**Export Credit and Non-Oil Export Performance in Nigeria**

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Abstract

Credit has been identified as a critical factor in facilitating the country's export activities. Extant studies have shown that poor performance of Nigeria’s non-oil export sector is partly due to poor access to credit to finance both the pre-shipment and post-shipment stages of exporting activities. This study therefore assessed the impact of export credit on non-oil export performance in Nigeria during 1981-2021. The stochastic properties of the time series data were examined using conventional unit root tests, in particular, ADF, PP and KPSS. Their results indicates that the series are combination of both I(0) and I(1) in the same specification which prompted the use of ARDL. Four different indicators were used to proxy non-oil export performance: value of total non-oil export, non-oil export as a percentage of GDP, non-oil export as a percentage of total export and growth rate of non-oil export (%). The short-run estimates reveal that commercial banks’ credit to non-oil exporters D(LCBEC), openness to trade D(LOPEN), The lag value of OPEN in period two D(LOPEN(-2)) and real GDP D(LRGDP) has a significant positive impact on non-oil export. With respect to total non-oil export as percentage of GDP, the estimates shows that only D(LRGDP) has significant positive impact. In the case of growth rate of non-oil export, lag value of monetary policy rate in period one D(MPR(-1)) and lag value of openness to trade in period one D(LOPEN(-1)) have significant impact. In the long-run, the estimates show significant positive impact of commercial banks’ credit to non-oil exporters, openness to trade and real GDP on non-oil export performance while significant negative impact of monetary policy rate on non-oil export performance. For granger causality test, the results show existence of bi-directional relationship between commercial banks’ export credits (CBEC) and total non-oil export (TNOE). Recommendations are discussed in the conclusion section.

Keywords: Commercial Bank Credit, Export Performance, Non-oil, Nigeria.

**1.0 Introduction**

In the economic literature, the development potential of developing countries is primarily connected to their ability to establish a cumulative causation process of manufacturing expansion and export development (Thirlwall, 2002). The advocates of export-led growth hypothesis (ELGH) also emphasise the importance of export as an engine of growth (Medina-Smith, 2001). The fact behind this argument is that countries that engage in export have tendency to increase export earnings, enhance employment generation, create profit, trigger off greater productivity and also accumulate more reserve through which such country could maintain a favourable balance of payment (Okosodo and Imoughele, 2019). One major development strategy that could aid country’s active participation and full engagement in exporting market is access to credit financing. For a developing country, full realization of a country’s export potential is mainly driven by its access to export credits support (Oramah, Chukwurah and Ojeifo, 1995). There are two forms of export credit: suppliers’ credit and buyers’ credit. Of particular importance is the credit extended to export suppliers who need to finance both the pre-shipment and post-shipment stages (Anyanwu, 1995). Access to credit has been considered a significant determinant of international trade flows, especially in sectors where external finance is strongly relied on (Beck, 2002; Manova *et al.,* 2011). Countries with adequate financial institutions enjoy a comparative advantage in financially vulnerable areas of activity (Beck, 2002). The collapse of credit markets during the global economic crisis of 2008-2009 hit exporters more than other firms, explaining why international trade fell much more strongly than GDP (Chor and Manova, 2011).

Domestic producers and exporters usually depend on external source of capital in order to meet the substantial upfront costs required. These costs are incurred during domestic (pre-shipment) and cross-border (post-shipment) operations differently and could not be financed either through retained earnings or internal cash flows from operations (Manova, 2011). This thereby contributes to exporters’ lack of incentive to engage in international trade. For the domestic operation, these costs are mostly fixed in nature and are incurred essentially on R&D and product development, marketing research, advertising, and investment in fixed capital equipment. Also, variable costs constituted by buying of intermediate inputs, advance payments to salaried workers, and land or equipment rental fees are often incurred before production and sales take place. In the case of cross-border operations, other upfront expenses associated with exporting activities are also incurred, thus making production for foreign markets to depend solely on external financing than producing for the home country. Operations at this level also required both sunk/fixed and variable costs of international trade. Activities such as learning about the profitability of potential export markets; making market-specific investments in capacity, product customization and regulatory compliance; and setting up and maintaining foreign distribution networks constitute sunk/fixed costs, while variable costs comprise shipping, duties and freight insurance (Manova, 2011).

Non–oil export has been recognized as a basis for promoting rapid economic transformation of a nation. Non-oil export dependent countries have tendency to earn huge foreign exchange. However, Nigeria’s non-oil export performance is very weak due to high dominance of oil export. The dependence on oil makes the economy vulnerable to fluctuations in oil price. For instance, Nigeria’s total exports stood at ₦330.4 million in 1960 with non-oil export accounted for about 97.2% (CBN, 1993). For two decades, Nigeria recorded a steady increase in its total export to reach highest peak of about ₦14.1 billion in 1980. During these periods, non-oil export has significantly slumped to ₦554.6 million, accounting for 3.9% (CBN, 1993). The increase in total export was attributed to exploration of crude oil and favourable international crude oil price in the 1970s in the world market, thus shifting Nigeria‘s exports towards oil. From 1981 onwards, oil export has been dominating Nigeria’s total export, contributing on average 95.0% while non-oil export constitutes just 5.0% (CBN, 2022). Also, in 1960, Nigeria’s share of non-oil export in GDP was significantly higher (99.7%) relative to that of oil export (0.3%). However, from 1980 onward, the situation completely changed as the share of oil export in GDP dominated that of non-oil with 0.5% 1.3% and 3.4% in 2005, 2010 and 2021, respectively (CBN, 2022). Due to this circumstance, the Structural Adjustment Programme (SAP) was introduced as a policy to address the weak performance of the non-oil export sector (Akpan, Nwosu and Eweke, 2017).

Similarly, the financial sector is critical to economic growth and development as it channels resources from areas of surplus to areas of deficit in the economy. Its liquidity role is the most important, with the Central Bank of Nigeria, commercial banks, capital markets, discount houses, insurance companies, asset management companies, and pension houses among the major players. In recent years, the sector has undergone significant reforms to improve its performance, most notably the deregulation of the banking system (Akpan, Nwosu and Eweke, 2017). According to Siregar (2010), there is a link between export credits and export performance because export credit contributes to the export sector's boom and bust. Given this fact, establishing the direction of relationship between export credit and non-oil export performance in Nigeria becomes imperative.

In an attempt to stimulate and promote the non-oil export sector trade and its contribution to growth, several financial incentives have been put in place by the government. Elechi, Kasie, & Chijindu (2016) identified some of the agencies established solely for the promotion of non-oil export to include: Export Development Fund (EDF), Export Expansion Grant Funds Scheme (EEGF), Duty Draw-Back/Suspension and Manufacture in Bond Scheme, Export Adjustment Fund Scheme and Nigeria Export-Import Bank (NEXIM). Also, other institutional bodies established to engage in financing export trade in Nigeria include: Nigeria Export Promotion Council (NEPC), Nigeria Export Processing Free Zone Scheme (NEPFZS) and Nigeria Export Processing Zone Authority (NEPZA). Despite these efforts, Nigeria’s non-oil export sector is greatly handicapped and this may be due to inadequate finance and bank credit. For instance, total bank credit in the Nigerian economy stood at ₦15.7 billion in 1986 out of which ₦0.3 billion was allocated to non-oil export sector. For three decades, total bank credit to the Nigerian economy maintained an increasing trend of ₦796.2 billion, ₦7,312.7 billion and ₦24,378.2 billion in 2001, 2011 and 2021, respectively. However, total bank credit to the Nigerian non-oil export sector has been declining recording ₦34.5 billion, ₦36.2 billion and ₦1,708.4 billion (accounting for 4.3%, 0.49% and 7.01% of total bank credit to the Nigerian economy) in 2001, 2011 and 2021, respectively.

