria.

Thus, the study is organized into five sections including this introduction. Section two presents the literature review. The methodology is given in section three. Discussion of the results and findings is section four. Section five is the conclusion and policy implication.

2. Literature Review

2.1 Conceptual and Theoretical Review

In this section, outline on theoretical predictions about the connection between consumer credit growth and macroeconomic outcomes is given. Consumer Credit is personal debt taken on to purchase goods and services, it is defined as a kind of credit obtained by (private households) to finance any purchase other than property (Guardia, 2002). Consumer credit is abroad term comprising all kinds of installment credit (e.g. credit cards) as well as non-installment credit except mortgage debt (that is mostly real estate secured by real estate). Home equity loans (that is, loans used for other purposes than real estate, but secured by a lien on a home, thus fall under the definition of consumer credit (Kamleitner & Kirchler, 2007).

Likewise, evidence has proven that the banks' credit to the private sector influences economic growth positively (Muthusamy, Dewasiri, Weerakoon & Amarasinghe, 2018; Orimogunje, 2019; Lay, 2020; Cayirli, Kayalidere & Aktas, 2022; Ho & Saadaoui, 2022). The exchange rate was also argued to determine economic growth (Okorontah, 2016; Aslam, 2016; Selimi & Selimi, 2017).

Standard open economy macroeconomic models predict that expansions in credit should be associated with stronger future growth. Hence, the theoretical underpinning for this study is the Permanent Income Hypothesis. In response to higher expected future income or productivity, basic permanent income hypothesis models predict that households and firms borrow to increase consumption and investment today (Alter, Feng & Valckx, 2018). The Permanent Income Hypothesis (PIH) indicates that an individual's consumption is determined by his or her expected future income. Households may increase borrowing to smooth consumption if they anticipate their expected future income rises (Friedman, 1957; Hall, 1978).

In a similar vein, many studies (Amoo, Eboime, Adamu, & Belonwu, 2017; Ho & Saadaoui, 2022) argue that credit depth is a marker of financial development, so that rising credit should contribute to stronger long-run economic growth. Conversely, higher household borrowing could also improve economic efficiency and enhance macro-financial stability. Households may borrow to smooth fluctuations in consumption, invest in financial (e.g., stocks and bonds) and non-financial (e.g., housing and education) assets. Channeled through financial intermediaries higher borrowing by these households with access to better investment opportunities can be an important source of economic growth. Thus, in the long term, higher household borrowing today may also be associated with higher future GDP growth (Alter et al., 2018). However, the long-term positive effects on output growth starts fading once private sector debt reaches a certain threshold, due to rising financial stability risks and misallocation of resources (Arcand, Berkes & Panizza, 2015).

2.2 Empirical Literature

However, recent empirical studies discovered that rapid credit expansions are associated with future growth slowdowns and financial crises (Mian et al., 2017; Greenwood, Hanson, Shleifer & Sorensen, 2020). The reality of a link between bank credit-economic growth appears undisputable as countless scholars have worked on the subject and certainly confirmed an appreciating relationship (Olowofeso, Adeleke, & Udoji, 2015; Belinga, Zhou, Doumbe, Gahe, & Koffi, 2016). However, the empirical literature between consumer credit and economic growth reveals a mixed association. Some indicate that consumer credit positively affects economic growth (Galor & Zeira, 1993; De Gregorio, 1996; Schumpeter, 2011; Ding, 2015; Borowski et al., 2017). In contrast, findings by Lindholm (1964); Beck et al. (2012); Sassi and Gasmi (2014); Pham and Nguyen (2020) confirmed that consumer credit negatively influences economic growth.

Cecchetti, Mohanty and Zampolli (2011) examined household debt and economic growth of 18 OECD countries using the threshold estimation and unveiled that household debt positively influences economic growth but depresses after the threshold of 85% of GDP. Mian et al. (2017) used an unbalanced panel and obtained that household debt has an inverse effect on GDP growth. Berisha and Meszaros (2017) reached the same conclusion by employing the Ordinary Least Squares technique. In a study of 54 economies, Lombardi, Mohanty and Shim (2017) employed panel analysis. They exposed that household debt smoothens economic growth in the short term but negatively affects economic growth in the long term.

