Deposit Money Bank Credit and Non-Oil Export in Nigeria

Abstract: The non-oil sectors play a crucial role in driving industrial transformation and generating foreign exchange for a nation. Therefore, the performance of this sector is influenced by the implementation of policies and programs, as well as the availability of credit facilities from deposit money banks (DMBs). This study examines the relationship between DMBs' credit and non-oil exports in Nigeria from 1986 to 2022. The data is analysed using the bounds test co-integration procedure of Autoregressive Distributed Lag (ARDL). The results indicate that there is a significant (Prob. < 0.05) positive relationship between DMBs' credit and exchange rates. Furthermore, DMBs' lending rate and inflation rate demonstrate a significant negative relationship, while gross fixed capital formation shows an inverse relationship with non-oil exports in Nigeria. The causality test reveals no causality between bank credit to non-oil sectors, exchange rate, and the volume of non-oil exports in Nigeria. However, there is a unidirectional causality between gross fixed capital formation, the lending rate of banks, the inflation rate, and non-oil exports in Nigeria. Based on these findings, it is recommended that both the government and the monetary authorities make concerted efforts to stabilise the macroeconomic variables and promote growth-oriented programs meant to boost the aim of enhancing the production of locally produced goods in the non-oil sectors of Nigeria. Additionally, the Central Bank of Nigeria should consider reducing the bank rate, as this would directly impact other rates within the country.

Keywords: Non-oil sector, deposit money bank credit, lending rate, exchange rate, inflation rate.

1. Introduction

One cannot deny the fact that the Nigerian economy relies heavily on crude oil, which has recently diminished in importance due to unprecedented socio-political and economic unrest, resulting in a significant reduction in government revenue. Recognising this, the government and economic planners have implemented policies and programs aimed at reducing dependence on crude oil exports in order to revive non-oil exports. Promoting the non-oil sector to improve Nigeria’s export portfolio is crucial for achieving inclusive and sustainable growth and development (Magaji et al., 2023). According to Gbarato et al. (2020), exports are essential for expanding a nation's production capacity. Export expansion increases revenue, creates more jobs, stimulates economic growth, and addresses imbalances in the balance of payments.

Non-oil exports are derived from countries that also produce oil. Gbarato et al. (2020) define non-oil exports as all other products and services produced for exportation, excluding crude oil. Non-oil exports in Nigeria encompass various sectors such as agriculture, solid minerals, industries, information and communication technology (ICT), trade services, financial services, and transport services, all of which yield economic benefits for the nation. Non-oil exports provide the impetus for sustainable growth and development by generating foreign exchange for the purchase of imports. Riti et al. (2016) confirmed that non-oil exports in Nigeria encompass all economic sectors outside the petroleum and gas industry, with no connection or relation to them.

To achieve noteworthy progress in the non-oil sector, it is crucial to provide affordable and sufficient credit facilities through financial institutions. As key financial institutions, deposit money banks play a vital role in revitalising the struggling economy, particularly in developing countries. Nigerian
banks, as financial institutions recognised internationally, support the export sectors through the provision of short and medium-term loans to manufacturing, agriculture, industries, and other trading sectors (Elechi et al., 2016). Banks also serve as financial institutions that guarantee payment to exporters. Okosodo and Imoughele (2019) define bank credit as money granted to another party for future payment.

Prior to the large-scale exploration of crude oil in Nigeria, agriculture was the dominant non-oil sector, supported by manufacturing, communication, transportation, real estate construction, and tourism, among others (Awoyele et al., 2020). However, despite numerous government efforts to boost Nigeria's non-oil exports in the past three decades, there has been limited steady progress. Specifically, Onuegbu et al. (2022) noted that the non-oil sector has yet to make significant contributions to the gross domestic product and export earnings. The oil sector, which accounted for over 90% of earned aggregate exports and more than 80% of government revenue by the end of the 1970s, continues to follow the same trend. This means that any disruption in the international oil market significantly impacts Nigeria's economy.

Furthermore, previous studies have produced mixed findings regarding the impact of deposit money bank credit on non-oil exports. For example, Muchingami et al. (2017) and Monsef et al. (2017) provided evidence supporting a positive relationship between the two variables, while Okosodo and Imoughele (2019) claimed that bank credit does not affect non-oil exports. Therefore, further research is needed to examine the effect of deposit money bank credit on non-oil exports in Nigeria.

2. Literature Review

This section provides a comprehensive review of empirical studies on the relationship between deposit money bank credit and non-oil exports at the local and international levels. This section is essential as it examines previous research to identify the existing gap that needs to be addressed.