Ningi and Dutse (2013) emphasized that interest rate for credit extended to non-oil export is usually high, as it ranges between 15-20%. Consequently, access to finance becomes problematic to non-oil sector exporters while the growth of the sector and its contribution to nation’s growth is suppressed. Low financing of non-oil export sector is associated with little disbursement in terms of the volume of credits and inability of non-oil exporters in providing collateral that match the loan to be granted significantly contribute to dwindling growth of non-oil exports in Nigeria (Ijaiya, 2003; Auboin, 2007). Also, Odularu (2013) observed that unwillingness of banks to advance credit to non-oil export sector as it is considered very risky for investment despite directives from Nigeria Export Promotion Council (NEPC). Lastly, high volatility in exchange rates in the country has also been a serious challenge to non-oil exports as it induces uncertainty and create significant disincentive towards financing non-oil export in Nigeria (Emerole and Edeoga (2013). In the economic literature, Chukuigwe and Abili (2008) argued that high foreign exchange would lead to high cost of raw materials, spare parts, etc. and thus contract the export supply in the economy. Against the above background, this study seeks to provide answers to the following research questions: (i) what impact do commercial banks’ export credit have on Nigeria’s non-oil exports performance? (ii) what is the direction of causal relationship between banks export credit and non-oil export performance in Nigeria?

After the foregoing introductory section, section 2 presents a literature review, and section 3 focuses on methodological and estimation techniques. Section 4 presents the empirical results with a discussion, while section 5 concludes the paper with policy recommendations.

2.0 Literature Review

Using an aggregate trade data covering 91 countries for the period 2005–2011, Auboin and Engemann (2014) used two-stage least squared leveraged on fixed and random effects while analyzing the effect of trade credit on trade. Their findings reveal significant positive effect of insured trade credit on trade, though the effect does not vary between crisis and non-crisis periods. In a firm analysis that considered both extensive and intensive margins of trade, Muûls (2015) analyzes the relationship between credit constraints and trade of more than 9000 Belgian manufacturing firms between 1999 and 2007. The author used linear probability model and found that firms that enjoy lower credit-constraints, more productive and profitable have a higher probability of being exporters or importers. Such firms are also likely to report larger total trade values. Also, firms that have better credit rating export and import more. In addition, firms trading behaviours differ both in terms of the level and growth of the various margins of trade that are related to credit constraints. In a related study, Wagner (2019) tested the relationships between credit restrictions and firms’ export performance of 25 European countries for the period 2014-2017. The author’s findings is contrary to the big picture revealed by a comprehensive literature survey a significant negative relationship between more severe problems in access to finance and exports is only rarely found.

In a panel analysis conducted across 27 Berne Union member countries for the period of 11 years, Turguttopbas and Küçüker (2020) elaborated the effects of the export credit insurance commitments on exportation. The authors employed fixed and random effects models in order to account for unobserved heterogeneity and found that the export credit insurance schemes, mainly supposed to be provided by the public insurers, may mitigate the detrimental effects of Covid-19 on international trade. Máñez and Vicente-Chirivella (2021) explored the role of financial constraints on firms’ exporting behavior of Spanish manufacturing firm over a period 1992–2014. Their findings show that financial health is a critical determinant of export persistence and stating to export decision of large firms and SME.

With the aid of gravity model, Baltensperger and Herger (2009) empirically estimated the consequences of the economic theories on the interrelationship between the public provision of export insurance and international trade of 30 OECD countries for the period 1999-2005. The results show that high risk of foreign default continues to hinder international trade, particularly in countries suffering from aggravated levels of political and commercial instability. The results further show evidence that issuing trade credits with generous state-guarantees has, to a modest degree, promoted exports to high and medium-income countries, but ineffective in opening up for low-income countries. In another panel analysis that employed gravity model, Polat and Yeşilyapra (2017) used fixed effect to examine the effect of export credit insurance on Turkey’s export during the period 2000-2015. They found existence of significant positive effect of export credit insurance on Turkish export. Using the same approach, Balci (2018) examined the effect of export credit insurance on Turkish export to its 15 trading partners over a period 2001-2016. Both fixed and random effects models were estimated and the results revealed that a significant positive effect of insured exports on the volume of Turkey’s export to its trading partners emerging markets.

Rienstra-Munnicha and Turvey (2002) analyses the functional relationship between exports, credit risk and credit guarantees. Their results suggest that the exporter’s supply curve is more inelastic in the presence of payment risk (uncertainty), than it would be in the case of uncertainty. Also, the findings suggest that the supply curve will become more elastic by offering larger quantity for a given price, in the presence of export credit guarantees. In an attempt to examine whether export insurance subsidy provided by the British government has aided export supply in Britain, Mah (2003) found that export subsidy is insignificant in increasing the export supply. while analyzing the interaction between credit constraints and exporting behavior of 9,000 Belgian manufacturing firms between 1999 and 2005, Muûls (2008) used fixed effect OLS and found that firms have tendency to export if they enjoy higher productivity levels and lower credit constraints. The findings further that only extensive margin of trade is mostly determined by credit constraints. Over a period 2000-2008, Feenstra, Li and Yu (2014) used combination of OLS regression, two-stage least square, tobit and probit to examine why credit constraints for domestic and exporting firms arise in a setting where banks do not observe firms productivities. They found that credit constraint becomes tighter as a firm’s export share grows, as the time to ship for exports is lengthened, and as there is greater dispersion of firms’ productivities reflecting more incomplete information.

Felbermayr and Yalcin (2011) employed fixed effects model to explore the impact of export credit guarantees on export performance of Germany. Their findings suggest a robust export-increasing effect of guarantees and that the effect is larger for export markets with poor financial institutions and in sectors that rely more on external finance. While examining the impact of two policy changes in India (the period 1998 when subsidized credit was extended to businesses) and (the period 2000 when subsidized credit for a portion of businesses was revoked) on export, Kapoor, Ranjan and Raychaudhuri (2017) revealed that the initial credit expansion significantly increased borrowing and export earnings of newly eligible business and that businesses earn more from exporting even after the subsidized was revoked. Using a Levinsohn-Petrin estimates of a Cobb Douglas production function, Cil and Dulger (2018) found that export activities of Turkish manufacturing firms is significantly restricted with credit constraints. Ciani and Bartoli (2020) explored the effect of credit constraints on quality differentiation across markets using the 8th UniCredit Survey on Italian SMEs conducted in 2011. Probit regression was employed and found that higher binding credit constraints makes a firm less likely to differentiate quality across markets. In an attempt to analyse how institutional hindrances affect the link between credit constraints and export decisions of firms across 131 countries, Phan, Stachuletz and Nguyen (2022) employed probit model and found that in middle-income countries, a weak institution prevents access to finance. More so, firms’ access to credit negatively affects exports in all regions. In the group of rich countries, however, the finding is most pronounced.