Pham and Nguyen (2020) examined the Granger causality between domestic credit and Gross Domestic Product (GDP) in Vietnam from 2004 to 2017 with the use of the Auto-Regressive Distributed Lag (ARDL) model, their results show that there was a two-way Granger causality relationship between credit and GDP. In addition, credit expansion had a negative impact on economic growth in Vietnam in the long term. Sikarwar, Goyal and Mathur (2019) adopted OLS

technique and found an inverse relationship between household debt and economic growth. Samad, Daud, and Mohd Dali (2020) used LSDVC in 43 sampled economies and discovered a depressing effect of household debt on economic growth. Daud, Podivinsky and Samad (2021) investigated household debt and the country's economic growth using threshold regression and obtained a depressing non-linear relationship between household debt and economic growth.

Thus, this study intends to fill the lacuna in previous studies by adding three contributions to the literature Firstly, as a methodological departure from previous literature, consumer credit-economic growth was estimated using non-linear approach different from previous studies. Secondly, the findings provide key insights that need to be incorporated into the emerging literature

on consumer credit and economic growth. Thirdly, the study identified the turning point between Nigeria's consumer credit and economic growth.

3. Methodology

Specifically, this study examines how consumer credit affects economic growth, along with control variables such as, cooperative loan, banks' credit to the private sector, exchange rate, and inflation in Nigeria by applying the Non-Linear co-integration test technique advanced by (Shin, Yu & Greenwood-Nimmo, 2014). The time-series data were obtained from the World Bank (2022) and Central Bank of Nigeria (2022) bulletins. The study period was 1981 - 2021 and was motivated by the availability of data. The data are summarized in Table 1.

Table 1. Data sources and units of measurement

Source: Author's Compilation (2022).

Variables	Description	Unit	Expectation	Source
<i>GDP</i>	Gross Domestic Product	Percent (%)	Dependent	WB (2022)
<i>CCR</i>	Consumer Credit	Log (In)	Positive	CBN (2022)
<i>CCL</i>	Cumulated Cooperative Loan	Log (In)	Positive	CBN (2022)
<i>BCP</i>	Bank's Credit to the Private Sector	Percent (%)	Positive	WB (2022)
<i>EXR</i>	Exchange rate	Naira-Dollar	Negative	CBN (2022)
<i>INF</i>	Inflation	Percent (%)	Negative	WB (2022)

Table 1 presents the summaries of the variables used, their unit of measurement, theoretical expectations, and sources. The cumulated individual credit is used to measure consumer credit. In addition, using the leading debate of the two hypotheses; Whether consumer credit expansion is a propeller of economic growth or otherwise, (Garcia-Escribano & Han, 2015), the few reviewed literature on consumer credit and economic growth also have revealed mixed findings on the relationship between the two.

Besides, the researcher included a cumulated cooperative loan to determine its effect on economic growth. The cooperative loan is also used for household consumption expenditure.

Therefore, a simple model in which economic growth (GDP) is dependent on consumer credit (CCR), together with the cumulated cooperative loan (CCL), bank credit to the private sector (BCP), the rate of exchange (EXR), and inflation rate (INF) is specified as follows:

$$GDP_t = \gamma + \delta CCR_t + \beta CCL_t + \varphi BCP_t + \omega EXR_t + \emptyset INF_t + \mu \quad 1$$

where γ is the intercept. $\delta, \beta, \varphi, \omega$ and \emptyset represent the coefficients of the regressors, t is the time period and μ is the stochastic term, respectively.

The ADF and PP test for stationarity were adopted to explore the series behaviors. The ADF test is dependable and best for handling larger time series observation (Arltova & Fedorova, 2016), while the PP test is reliable for small time series observation. Hence, use of ADF and PP unit root tests is recommended. Equation 2 was used to estimate the Wald and NARDL long-run bounds tests (Shin et al., 2014). In contrast to ARDL, whereby explanatory variables have the same possible impact on the dependent variable regardless of whether they are positive or negative, NARDL allows asymmetric effects on the

dependent variable. Suppose that the separate components of an explanatory variable do not differ in their impact, then the NARDL model boils down to the standard symmetric ARDL model. A further advantage of the NARDL method is that it generates cumulative dynamic multipliers graphs illustrating how explanatory variables adjust to positive and negative shocks (Pesaran, Shin & Smith, 2001). In addition, the model is simple and comprehensive enough to accommodate asymmetric switching between the short-run and long-run. Linearity is assumed in ARDL, while Non-linearity is assumed in NARDL, so the former permits the same variables' effects. For instance, an increase of 1 percent in X is equivalent to a decrease of 1 percent in Y . Due to the partial sum of positive and negative changes, the latter specification is asymmetric. The effect of positive can differ from that of negative on the dependent variable.