In a panel study that considered about 50,000 manufacturing firms surveyed in 138 economies between the periods 2002 and 2012, Li and ye (2021) used a probit regression model and found that the least productive and financially most constrained firms served only the domestic market. They also found that more relatively productive and financially less constrained firms export through trade intermediaries while the most productive and financially least constrained firms export directly to foreign markets. While analyzing the link between credit constraints and exports across a sample of large and heterogeneous small- and medium-sized firms from 65 emerging and developing countries between 2003 and 2014, Pietrovito & Pozzolo (2021) with the aid of OLS regression while tobit, probit regression and two-stage least square regression were used as robust analysis. Their findings revealed a negative impact of credit constraints on both the probability that a firm’s exports and the share of exports over total sales, particularly for smaller and younger SMEs and for those operating within a less developed financial system and a worse institutional environment.

In Nigeria, Anthony and Mustafa (2011) employed error correction model to examine the impact of current financial sector reforms on non-oil export in Nigeria for the period 1986-2009. Their findings reveal that financial liberalization in Nigeria has continued to yield positive impact on non-oil export. In a cross-sectional study comprising 102 Nigerian firms, Ningi (2013)found that non-oil export financing by banks (NEFB) has significant impact on non-oil export performance (NEP) among exporting firms in Nigeria. While exploring the impact of Nigerian banks' credit and its causal relationship with non-oil exports performance, Elechi et al. (2016) found that Nigerian banks have not contributed adequately to the promotion of non-oil exports and that there is no causality between Nigerian banks' credit to non-oil exports and non-oil export performance. Nwogo (2017) with the aid of OLS technique assessed the impact of financial sector reforms on non-oil exports in Nigeria from 1981 to 2015. The result suggests that the financial sector's mobilization and transfer of credit to the export unit provides a solution to the desired increase in non-oil related export growth performance. Using ARDL with structural breaks, Ayunku and Eweke (2020) analyzed the effect of banks credit on the export sector in Nigeria over a period 1981-2018. Their findings reveal that an increase in loans and advances, combined with other factors such as lending rate, real GDP, and inflation rate, significantly increases the total value of export in Nigeria in both the short and long run.

While exploring the effect of external credit on the probability of manufacturing firms to export in Nigeria, Akoto & Adjasi (2020) used the 2014 World Bank Enterprise Surveys data with the aid of IV probit model. They found that the decision of Nigerian firms’ to enter foreign market is significantly driven by both bank and nonbank credit accessibility. Using the same data source, Akoto and Adjasi (2021) with the aid of two-stage least square (2SLS) examined the impact of external credit on exports size of manufacturing firms in Nigeria. Their results showed that bank credit has significant negative impact on exports size whereas suppliers and customers’ credit are positive and significantly drives exports size.

**3.0 Methodology**

The econometric model explored to capture the impact of export credit and other variables on non-oil export performance is stated as thus. This specification takes a lead in the models developed by Elechi, Kasie and Chijindu (2016). Their model is specified thus:

 

Where NEP represents non-oil export performance, CBCNE denotes commercial bank credits to non-oil exports, INTR represents interest rate while inflation rate is denoted by INF.

In this study, equation (1) above was modified to include other macroeconomic variables such as GDP, exchange rate, and openness. The theoretical basis for the inclusion of these variables is justified by the fact that GDP is concerned with domestic production, which includes exportable goods, and transactions involving these exportable goods necessitate the use of an exchange rate. The volume of exportable goods is a result of openness policy, either within the domestic economy or between the domestic economy and the destination country. The preceding narrative supports the inclusion of the three (3) variables in the model because they play a significant role in determining volume/quantum, transaction process, and costs. As a result, the model for this study is specified in its non-linear form as given in equation (2).

 

The model is represented in a log-linear econometric format to obtain the coefficients of the elasticity of the variables, while reducing the possible impact that any outlier may have thus:

$NEP\_{t}=β\_{0}+β\_{1}CBEC\_{t}+β\_{2}GDP\_{t}+β\_{3}INT\_{t}+β\_{4}INF\_{t}+β\_{5}EXR\_{t}+β\_{6}OPEN\_{t}+ε\_{t}$ (3)

Where;

NEP = Non-oil Export Performance

CBEC = Commercial Banks’ Export Credit

RGDP = Real Gross Domestic Product

CPI = Consumer Price Index

EXR = Exchange rate

INTR = Interest rate

OPEN = Trade Openness

t = Time indicator, i = 1, 2… n,

$β$ = the coefficient of explanatory variables

$ε\_{t}$ = Error term

NEP could be measured by several indicators such as: total non-oil export, non-oil export as a percentage of GDP, non-oil export as a percentage of total export and Growth rate of non-oil export (%).

The component of non-oil export credit includes commercial banks’ credit to non-oil exporters and its growth rate (i.e. growth rate of commercial banks’ non-oil export credit).

3.1 Analytical Framework

In this study, the Autoregressive Distributive Lags (ARDL) of Pesaran *et al.* (2001) is utilized. The methodology estimates the impacts and applies the bounds testing approach to ascertain whether long-run relationship exists between/among the variables in the model. One of the advantages of the ARDL approach is that it can be used to model mixture of both I(0) and I(1) in the same specification, which is not acceptable using traditional approaches, such as Johanson’s and Engel Granger’s technique. Also, ARDL technique addresses endogeneity issues if exist in the model. Pesaran and Shin (1999) claim that modeling the ARDL with appropriate lags will correct for both serial correlation and endogeneity issues. Endogeneity, according to Jalil et al. (2008), is less of a problem if the estimated ARDL model is free of serial correlation. In using ARDL, therefore, all variables are assumed to be endogenous, and the model's long run and short run parameters are estimated simultaneously (Khan et al, 2005). It is also worth noting that endogeneity issue is specifically important because the causal relationship between commercial banks’ export credits and non-oil exports performance cannot be predicted in advance. Lastly, ARDL bounds testing approach is more suitable and provides better results for small sample size. Using this approach, the dynamics of both the short-run and long-run parameters including the speed of adjustment when there is shock are estimated simultaneously within the same framework. Moreover, it subverts the problem of over-parameterization, as robust lag lengths are crucial to this approach. However, the shortcoming of ARDL approach is its inability to incorporate I(2) variables in its analysis (Nkwatoh, 2014).

Pesaran et al. (2001) and Nkwatoh (2014) support that the ARDL approach begins with an examination of the Vector Auto-regressive (VAR) of order p, denoted VAR (p) often represented as:

 * (4)*

Where,  is a vector of both  and ;  representing the dependent variables of the different models,  is the vector of matrix representing a set of explanatory variables. The principle is that must be an I(1) variable, but the regressor  can either be I(0) or I(1).