$$\Delta GDP_t = \pi_0 \pm \pi_1 GDP_{t-1} \pm \pi_2 CCR_{t-1} \pm \pi_3 CCL_{t-1} \pm \pi_4 BCP_{t-1} \pm \pi_5 EXR_{t-1} \pm \pi_6 INF_{t-1} \pm \sum_{i=0}^p \rho_1 \Delta GDP_{t-1} \pm \sum_{i=0}^p \gamma_1 \Delta CCR_{t-1} \pm \sum_{i=0}^p \partial_1 \Delta CCL_{t-1} \pm \sum_{i=0}^p \lambda_1 \Delta BCP_{t-1} \pm \sum_{i=0}^p \emptyset_1 \Delta EXR_{t-1} \pm \sum_{i=0}^p \omega_1 \Delta INF_{t-1} \pm \mu_t \quad 2$$

The partial sums of positive and negative (\pm) lag periods are symbolized by the subscript $t-1$, Δ which is the variance operator, and $\pi, \rho, \gamma, \varphi, \lambda, \delta, \emptyset$ and ω are the variables first

differences. Equation (3) denotes the NARDL short-run, where $ECM(-1)$ presents the short-term speed adjustment mechanism for long-term fluctuation.

$$\Delta GDP_t = \pi_0 \pm \pi_1 GDP_{t-1} \pm \pi_2 CCR_{t-1} \pm \pi_3 CCL_{t-1} \pm \pi_4 BCP_{t-1} \pm \pi_5 EXR_{t-1} \pm \pi_6 INF_{t-1} \pm \sum_{i=0}^p \rho_1 \Delta GDP_{t-1} \pm \sum_{i=0}^p \gamma_1 \Delta CCR_{t-1} \pm \sum_{i=0}^p \lambda_1 \Delta BCP_{t-1} \pm \sum_{i=0}^p \emptyset_1 \Delta EXR_{t-1} \pm \sum_{i=0}^p \omega_1 \Delta INF_{t-1} + ECM(-1) + \mu_t \quad 3$$

The study applied threshold regression advanced by Granovetter & Soong (1983) to obtain the turning point between consumer credit and economic growth, the type of association, and what happens before and after the threshold. The threshold regression model includes step, hinge segmented and stegmented. The step and hinge models are two of the most basic forms of threshold effects with zero slopes before the threshold; the segmented model generalizes the hinge model by allowing non-zero slope between the threshold; and the stegmented can be viewed as the fusion of the step and segmented models (Fong, Huang, Gilbert

& Permar, 2017). However, the step threshold regression model is specified. Equation (4) specified this relationship:

$$GDP = \beta_1 + \gamma_1 CCR I(CCR \leq e) + \gamma_2 CCR I(CCR > e) + \epsilon \quad 4$$

The threshold parameter is e . $I(CCR > e) = 1$ When $CCR > e$ and 0 otherwise. The hypothesis tested for non-linearity is as follows: Null Hypothesis (H_0): $\gamma_1 = \gamma_2$. The Null hypothesis assumes that the consumer credit-economic growth

relationship is linear. The Alternative Hypothesis (H_1): $\gamma_1 \neq \gamma_2$. Whereas the Alternative hypothesis advocates that the relationship is non-linear. Where γ 's are the estimated coefficients. Alternatively, the hypothesis can be interpreted as follows; If the coefficients before $I(CCR \leq e)$ and after $I(CCR > e)$, and if the threshold has the same sign (s) (+ +) or (- -), the Null hypothesis will be rejected, and the relationship will be said to be non-linear or linear relationship if otherwise. The threshold model assumes that variables depend on each other. It divides a sample into groups to determine whether countries (38 OECD members) are above or below the threshold parameter (Ouyang, Shao, Zhu, He,

Xiang & Wei, 2019). It provides the changing point of the series relationship. It is appropriate for real-world situations and can produce more relevant results. Lastly, the estimator allows the importance of consumer credit to vary based on whether the country is above or below a certain level of e .

4. Results and discussion

The researcher used annual time series data spanning 41 years, from 1981 to 2021, to examine consumer credit's effect on Nigeria's economic growth. The availability of data solely influenced the selected period. Table 2 records the summary statistics for the observed variables.

	GDP	CCR	CCL	BCP	EXR	INF
Mean	3.042	13.245	9.614	8.971	108.168	18.95
Maximum	15.33	16.31	13.28	19.6	399.96	72.84
Minimum	-13.13	9.200	4.61	0.000	0.6100	5.390
Std. deviation	5.386	2.334	2.176	3.756	109.911	16.66
Skewness	-0.819	-0.173	-0.199	0.743	0.973	1.854
Kurtosis	4.621	1.537	2.407	4.096	3.172	5.307
Jarque-Bera	9.069	3.864	0.872	5.824	6.519	32.59
Probability	0.011	0.145	0.647	0.054	0.038	0.000
Observation	41	41	41	41	41	41

Table 2. Summary of the Descriptive Statistics

Source: Author's Compilation (2022).

The mean values for GDP, CCR, CCL, BCP, EXR, and INF are positive. The highest mean value (108.168) is the exchange rate. The coefficients of the standard deviation indicate that the EXR fluctuated considerably by (109.911), followed by the INF (16.660), GDP (5.386), BCP (03.756), CCR (2.334), and CCL (2.176), respectively. This suggests that EXR is the most volatile variable, followed by INF, GDP, BCP, CCR, and CCL in the model. Regarding the skewness, all variables have negative values except for the BCP, EXR and INF, which implies the median is greater than the mean. GDP, BCP, EXR, and INF are leptokurtic, while CCR and CCL kurtosis is less than 3 signifying that the distributions are platokurtic. In addition, the Jarque-Bera test results for GDP, BCP, EXR, and

INF are statistically significant, which indicates that the variables are not normally distributed except for the CCR and CCL.

Furthermore, the results of ADF and PP unit root tests used to check the stationarity for every individual series is shown in Table 3. The results indicate that the GDP, EXR, and INF are stationary at ADF and PP levels, while CCL is stationary at PP levels. Other variables were stationary after the first differences. Therefore, the variables under study have a mixed order of integration $I(0)$ and $I(1)$. Thus, to determine the long-term relationship between the variables that are stationary when the first difference is considered, the Augmented NARDL-bounds test for co-integration was conducted.

Table 3. ADF and PP results for Unit root Source: Author’s Compilation (2022).		Augmented Dickey-Fuller Test		Phillips-Perron Test	
	Variable	Level I(0)	1 ST Difference I(1)	Level I(0)	1 ST Difference I(1)
	GDP	3.945***	3.958***	4.274***	10.707***
	CCR	1.327	3.991***	1.117	3.976***
	CCL	2.049	9.611***	2.479*	9.611***
	BCP	1.764	3.749***	1.85	3.037***
	EXR	2.714*	4.074***	3.027**	3.973***
	INF	3.630***	2.933*	2.877*	10.370***

Furthermore, the NARDL-bound and Wald tests are given in Table 4. The F-statistic is greater than the upper boundary critical values $18.143 > 3.61$ at a 1 percent significance level. Thus, the null hypothesis is rejected, concluding that the series have a long-run co-integrating relationship. The criterion of lag considered is automatic, which is most suitable for the NARDL model. Before the

estimation of the NARDL, the asymmetric test was conducted using the Wald test to determine whether an asymmetric relationship holds amongst the variables or not. The result reveals we can reject the null hypothesis and conclude that an asymmetric relationship exists between consumer credit and economic growth, given the probability value of F-statistic less than 5 percent.

Table 4. NARDL-Bounds test results	Statistics	Value	Lower Boundary I(0)	Upper Boundary I(1)
	F-statistic 18.143	1%	2.41	3.61
Source: Author's Computation (2022).	Wald test	F-statistic	8.789***	

In addition, several tests were employed to scrutinize the models' robustness, stability, and reliability in Table 5. Consequently, the Jarque-Bera, Breusch-Godfrey, and Breusch-Pagan-Godfrey tests were utilized, and the results disclosed that our estimated models are normally distributed, with no serial correlation and homoscedastic. The CUSUM and CUSUMQ tests are stable and within the 5 percent required region presented in Figure 1. The Ramsey RESET tests

show that the exogenous variables are simultaneously significant, and the model is free from misspecification problems. Interestingly, the diagnostic and stability test outcomes showed that the models adopted were fit and adequate based on the R^2 value and F statistics. The NARDL estimation results are availed in Table 5. Panel A (Long-run results), panel B (short-run results), and panel C (diagnostics tests).