According to Noman (2014), ARDL was developed to accommodate current and previous lags of the dependent variable (AR) while various distributive lags of the explanatory variables (DL). In its basic form, an ARDL regression model looks thus:

 * (5)*

Where  is the dependent variable,  is an explanatory variable, and  is a disturbance error term. The model is autoregressive because is explained (in part) by lagged values of itself. Also, it has a distributed lag component in the form of successive lags of the ‘x’ explanatory variable. Sometimes, the current value of  itself is excluded from the distributed lag part of the model’s structure. In this study, the dependent variable which is non-oil export is measured using four (4) different indicators: total non-oil export (TNOE), non-oil export as a percentage of GDP (TNOE/GDP), non-oil export as a percentage of total export (TNOE/TE) and Growth rate of non-oil export (GR\_TNOE). The explanatory variables are the vector of the variables that include: commercial banks’ credit to non-oil exporters (CBEC), real exchange rate (EXCR), monetary policy rate (MPR), inflation rate (INFR), openness to trade (OPEN) and real gross domestic product (RGDP)

The functional relationship between each of the total non-oil export performance indicators TNOE and the explanatory variables is specified as follows*:*

 *(6)*

  (7)

  (8)

  (9)

Mathematically, the econometric specification of the ARDL for the above relation is shown as:









The short-run estimate from the error correction mechanism derived from the long-run relationship is presented as follows:









where **** represents the first difference operator;  is a white-noise disturbance error term; *t* is the time; *i* denotes the lag(s) being considered;  and  are parameter coefficients to be estimated in the long-run and short-run respectively; ECT is the error correction term, and is the ECT coefficient, which must be negative, less than zero and significant sign for causality to exist in the long-run. Furthermore, the ARDL bounds test approach for the long-run relationship was based on the Wald test (F-statistic), by imposing restrictions on the long-run estimated coefficients of one period lagged level of each of the explanatory variables to be equal to zero, that is, for equations (14-17).

Table 1: Variables Definition and Measurements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables abbreviation | Variables explanation | Measurement/proxy | Expected signs | Data sources |
| TNOE | Total non-oil export | Total non-oil export |  | CBN |
| TNOE/GDP | non-oil export as a percentage of GDP | Total non-oil export divided by RGDP |  | Computed  |
| GR\_TNOE | Growth rate of non-oil export (%) | Computed using elasticity approach |  | Computed  |
| TNOE/TE | non-oil export as a percentage of total export | Total non-oil export divided by total export |  | Computed  |
| TEX | Total export | Value of total export |  | CBN |
| CBEC | commercial banks’ credit to non-oil exporters | commercial banks’ credit to non-oil exporters | + | CBN |
| GR\_CBEC | growth rate of commercial banks’ non-oil export credit | growth rate of commercial banks’ non-oil export credit | + | Computed  |
| EXCR | Exchange rate  | Monthly Average Official Exchange Rate of the Naira (N/US$1.00) | + | CBN |
| MPR | Monetary policy rate | Money market interest rate (%) | - | CBN |
| INFR | Inflation rate | Annual average growth rate of consumer price index | - | UNCTAD |
| OPEN | Trade openness | Sum of exports and imports of goods and services as % of GDP | + | WDI |
| RGDP | Real gross domestic product | Gross Domestic Product at 2010 Constant Basic Prices - Annual1 (₦' Billion) | + | CBN |

Source: Author’s compilation.

3.2 Estimation Techniques and Procedures

The approach adopted in this study is the Autoregressive Distributive Lags (ARDL), developed by Pesaran et al (2001). Also, ARDL bounds testing approach is more suitable and provides better results for small sample size.

The processes to this estimation procedure begin with the examination of the stochastic properties of the data in which descriptive statistics and unit root test are performed. The unit root test is necessary in order to avoid a spurious regression that may give a good fit and predict a statistical significance relationship between variables where none really exist (Mahadeva and Robinson, 2014). The variables used for the analysis are subjected to two unit root tests so as to determine stationary or non-stationary of the series. The three unit root tests include the Augmented Dickey Fuller (ADF), the Phillip-Perron (PP) and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests. In each of the ADF and PP tests adopted, two models were considered viz, with constant and constant with linear trend to determine whether each of the variables in the model has unit root (non-stationary) or do not have unit root (stationary series). This is to test against the null hypothesis that there is the presence of unit root.

3.3 Measuring Non-oil Export Performance

Several indicators have been identified in the literature for measuring non-oil exports performance: Total non-oil export, non-oil export as a percentage of total export, growth rate of non-oil export (%) and non-oil export as a percentage of GDP. This study assessed the impact of export credit on the four indicators identified for measuring non-oil export performance. Apart from total non-oil export, the other three indicators are not available in any of the data sources but computed by the researcher. For instance, the growth rate of non-oil export was computed using elasticity approach while non-oil export as percentage of total export was derived by dividing the total non-oil export by total export. Also, non-oil export as a percentage of GDP was derived by dividing the total non-oil export by real GDP value. The study utilizes time series data covering the period 1981 to 2021 for which data are available. The data were sourced from Central Bank of Nigeria (CBN), World Development Indicators (WDI), and United Nations Conference on Trade and Development (UNCTAD) databases.

4.0 Results and Discussions

4.1 Descriptive Analysis

This sub-section discusses the statistical properties of the variables used for the analysis. Table 2 presents the descriptive statistics of variables in the model for the period (1981-2021). The statistics presented consist of mean, median, minimum, maximum, skewness, kurtosis, standard deviation and Jarque-Bera. The average value of TNOE from table 2 is 429731.6 with the maximum of 3207100 and minimum of 203.20 while standard deviation is 710778.8. The average value of TNOE\_GDP, TNOE\_TE and GR\_TNOE are 689.14, 4.988 and 37.331, with a maximum value of 4492.50, 16.107 and 331.78 while a minimum of 1.115, 1.275 and -100.00, respectively.

More so, the mean value of CBEC is 247.13, maximum of 1708.37 and a minimum of 0.107. In addition, EXCR showed an average value of 108.16 with maximum value of 399.96 and a minimum of 0.610. MPR, INFR, OPEN and RGDP had average value of 13.000, 18.872, 32.024 and 37710.4, with maximum value of 26.000, 72.835, 53.277 and 72393.6 while minimum value of 6.000, 5.402, 9.135 and 16048.3, respectively for the period under consideration.

Moreover, normality tests reported include: kurtosis, skewness and jarque-Bera are reported. For skewness test which measures the asymmetry of the distribution of the series, the test shows that all the variables except OPEN are positively skewed as skewness statistics for each of these variables is greater than zero. The kurtosis statistics which measures the peakedness or flatness of the distribution of the series indicates that all the variables except TEX, OPEN and RGDP are highly leptokurtic since their kurtosis values are greater than 3. Finally, the Jarque-Bera test is statistically significant for all the variables except OPEN. This implies that the null hypothesis of normality for these variables can be rejected.