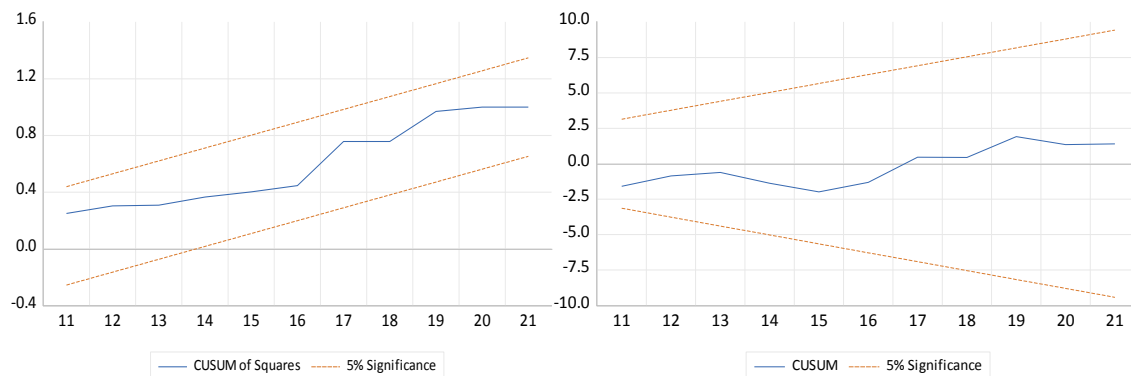
Dependent variable GDP: Panel A					
Positive	Coefficient	T-statistic	Negative	Coefficient	T-statistic
CCR ₊	7.590	3.711***	CCR ₋	25.335	4.834***
CCL ₊	-3.509	-3.157***	CCL ₋	-0.097	-0.321
BCP ₊	2.007	1.811*	BCP ₋	0.535	2.155**
EXR ₊	0.168***	4.067***	EXR ₋	1.761	2.279**
INF ₊	-0.075	-1.337	INF ₋	0.053	1.301
Dependent variable GDP: Panel B					
CCR ₊	-7.567	-8.988***	CCR ₋	43.387	15.457***
CCL ₊	0.028	0.134	CCL ₋	-	-
BCP ₊	0.660	4.015***	BCP ₋	0.068	0.912
EXR ₊	-0.045	-5.079***	EXR ₋	1.619	9.844***
INF ₊	0.137	7.290***	INF ₋	-0.242	-15.648***
		CointEq	-0.969	-20.870***	
R ² = 0.980	R ⁻² = 0.966	Durbin-Watson statistics 2.217			
Panel C					
Residual diagnostic			Stability diagnostic		
Normality 4.075(0.130)			CUSUM stable 0.05		
Serial Correlation 1.925(0.201)			CUSUSMQ stable 0.05		
Heteroskedasticity 1.045(0.494)			Ramsey RESET 1.194(0.194)		

Table 5. NARDL estimation results

Source: Author's Computation (2022).

Table 5. NARDL estimation results

Source: Author's Computation (2022).

Figure 1: *CUSUM* and *CUSUMQ*

Meanwhile, the regression outcomes are a good fit, as shown by the R^2 of about 98% variation in the regressed explained by the regressors and the Durbin Watson statistic's absence of correlation. The long-run and short-run asymmetry associations were tested. The results exhibited an asymmetric link between consumer credit and economic growth in the short run except for BCP, but the absence of a long-term asymmetry relationship in most cases, except for inflation

(INF). A positive and negative shock in consumer credit (CCR) will positively affect economic growth (GDP). It implies if there is an appreciation/depreciation of 1 percent in CCR, it will cause an improvement of 7.590 percent (positive effect) and 25.335 percent (negative effect) in the (GDP) between 1981 and 2021.

The phenomenon specifies that irrespective of shocks, positive or negative, consumer credit growth will result in economic growth in the long-

term through the multiplier effect of increased consumption in the economy. Galor and Zeira (1993); De Gregorio (1996); Ding (2015); Borowski et al. (2017) revealed the same outcome. However, the finding is contrarily to findings by Lindholm (1964); Beck et al. (2012); Sassi and Gasmi (2014). Correspondingly, the results show positive and negative fluctuations in Banks' Credit to the Private sector (BCP) and exchange rate (EXR) will positively influence the GDP. The result suggests that if there is an enhancement or otherwise of 1% in Banks' Credit to the Private sector and Exchange rate, this will cause an increase of 2.007, 0.535, 0.168 and 1.761 percent in GDP (proxy for economic growth). This is in conformity with previous findings of (Olowofeso, Adeleke & Udoji, 2015; Belinga et al., 2016; Amoo et al., 2017; Ho & Saadaoui, 2022) that private sector credit positively affects economic growth. The studies of Okorontah (2016); Aslam (2016); Selimi and Selimi (2017) reveals that exchange rate is an increasing determinant of economic growth.