Table 2: Descriptive Analysis

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Mean | Median | Max | Min | Std. Dev | Skewness | Kurtosis | Jarque-Bera | Observations |
| TNOE | 429731.6 | 34070.2 | 3207100 | 203.20 | 710778.8 | 2.224 | 8.094 | 78.158\*\*\* | 41 |
| TNOE/GDP | 689.14 | 142.97 | 4492.50 | 1.115 |  1004.75 | 1.974 | 7.044 | 54.587\*\*\* | 41 |
| GR\_TNOE | 37.331 | 18.059 | 331.78 | -100.00 | 84.71 | 1.964 | 7.014 | 53.895\*\*\* | 41 |
| TNOE/TE | 4.988 | 4.241 | 16.107 | 1.275 | 3.336 | 1.364 | 4.915 | 18.990\*\*\* | 41 |
| TEX | 5715124 | 1867954 | 19910534 |  7502.5 | 6515761 | 0.787 | 2.216 | 5.289\* | 41 |
| CBEC | 247.13 | 26.709 |  1708.37 |  0.107 |  475.62 | 1.741 |  4.472 |  24.429\*\*\* | 41 |
| GR\_CBEC | 157.77 | 15.849 |  5415.52 | -100.00 | 844.95 | 6.092 |  38.419 | 2396.77\*\*\* | 41 |
| EXCR | 108.16 | 111.94 | 399.96 |  0.610 | 109.91 | 0.972 | 3.172 | 6.519\*\* | 41 |
| MPR | 13.000 | 13.000 | 26.000 | 6.000 | 3.959 | 0.734 | 4.542 | 7.750\*\* | 41 |
| INFR | 18.872 | 12.884 | 72.835 | 5.402 | 16.678 | 1.860 | 5.317 | 32.832\*\*\* | 41 |
| OPEN | 32.024 | 33.719 |  53.277 | 9.135 | 12.155 | -0.308 | 2.286 | 1.520 | 41 |
| RGDP | 37710.4 | 26658.6 | 72393.6 |  16048.3 | 20309.8 | 0.575 | 1.704 | 5.128\* | 41 |

Note: \*\*\* implies significant at 1%, while \*\* implies significant at 5% and \* significant at 10%.

*Source*: Author’s Computation, 2023.

4.2 Stationarity Test

The variables and estimation techniques were subjected to series of diagnostic tests to ensure that the results obtained are not misleading. For unit root test, three conventional unit root tests were considered: The Augmented Dickey Fuller (ADF), the Philips Perron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests.

In testing the time series properties of the variables, a univariate regression was performed in which these variables were subjected to unit root tests. This is done to determine whether each of these is stationary or not. This study used three of the conventional unit root tests: The Augmented Dickey Fuller (ADF), the Philips Perron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests. The null hypothesis of both constant only and constant and linear trend were considered. The null hypothesis in the ADF and PP test is that there is presence of unit root in the series while that of the KPSS is the there is stationarity. Following the summary results of the unit root tests presented in Table 3, it is clearly shown that the variables considered are a mixture of stationary I(0) and non-stationary I(1) series. Given this situation, there is therefore a need for long-run relationship among the variables in each of the models, which necessitate the use of ARDL.

Table 3: Conventional Unit Root Tests

|  |
| --- |
| At Levels |
|  | ADF | PP | KPSS |
|  | Intercept only | Intercept and trend | Intercept only | Intercept and trend | Intercept only | Intercept and trend |
| TNOE | 0.439178 | -1.255934 | -0.041196 | -2.670672 |  0.639410\*\* |  0.214386\*\* |
| TNOE/GDP | 0.200273 | -1.639971 | -1.013162 | -3.008677 | 0.679783\*\* |  0.208056\*\* |
| GR\_TNOE | -7.303101\*\*\* | -7.498571\*\*\* | -7.737419\*\*\* | -15.46028\*\*\* | 0.303523 | 0.244549\*\*\* |
| TNOE/TE | -1.355187 | -2.142935 | -1.121773 | -2.142935 | 0.491501\*\* |  0.205237\*\* |
| TEX | -0.278998 | -2.686605 |  0.482339 | -2.460010 |  0.723067\*\* |  0.189546\*\* |
| CBEC | 1.062224 | -0.427510 |  2.328154 |  0.183572 |  0.524078\*\* |  0.177550\*\* |
| GR\_CBEC | -6.470382\*\*\* | -6.508660\*\*\* | -6.472185\*\*\* | -6.525796\*\*\* |  0.145721 |  0.058141 |
| EXCR | 1.747836 |  0.068481 |  2.328774 | -0.134295 |  0.740269\*\*\* |  0.166736\*\* |
| MPR | -3.334522\*\* | -3.338263\* | -3.295308\*\* | -3.256928\* | 0.133517 |  0.126279\* |
| INFR | -3.579801\*\* | -4.083553\*\* | -2.846080\* | -2.925601 | 0.315763 | 0.095991 |
| OPEN | -2.376165 | -2.295313 | -2.286118 | -2.295313 |  0.306963 | 0.206774\*\* |
| RGDP | 0.569521 | -1.975137 |  1.050947 | -2.258277 |  0.725938\*\* | 0.187363\*\* |
| At First Difference |
| TNOE | -10.78887\*\*\* | -11.11312\*\*\* | -11.70864\*\*\* | -22.17646\*\*\* |  0.403205\* |  0.275693\*\*\* |
| TNOE/GDP | -10.51466\*\*\* | -10.72246\*\*\* | -11.94146\*\*\* | -21.34809\*\*\* |  0.382314\* |  0.219818\*\*\* |
| GR\_TNOE | -12.32454\*\*\* | -12.19976\*\*\* | -36.44267\*\*\* | -47.13603\*\*\* | 0.407024\* |  0.246974\*\*\* |
| TNOE/TE | -8.053054\*\*\* | -8.099939\*\*\* | -8.652442\*\*\* | -10.45492\*\*\* | 0.267970 |  0.248442\*\*\* |
| TEX | -5.657721\*\*\* | -5.960917\*\*\* | -6.862898\*\*\* | -11.65477\*\*\* | 0.500000\*\* |  0.396548\*\*\* |
| CBEC | -6.420244\*\*\* | -7.131135\*\*\* | -6.420244\*\*\* | -7.552387\*\*\* |  0.446064\* | 0.142839\* |
| GR\_CBEC | -7.229115\*\*\* | -7.131954\*\*\* | -38.73200\*\*\* | -39.30071\*\*\* |  0.500000\*\* |  0.500000\*\*\* |
| EXCR | -4.074830\*\*\* | -4.776618\*\*\* | -4.074830\*\* | -4.776618\*\* | 0.528225\*\* |  0.098457 |
| MPR | -8.742246\*\*\* | -8.747581\*\*\* | -9.122003\*\*\* | -8.876662\*\*\* | 0.080391 | 0.056577 |
| INFR | -6.402805\*\*\* | -6.304983\*\*\* | -10.23580\*\*\* | -10.86544\*\*\* | 0.500000\*\* |  0.500000\*\*\* |
| OPEN | -7.697821\*\*\* | -7.750086\*\*\* | -8.394086\*\*\* | -11.31731\*\*\* | 0.215298 |  0.158656\*\* |
| RGDP | -3.288313\*\* | -3.538102\*\* | -3.152798\*\* | -3.455718\* |  0.429014\* | 0.136771\* |

Source: computed. Note: the optimal lag selection for ADF is based Schwarz Information criterion with maximum lag at 1, while the spectral estimation of PP and KPSS are based on Bartlett kernel default. \*\*\*, \*\* and \* indicate significant at 1%, 5% and 10%, respectively.

Table 4: Summary Results and Decision for Conventional Unit Root Tests at Levels

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Method | ADF | PP | KPSS | Decision |
| TNOE | I(1) | I(1) | I(1) | I(1) |
| TNOE/GDP | I(1) | I(1) | I(1) | I(1) |
| GR\_TNOE | I(0) | I(0) | I(0) | I(0) |
| TNOE/TE | I(1) | I(1) | I(1) | I(1) |
| TEX | I(1) | I(1) | I(1) | I(1) |
| CBEC | I(1) | I(1) | I(1) | I(1) |
| GR\_CBEC | I(0) | I(0) | I(0) | I(0) |
| EXCR | I(1) | I(1) | I(1) | I(1) |
| MPR | I(0) | I(0) | I(0) | I(0) |
| INFR | I(0) | I(0) | I(0) | I(0) |
| OPEN | I(1) | I(1) | I(1) | I(1) |
| RGDP | I(1) | I(1) | I(1) | I(1) |

Source: computed from Table 3.

Note: The decision made in each of the tests is based on the estimation results with consideration to constant only and intercept and trend. I(0) represents stationary of a variable (i.e. significant at level) while I(1) denotes non-stationary (i.e. not significant at level).

In using ARDL approach, there is also a need to determine the optimal lag length using five different information criteria which are: Akaike Information Criterion (AIC), Schwartz Information Criterion (SIC), Hannan-Quinn Information Criterion (HQ), Final Prediction Error (FPE) and Sequential Modified LR test Statistic. From the result presented in Table 5, the optimal lag length suggested for the stochastic equation is two, i.e., p\* = 2 is chosen.

Table 5: Maximum lag length table

|  |
| --- |
| VAR lag order selection criteria Endogenous variables:  *TNOE TNOE/GDP GR\_TNOE TNOE/TE CBEC MPR MPR INFR EXCR OPEN RGDP* |
| Lag | LogL | LR | FPE | AIC | SC | HQ |
| 0 | -3268.252 | NA  | 1.85e+58 | 168.2180 | 168.7299 | 168.4017 |
| 1 | -2878.115 | 520.1821 | 8.37e+52 | 155.5956 | 162.2499 | 157.9831 |
| 2 | -2464.407 | 297.0214\* | 1.04e+48\* | 141.7644\* | 154.5611\* | 146.3558\* |

Source: Computed. Note: \* indicates lag order selected by the criterion.

4.3 Bound Test

To determine the existence of long-run relationship between export credit and non-oil export performance, a co-integration analysis is performed using ARDL bounds test. In the case, the null hypothesis of no co-integration  is tested. In the models (total non-oil export, and growth rate of total non-oil export and total non-oil export as % of GDP), the results in Table 6 depict that the Wald F-statistic of 3.55 and 3.48 fall above both the upper and lower critical bounds of 2.218 and 3.314 at 10% level of significance as established by Pesaran *et al.* (2001). Based on this, we reject the null hypothesis and conclude that there is a long-run relationship between the series in these models for the periods under consideration. Similarly, the model for growth rate of total non-oil export shows that the Wald F-statistic of 7.21 falls above both the upper and lower critical bounds of 2.218 and 3.314 at 1% level of significance. However, the Wald F-statistic for total non-oil as % of total export model only falls above the lower critical bound of 2.22 at 10% level of significance.

Table 6: ARDL bounds test for co-integration analysis

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent variable | LTNOE | TNOE\_GDP | TNOE\_TE | GR\_TNOE |
| F-statistic | Wald F-statistic: 3.558893; K= 6 | Wald F-statistic: 3.479502; K= 6 | Wald F-statistic: 2.959946; K= 6 | Wald F-statistic: 7.209290; K= 6 |
| Bounds level | Lower boundary I(0) | Upper boundary I(1) | Lower boundary I(0) | Upper boundary I(1) | Lower boundary I(0) | Upper boundary I(1) | Lower boundary I(0) | Upper boundary I(1) |
| 1% critical bounds value | 3.505 | 5.121 | 3.505 | 5.121 | 3.505 | 5.121 | 3.505 | 5.121 |
| 5% critical bounds value | 2.618 | 3.863 | 2.618 | 3.863 | 2.618 | 3.863 | 2.618 | 3.863 |
| 10% critical bounds value | 2.218 | 3.314 | 2.218 | 3.314 | 2.218 | 3.314 | 2.218 | 3.314 |

Source: Computed.

Table 7 presents the results of the baseline model adopted. The estimated results reveal that only the lag value of total non-oil export in period one D(LTNOE(-1)) and interest rate are statistically significant in the model. The former has significant positive impact while the latter revealed to have significant negative impact and the two variables are consistent with their expected signs.

Table 7: ARDL Baseline Model Adopted for examining the contributions of Nigerian banks in promoting non-oil exports

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Coefficient | Std. error | t-Statistic | Prob. |
| C | 0.7426 | 0.3204 | 2.3177 | 0.0277 |
| LTNOE(-1) | 0.6704 | 0.1706 | 3.9283 | 0.0005 |
| LTNOE(-2) | 0.2372 | 0.2078 | 1.1416 | 0.2629 |
| LCBEC | 0.0385 | 0.0754 | 0.5108 | 0.6133 |
| INFR | 0.0017 | 0.0020 | 0.8454 | 0.4048 |
| INTR | -0.0162 | 0.0094 | -1.7291 | 0.0944 |
| R-squared 0.977565Adjusted R-squared 0.972150Durbin-Watson stat 2.302202  |

4.4 Long-run analysis of the impact of export credit on non-oil export performance

In testing for the long-run impact of each of the explanatory variables on the dependent variable of concern, models 1-4 in Table 8 show the long-run estimates of the impact being analysed. Specifically, model 1 which is total non-oil export, the estimates reveals that the generated signs for all the significant variables in the model conform with a priori expectations. Of some note are the significant positive impact of commercial banks’ credit to non-oil exporters, openness to trade and real GDP on non-oil export performance. Monetary policy rate has significant negative impact on non-oil export performance. Turning specifically to the relationship between export credit and non-oil export performance, it is clear from Table 8 that provision of commercial banks’ credit to export sector has significantly enhance the performance of non-oil export sector in Nigeria, although the coefficient is low. By implication, the total amount of credit disbursed to export sector is very small. This result corroborates the findings of Akoto and Adjasi (2020) but inconsistent with Okosodo and Imoughele (2019) who reported that poor deposit money bank credit supply to export sector compared to other real sector of the economy such as agriculture, manufacturing and solid minerals could be responsible for poor performance of export sector, in particular. It could also be inferred from the finding that non-oil export performance with relatively low bank export credit elasticity means it is highly susceptible to changes in bank export credit contraction. The finding negatives the result of the baseline model of Elechi et al. (2016) who found no significant impact of commercial banks credit on non-oil exports performance.