However, the results show that positive and negative shocks in the cooperative loan (CCL) will negatively impact the GDP. If there is an improvement or otherwise by 1 percent in CCL, it will lead to a decrease by -3.509 and -0.097 in GDP. In addition, a percentage positive shock in

inflation (INF) depresses GDP by -0.075 percent, while a negative fluctuation increases GDP by 0.053 percent. Furthermore, the short-run results unveiled that a positive shock in the CCR will negatively impact the GDP, while a negative shock positively inflates economic growth between 1981 and 2021. A 1 percent increase in CCR depresses the GDP by -7.567, while a 1 percent decrease in CCR will increase the GDP by 43.387 percent. Similarly, the results show that the BCP's negative and positive coefficients positively impact the GDP. The 1 percent increase in the BCP will expand the GDP by 0.660 and 0.068 percent, respectively. Moreover, a 1 percent increase in the CCL will cause a fall in the GDP by 0.028 percent.

Furthermore, the coefficients of the EXR show that a positive shock in the EXR will adversely impact the GDP. A 1 percent upsurge in the EXR will deflate the GDP by -0.045 percent. Likewise, the negative component of the EXR shows that a negative shock in the EXR will adversely impact the GDP. A 1 percent appreciation in the EXR will inflate the GDP by 1.619 percent. Lastly, the positive shocks in the INF improve the GDP, whereas its negative shocks depress it. A 1 percent rise in the INF improves the GDP by 0.137 percent, while the same 1 percent fall in the INF weakens the GDP by -0.242 percent.

Table 6. Summary of threshold estimation results

When Consumer Credit \leq 10.910 \rightarrow GDP = 0.312CCR*** (5.838)

When Consumer Credit $>$ 10.910 \rightarrow GDP = -0.442CCR*** (-2.378)

Source: Author's Computation (2022).

Furthermore, the threshold regression estimate in Table 6 also reveals a non-linear relationship between consumer credit and economic growth. Hence, the researcher rejected the null hypothesis and concluded that the coefficient of γ_1 is not equal to the coefficient of γ_2 . Then, changing point between consumer credit and economic growth is 10.91 percent. It is further exposed that economic growth increases in the early phases of rising consumer credit but depreciates at later stages when consumer credit grows above the threshold (10.91). This signifies

that despite the importance of consumer credit's effect on economic growth, policymakers need not allow it beyond the threshold, and the move beyond the threshold will adversely affect economic growth.

5. Conclusion and policy implication

This study analyzed the non-linear relationship between consumer credit and economic growth in Nigeria using time series data from 1981 to 2021. The NARDL bounds test and threshold estimators were employed. The NARDL bounds

approach revealed a long-run co-integrating relationship between consumer credit (alongside cooperative loans, bank credit to the private sector, inflation, and exchange rate) and economic growth. The NARDL short-run estimation exhibits an asymmetric relationship between Nigeria's consumer credit and economic growth, whereas a symmetric relationship is found in the long-run. The Threshold regression also displayed a non-linear association between consumer credit and economic growth in Nigeria. It is further exposed that economic growth increases in the early period of rising consumer credit but depreciates at later periods when consumer credit grows above the threshold (10.91).

Regarding these findings, the following policy options were suggested for practical implication. Policymakers should design policies that promote and support a balance between benefits and associated risks of consumer credit by lowering income inequality, maintaining a low interest rate and stable inflation. Monitoring the consumer borrowing position is also recommended before they become excessive, since its short-run rise demonstrated a negative implication for economic growth. Sagacious regulations are suggested while including maximum consumer credit and minimum income requirements for credit should be put in place. The Central Bank of Nigeria (CBN) needs to regularly request banks to report the credit quality analysis on the banking system. In necessary cases, the CBN will work directly with credit institutions to control risks. CBN also needs to require banks to strengthen internal inspection and strictly comply with the law on lending activities. Finally, the CBN should direct the credit growth of the banking system close to the growth objectives of the whole economy and also announce the credit expansion target for each credit institution.