The estimated results show that the degree of trade openness which connote a substantial reduction in tariff and non-tariff barriers is found to be an important factor that could enhance Nigeria’s non-oil exports. As shown by the estimates in columns 2, significant positive coefficients of trade openness (OPEN) could signify removal of trade distortions in the economy, thus increase trade gains, such that capital goods required by the non-oil export sector, in particular, agriculture and manufactured sectors would be available. Further, the estimates suggest that an improvement in the degree of trade openness has tendency to boost the performance of Nigeria’s non-oil export performance by about 0.8% as shown in model 1. This finding is in agreement with the result of Feenstra, Li & Yu (2014) who found that credit constraint becomes tighter as the time to ship for exports is lengthened. Significant positive impact of real GDP conforms with theoretical expectations. According to this finding, Nigeria's non-oil export capacity is primarily predicted by its real GDP. A higher GDP implies a greater capacity for production, which translates into the economy's ability to export more (supply-side) to the global market. Considering the long-run impact of MPR on non-oil export, the result shows a significant negative relationship. This connotes that a high interest rate discourages non-oil exporters from approaching the banks for finance to meet their upfront expenses required for exporting activities, thus reducing the volume of Nigeria’s non-oil export to the global market. The result further shows that a 1% reduction in MPR increases Nigeria’s non-oil export performance by 0.06. This result corroborates the findings of Ningi (2013) and Elechi et al. (2016), who found significant negative contribution of interest rate on Nigeria’s non-oil export. The former conducted a survey while the latter used a time-series analysis but both employed OLS technique.

For model 2 which is total non-oil export as percentage of GDP, only RGDP is statistically significant. In the case of model 3 which is total non-oil export as a percentage of total export, only EXCR is positive and statistically significant. This is consistence with the theory and it represents depreciation of Naira against the hard currency and associated with lower cost of trading. By implication, depreciation of Naira favours a producing country as the demand for its products in the foreign market becomes price elastic (i.e. cheaper), and raises the purchasing power of trading partners’ currencies, thus increase the volume of its non-oil export. For instance, the estimates of model 3 in Tables 8 suggest that depreciation of Naira by 1% could bring about 0.05% increase in the volume of Nigeria’s non-oil exports.

In the case of model 4 which is the growth rate of total non-oil export, none of the significant variables in the model conform with a priori expectations (See column 5 of Table 8). Both commercial banks’ credit to non-oil exporters and openness to trade has significant negative impact on non-oil export performance while monetary policy rate has significant positive impact. The high cost of financing, which mostly prohibits non-oil exporting enterprises from modernizing out-of-date facilities and machinery, can be the cause of the significant negative coefficient of commercial banks' loan to non-oil exporters. This causes low quality goods for non-oil exports. In addition, low amount disbursed to non-oil export sector significantly contribute to its low growth over time.

Table 8: ARDL long-run coefficients estimate

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1 | **Model 2** | Model 3 | Model 4 |
| Variables | LTNOE | TNOE/GDP | TNOE/TE | GR\_TNOE |
| LCBEC/CBEC | 0.329 (0101)\*\*\* | 2.427 (1.728) | 3.864 (4.106) | -0.240 (0.081)\*\*\* |
| LEXCR/EXCR | -0.017 (0.198) | -1.050 (7.126) | 0.051 (0.027)\* | 0.592 (0.372) |
| MPR | -0.061 (0.021)\*\*\* | 16.424 (27.202) | -0.411 (0.645) | 9.356 (5.365)\* |
| INFR | 0.009 (0.006) | -9.258 (6.313) | -0.097 (0.124) | -0.395 (1.037) |
| LOPEN/OPEN | 0.882 (0.365)\*\* | 18.229 (14.835) | -0.349 (0.276) | -4.629 (1.562)\*\*\* |
| LRGDP/RGDP | 3.138 (0.425)\*\*\* | 0.038 (0.017)\*\* | -13.605 (13.617) | 0.002 (0.001) |
| C | -25.228 (4.805)\*\*\* | -1121.07 (620.60)\* | 155.24 (148.43) | 26.843 (55.154) |

Source: Computed. Note: \*\*\* implies significant at 1%, while \*\* implies significant at 5% and \* significant at 10%. Figures in Parenthesis are the t-statistic.

4.5 Short-Run Analysis of the impact of export credit on non-oil export performance

The diagnostic test results for each model show no serial autocorrelation, as evidenced by Durbin-Watson statistics of 2.00, 2.24, 1.98, and 2.04, respectively. This is supported by the probability of the Breusch Godfrey serial correlation LM test of 0.37, 0.66, 0.48, and 0.14, respectively. The heteroskedasticity test for each model yields values of 1.32, 0.19, 0.003, and 1.22, respectively, with probabilities of 0.26, 0.67, 0.95, and 0.28. This indicates the presence of homoscedasticity in each model's series. Ramsey Reset stability tests with probability values of 0.15, 0.00, 0.98, and 0.01 indicate that all models are stable except for non-oil export as a percentage of GDP and non-oil export growth rate (%).This indicates that the value of non-oil exports as a percentage of GDP and the rate of growth of non-oil exports in Nigeria have been fluctuating over time. The results of R-squared are 0.67, 0.72, 0.58 and 0.74, respectively. This connotes that in the short-run, changes in total non-oil export, non-oil export as a percentage of total export, growth rate of non-oil export (%) and non-oil export as a percentage of GDP are accounted for by the variation in commercial banks’ credit to non-oil exporters, exchange rate, monetary policy rate and openness to trade.

Table 9 Column 2 shows the results of short-run dynamics of the impact of export credit on non-oil export performance in Nigeria. The ECM term of -0.741, -0.137, -0.225 and -1.237 for models 1-4 in Table 9 had negative sign, less than zero and statistically significant. The estimates support the existence of a long-run relationship among the variables.

It is observed from column 2 in Table 9 that commercial banks’ credit to non-oil exporters D(LCBEC), openness to trade D(LOPEN), the lag value of OPEN in period two D(LOPEN(-2)) and D(LRGDP) have significant positive impact on non-oil export in the short-run., and as well conform with their theoretical underpinning. These results are similar to the long-run estimates. For instance, the significant positive impact of commercial banks credit connotes that the performance of the non-oil export sector might be greatly enhanced by adequate provision of commercial banks' credit. The short-run estimates also show that an increase in Nigeria's degree of trade openness could result in sizable trade gains. Furthermore, a positive GDP coefficient indicates that Nigeria's potential to enhance its production capacity may result in a rise in the volume of non-oil exports to the global market.

Looking at model 2 which is total non-oil export as percentage of GDP, the estimates shows that only D(LRGDP) has significant positive impact and bears the expected sign. However, the lag value of total non-oil export as percentage of GDP in period one D(TNOE\_GDP(-1)), exchange rate D(EXCR) and its lag value in period one D(EXCR(-1)), commercial banks’ credit to non-oil exporters D(LCBEC) and its lag value in period one D(LCBEC(-1)) and lag value of RGDP in period one D(RGDP(-1)) all have significant negative impact and do not conform with the expected signs. Of particular interest, significant negative impact of commercial banks’ credit to non-oil exporters D(LCBEC) and its lag value in period one D(LCBEC(-1)) could be ascribed to insufficient funds allocated to non-oil export sector, while certain portion of the funds is diverted elsewhere, preventing the right beneficiaries from benefiting. Of course, this has a negative impact on Nigeria's non-oil export sector.