References

- Alter, A., Feng, A.X. & Valckx, N. (2018). Understanding the Macro-Financial Effects of Household Debt: A Global Perspective, IMF Working Paper: Monetary and Capital Markets Department.
- Amoo, G. B. A., Eboreime, M. I., Adamu, Y. & Belonwu, M. C. (2017). The Impact of Private Sector Credit on Economic Growth in Nigeria. *CBN Journal of Applied Statistics (JAS)*, 8(2): 1 – 22.
- Arcand, J. L., Berkes, E. & Panizza, U. (2015). “Too Much Finance?” *Journal of Economic Growth* 20 (2): 105–48.
- Arltova, M. & Fedorova, D. (2016). Selection of unit root test on the basis of length of the time series and value of AR(1) parameter. Czech science foundation project no. P402/12/G097. DYME- *Dynamic Models in Economics*.
- Armeanu, D., Pascal, C., Planta, D. & Doia, C. A. (2015). The Credit Impact on the Economic Growth *Theoretical & Applied Economics*, 22(1): 260 – 272.
- Aslam, M. A. L. (2016). Impact of Exchange Rate on Economic Growth in Sri Lanka *World Scientific News*, 54:252-266.
- Bakari, I.H., Donga, M., Idi, A., Hedima, J.E., Wilson, K., Babayo, H. & Ibrahim, Y. (2019). An examination of the Impact of Financial Inclusion on Poverty Reduction: Empirical Evidence from Sub-Saharan Africa. *International Journal of Scientific and Research* 9(1):239-252.
- Beck, T., Büyükkarabacak, B., Rioja, F. & Valev, N. (2012). Who Gets the Credit? And Does It Matter? Household vs. Firm Lending Across Countries. *The B.E. Journal of Macroeconomics*, 12(1).
- Belinga, T., Zhou, J., Doumbe, D. E., Gahe, Z. S. Y. & Koffi, Y. S. L. (2016). Causality Relationship between Bank Credit and Economic Growth: Evidence from a Time Series Analysis on a Vector Error Correction

- Model in Cameroon. *Procedia - Social and Behavioral Sciences* 235: 664 – 671.
- Berisha, D. & Meszaros, J. (2017). Household Debt, Economic Conditions, and Income Inequality: A State Level Analysis. *The Social Science Journal*, 54(1):93-101.
- Borowski, J., Jaworski, K. & Olipra, J. (2017). Economic, Institutional, And Socio-Cultural Determinants Of Consumer Credit In The Context Of Monetary Integration. Economic Institute Warsaw. *NBP Working Paper No. 254*. Narodowy Bank Polski Education & Publishing Departmentul. Świętokrzyska 11/2100-919 Warszawa, Poland.
- Cayirli, O., Kayalidere, K. & Aktas, H. (2022). Conditional Impact of Credit Growth On Macroeconomic and Financial Aggregates: Evidence of Turkey. *International Journal of Emerging Markets*, 10(11).
- Cecchetti, S. G., Mohanty, M. S., & Zampolli, F. (2011). The Real Effects of Debt *Review of Financial Studies*, 22:1–34.
- Central Bank of Nigeria (2022). *Statistical Bulletin Real Sector*. Abuja: CBN
- Daud, S. N. M., Podivinsky, J. M. & Samad, K. A. (2021). Household Debt and Country Economic Growth: Does A Magic Threshold Exist? *International Journal of Business and Society*, 22(1):161-174.
- De-Gregorio, J. (1996). Borrowing Constraints, Human Capital Accumulation and Growth *Journal of Monetary Economics*, 37 (1):49-71.
- Ding, N. (2015). Consumer Credits and Economic Growth in China, *China economy* 48(4): 269 – 278.
- Friedman, M. (1957). *A Theory of the Consumption Function* Princeton, NJ: Princeton University Press.
- Fong, Y., Huang, Y., Gilbert, P.B. & Permar, S.R. (2017). Chngpt: Threshold Regression Model Estimation and Inference, *BMC Bioinformatics* (18):454-470.
- Galor, O. & Zeira, J. (1993). Income Distribution and Macroeconomics. *The Review of Economic Studies*, 60(1): 35–52.
- Garcia-Escribano, M. & Han, F. (2015). *Credit Expansion in Emerging Markets: Propeller of Growth?* IMF Working Paper, Western Hemisphere Depoartment.
- Granovetter, M. & Soong, R. (1983). Threshold Models of Diffusion and Collective Behavior, *Journal of Mathematical Sociology* 9(3):165-179.
- Grant, C. (2007). Estimating Credit Constraints among US Households. *Oxford Economic Papers*, 59: 583–605.
- Greenwood, R., Hanson, S.G., Shleifer, A. & Sorensen, J.A. (2020). Predictable Financial Crises Technical report, Harvard Business School Working Paper.
- Guardia, N. (2002). *Consumer Credit in the European Union*, ECRI Research report (1):1-39
- Hall, R. E. (1978). “Stochastic Implications of the Life Cycle–Permanent Income Hypothesis: Theory and Evidence.” *Journal of Political Economy* 86 (6): 971–87
- Ho, S. & Saadaoui, J. (2022). Bank Credit and Economic Growth: A Dynamic Threshold Panel Model for ASEAN Countries. *International Economics*, 170:115 – 128.
- Hoang, V. H., Nguyen, P. M., Luu, T. M. N. & Vu, T. M. H (2021). Determinants of Intention to Borrow Consumer Credit in Vietnam: Application And Extension Of Technology Acceptance Model. *Journal of Asian Finance, Economics and Business*, 8(4): 0885–0895.
- Kamleitner, B. & Kirchler, E. (2007). Consumer Credit Use: a process model and Literature Review, *Revue Europeene de Psychologie Appliquee* (51): 267-283.
- Lay, S. H. (2020). Bank Credit and Economic Growth: Short-Run Evidence from a Dynamic Threshold Panel Model, *Economics Letters*, 192:109 – 231.