Considering total non-oil export as percentage of total export, the estimates in model 3 reveal that none of the significant explanatory variables in the model bears the expected sign. In the case of growth of total non-oil export, the estimates in model 4 reveal that lag of monetary policy rate in period one D(MPR(-1)) has significant negative impact while lag value of openness to trade in period one D(LOPEN(-1)) has significant positive impact and are conform with apriori expectations. Contrarily, D(LRGDP) has significant negative impact and does not bear the expected sign.

Table 9: Short-run and error correction representation of the selected ARDL model

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1 | Model 2 | Model 3 | Model 4 |
| Variables | LTNOE | TNOE/GDP | TNOE/TE | GR\_TNOE |
| D(TNOE\_GDP(-1)) | - | -0.296 (0.118)\*\* | - | - |
| D(TNOE\_TE(-1)) | - | - | -0.308 ((0.146)\*\* | - |
| D(EXCR) | - | -12.918 (3.663)\*\*\* | -0.051 (0.017)\*\*\* | - |
| D(EXCR(-1)) | - | -12.462 (4.574)\*\* | -0.056 (0.021)\*\* | - |
| D(LCBEC) | 0.115 (0.063)\* | -0.342 (0.352) | -0.186 (0.314) | -0.119 (0.074) |
| D(LCBEC(-1)) | - | -1.429 (0.420)\*\*\* | - | - |
| D(INFR) | - | 0.712 (4.090) | 0.040 (0.018)\*\* | - |
| D(MPR) | - | - | -0.004 (0.080) | -4.988 (3.752) |
| D(MPR(-1)) | - | - | 0.248 (0.095)\*\* | -7.957 (4.128)\* |
| D(LOPEN) | 0.799 (0.178)\*\*\* | - | -0.021 (0.037) | -1.906 (1.559) |
| D(LOPEN(-1)) | 0.022 (0.185) | - | - | 4.967 (1.607)\*\*\* |
| D(LOPEN(-2)) | 0.451 (0.187)\*\* | - | - | - |
| D(LRGDP) | 6.919 (0.988)\*\*\* | 0.128 (0.053)\*\* | - | -0.019 (0.006)\*\*\* |
| D(RGDP(-1)) | - | -0.137 (0.057)\*\* | - | - |
| ECM(-1) | -0.741 (0.123)\*\*\* | -0.137 (0.056)\*\*\* | -0.225 (0.040)\*\*\* | -1.237 (0.144)\*\*\* |
| R-square:Dubin-Watson statLM testHeteroskedasticity test: ARCH(1)Ramsey RESET test | 0.6672.0010.37(0.69)1.32(0.26)2.19(0.15) | 0.7212.2460.66(0.53)0.19(0.67)9.60(0.00) | 0.5831.9880.48(0.62)0.003(0.95)0.01(0.98) | 0.7392.0460.14(0.87)1.22(0.28)3.04(0.01) |

Source: Computed. Note: \*\*\* implies significant at 1%, while \*\* implies significant at 5% and \* significant at 10%. Figures in Parenthesis are the standard error.

4.6 Granger Causality Test

The granger causality test results presented in Table 10 is conducted to determine the direction of causal relationship between commercial banks’ export credits and non-oil exports performance in Nigeria. The result shows that there is a bi-directional causality between commercial banks’ export credits and total non-oil export (TNOE). This implies that Nigeria’s non-oil export and its growth is significantly influenced by commercial banks’ export credit (CBEC). This result is inconsistent with the findings of Elechi et al. (2016) who found no causality exists between commercial banks credit and non-oil exports performance in Nigeria. Also, the result shows the existence of bi-directional causality between EXCR and TNOE. This implies that Nigeria’s non-oil export performance is significantly influenced by the exchange rate. This further confirms the empirical findings that the exchange rate is an important determinant that either enhances or constrains non-oil exports in Nigeria. In addition, the result shows the existence of bi-directional relationship between RGDP and total non-oil export. This is expected because real GDP measures the size of the economy and non-oil export which is an activity sector constituted by trade is an important segment of GDP. Therefore, the higher the export level created by the non-oil sector, the higher the contribution of non-oil export to the GDP of Nigerian economy. However, between MPR and TNOE, INFR and TNOE, OPEN and TNOE, there exists no causal relationships. This is an indication that monetary policy rate (MPR), inflation rate (INFR), and trade openness (OPEN) do not have a significant impact on the performance of non-oil export in Nigeria.

Table 10: Result of Granger causality test

|  |  |  |  |
| --- | --- | --- | --- |
| Null hypothesis | F-Statistic | Probability | Remarks  |
| CBEC does not Granger Cause TNOE | 3.25247 | 0.0510 | Reject |
| TNOE does not Granger Cause CBEC | 6.63110 | 0.0037 | Reject |
| EXCR does not Granger Cause TNOE | 7.27310 | 0.0023 | Reject |
| TNOE does not Granger Cause EXCR | 2.56123 | 0.0920 | Reject |
| MPR does not Granger Cause TNOE | 0.04586 | 0.9552 | Accept |
| TNOE does not Granger Cause MPR | 0.43017 | 0.6539 | Accept |
| INFR does not Granger Cause TNOE | 0.04526 | 0.9558 | Accept |
|  TNOE does not Granger Cause INFR | 0.54918 | 0.5825 | Accept |
|  OPEN does not Granger Cause TNOE | 0.48916 | 0.6174 | Accept |
| TNOE does not Granger Cause OPEN | 0.63349 | 0.5369 | Accept |
|  RGDP does not Granger Cause TNOE | 4.21907 | 0.0231 | Reject |
|  TNOE does not Granger Cause RGDP | 3.33829 | 0.0475 | Reject |

*Source:* Author’s computation

5.0 Conclusion and Policy Recommendations

It is evident from the analysis that increase bank export credit, improvement in the degree of trade openness, improvement in GDP measured by the size of the economy and reduction in monetary policy rate have significant impact on the performance of non-oil export sector. Based on the findings of this study, the policy recommendations derived from this study are as follows: Nigerian government should intensify its efforts to increase bank export credit. This could be done through its relevant agencies such as the CBN, commercial banks, NEXIM, and SMEDAN to provide adequate finance, increase credit allocation, and implement policies aimed at promoting financial services accessibility to ensure efficient distribution of credit to non-oil export sector. The efforts should be accompanied with other complementary strategies that could enhance the growth of non-oil export sector, in particular, both in the short and long-runs. One major findings of the study is that trade liberalization increases trade gains while trade restrictions reduce such gains. Thus, it is therefore important that the Nigerian government, through the Federal Ministry of Industry, Trade and Investment (FMITI), implement policies that eliminate trade barriers while promoting policies that lead to the country's exceptional advancement. It is important to understand that the rate at which the CBN rediscounts to commercial banks and other financial intermediaries determine the lending rate these institutions can give loan to beneficiaries in the non-oil export sector. There is therefore a need for the monetary authority to reduce the MPR from its current rate of 11.5% to a range below 5%. This will help reducing commercial banks transaction and other administrative charges and thus reducing the interest rate on credit available to non-oil export sector.

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**Conflict of Interest**

The author declares that there is no conflict of interest

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