- Lindholm, R. W. (1964). Consumer Credit and Economic Growth. *Challenge*, 13(2): 20-22.
- Lombardi, M., Mohanty, M., & Shim, I. (2017). *The Real Effects of Household Debt in the Short and Long-run* BIS Working Papers No 607. Basel: Bank of International Settlement.
- Mian, A., Sufi, A. & Verner, E. (2017). Household Debt and Business Cycles Worldwide *The Quarterly Journal of Economics*, 132(4), 1755–1817.
- Mose, N. (2021), Impact of Public Consumption on Economic Growth. *African Journal of Economics of Sustainable Development* 4(3):61-71.
- Muthusamy, V., Dewasiri, N. J., Weerakoon, Y. K. B. & Amarasinghe, A. A. M. D. (2018). Relationship between Sector's Distribution of Commercial Bank Credit and Economic Growth in Sri Lanka. *Vidyodaya Journal of Management*, 4(2): 420 – 430.
- Olowofeso, E. O., Adeleke, A. O. & Udoji, A. O. (2015). Impact of Private Sector Credit On Economic Growth in Nigeria, *Journal of Applied Statistics*, 6(2): 81-101.
- Okorontah, C. F. (2016). Effects of Exchange Rate Fluctuations on Economic Growth of Nigeria. *International Journal of Innovative Finance and Economics Research*, 4(2): 1-7.
- Orimogunje, O. E. (2019). The Impact of Banking Credit on Economic Growth and Inflation: The Case of Nigeria. *IOSR Journal of Business and Management (IOSR-JBM)*, 21(2): 32-44.
- Ouyang, X., Shao, Q., Zhu, X., He, Q., Xiang, C. & Wei, G. (2019). Environmental Regulation, Economic Growth And Air Pollution: Panel Threshold Analysis for OECD countries. *Science of the Total Environment*, 657: 234–241.
- Pattarin, F. & Cosma, S. (2012). Psychological determinants of consumer credit: the role of Attitudes *Review of Behavioural Finance*, 4(2): 113-129.
- Pesaran, M. H., Shin, Y. & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships *Journal of Applied Econometrics*, 16(3): 289-326.
- Pham, H.M. & Nguyen, P.M. (2020). Empirical research on the impact of credit on economic growth in Vietnam, *Management Science Letters* 10 (12): 2897–2904
- Sakanko, M. A, David, J., & Onimisi, A. (2020). Advancing inclusive growth in Nigeria: The role of financial inclusion in poverty, inequality, household expenditure and unemployment. *Indonesian Journal of Islamic Economics Research*, 2(2): 70-84.
- Samad, K. A., Daud, S. N. M., & Mohd Dali, N. R. S. M. (2020). Household Debt and Economic Growth. *International Journal of Academic Research in Business and Social Science*, 10(4): 539–551.
- Sassi, S. & Gasmi, A. (2014). The Effect of Enterprise and Household Credit on Economic Growth: New Evidence From European Union Countries. *Journal of Macroeconomics*, 39 (A): 226-231.
- Selimi, N. & Selimi, V. (2017). The Effects of Exchange Rate On Economic Growth In the Republic Of Macedonia. *Eco Forum*, 6(3): 120 – 132.
- Schumpeter, J. A. (2011). *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*. London: Transaction Publishers.
- Shin, Y., Yu, B. & Greenwood-Nimmo, M. (2014). *Modelling Asymmetric Co-integration and Dynamic Multiplier in a Nonlinear ARDL Framework*. New York: Mimeo.
- Sikarwar, T., Goyal, A. & Mathur, H. (2019). Household Debt, Financial Inclusion, And Economic Growth of India: Is It Alarming For India? *Asian Economic and Financial Review*, 10(2): 229 – 248.

- Thomas, L. C. (2010). Consumer finance: Challenges for operational research. *Journal of the Operational Research Society*, 61(1): 41–52.
- World Bank (2022). *World Development Indicators Report for Nigeria*, Washington DC: World Bank.