Magaji et al. (2023) conducted a study on the impact of banking sector credit on the real sector of the Nigerian economy. The study analysed data from 1986 to 2019 using the Autoregressive Distributed Lag method. The findings revealed a long-run relationship between bank credit, government capital expenditure, and the real sector. Specifically, bank credit and government capital expenditure had a positive impact, while domestic private investment had a negative impact on the real sector. Onuegbu et al. (2022) examined the influence of bank credit on the output of the agricultural sector in Nigeria. The study utilised data on bank credit, interest rates, government expenditure, and agricultural credit guarantee funds from 1988 to 2021. The ordinary least squares method was employed for analysis. The findings indicated that, apart from interest rates, all other variables exhibited a significant positive relationship with agricultural sector output in Nigeria.

Alzyadat (2021) investigated the effect of sectoral bank credit on various sectors, including agriculture, mining, health, water, manufacturing, construction, transportation, electricity, retail and wholesale trade, finance, transportation, communication, and services in Saudi Arabia. The study covered the period from 1970 to 2019. The ARDL technique was applied to analyse annual data and establish long and short-run relationships. The results demonstrated that bank credit had a positive and significant effect on non-oil sector output growth in Saudi Arabia. Mukhtarov et al. (2019) conducted a study on the relationship between bank credit and non-oil GDP in Azerbaijan. The study utilised data from 2005 to 2019 and applied the CCR, FMOLS, and DOLS co-integration procedures for analysis. The findings indicated that exchange rates and bank credit significantly influenced non-oil GDP. Aljebrin (2020) conducted a study in Saudi Arabia to investigate whether the non-oil sector promotes economic growth. The study utilised data from 1988 to 2014 and employed ordinary least squares for analysis. The results supported the positive impact of the non-oil sector on Saudi Arabia’s economic growth. Additionally, the study found a significant improvement in capital formation and labour growth during the study period.
Akpan et al. (2017) examined the relationship between non-oil exports, economic growth, and financial sector development. The study employed causality tests and the Johansen Co-integration test, using data on private sector credit, lending rates, bank deposits, market capitalisation, and GDP from 1985 to 2015. The results revealed a bi-directional causality, with private sector credit, bank deposits, and market capitalisation influencing economic growth. Furthermore, a unidirectional causal link was observed between lending rates and economic growth. Elechi et al. (2016) investigated the contribution of banks in Nigeria to the promotion of non-oil exports. The study employed Granger causality and co-integration tests, using data from 1990 to 2013. The results showed a long-run relationship between banks' credit and the promotion of non-oil exports, indicating that the contribution of banks to the non-oil export sectors is relatively low. The causality test further confirmed the absence of any causal link between the two variables.

3. Research Methodology

To conduct the examination of deposit money bank credit and non-oil export in Nigeria, data from the period 1986 to 2022 was utilised. The base period chosen for analysis was 1986, which aligns with the era of financial reforms and the introduction of SAP in Nigeria. The year 2022 was included to observe the current prevailing trend regarding the subject matter. The dependent variable was the volume of non-oil export, while the independent variables consisted of DMBs credit to non-oil export, gross fixed capital formation, exchange rate, DMBs lending rate, and inflation rate. The data analysis was performed using the bounds test co-integration procedure of Autoregressive Distributed Lag (ARDL).

To investigate the relationship between deposit money banks' credit and non-oil export growth in Nigeria, this study employed a model similar to the one utilised by Elechi et al. (2016) in their analysis of the impact of banks on non-oil exports. The specification of their model was adopted for this examination:

$$NEP = f(CBCNE, INTR, IFL)$$

Where:

- NEP = Non oil Export Performance
- CBCNE = Commercial Bank Credits to Non oil Export
- INTR = Interest Rate
- IFL = Inflation Rate

The study adopted the model of Elechi et al. (2016) conducted in Nigeria, which examined the non-oil export performance, commercial bank credit to non-oil export, interest rate, and inflation rate. This study focused on the total volume of non-oil exports in Nigeria. Additionally, the inclusion of gross fixed capital formation was justified as it indicates the level of domestic capital that can be directed towards the promotion of exports in Nigeria. The exchange rate was also considered as it plays a crucial role in determining the value of the naira in relation to other currencies.

From the specified model in Equation 1, the study specified its model as:

$$NOEV = f(BCNOS, GFCF, EXGR, BLR, INF)$$

To represent the model in econometric form, equation 2 will be expressed as:

$$NOEV = \gamma_0 + \gamma_1 BCNOS + \gamma_2 GFCF + \gamma_3 EXGR + \gamma_4 BLR + \gamma_5 INF$$

Where:

- NOEV = Volume of Non-oil Export
- BCNOS = Deposit Money Banks Credit to Non-oil Sector
- GFCF = Gross Fixed Capital Formation

Daramola, 2024
EXGR = Exchange Rate  
BLR = Deposit Money Bank Lending Rate  
INFR = Inflation Rate  
\( f \) = Functional Notation  
\( \gamma_1, ..., \gamma_5 \) = Regression Coefficients

4. Presentation of Results

To examine the credit and non-oil exports of deposit money banks in Nigeria, the study begins by establishing whether all variables are normally distributed. This was done using descriptive statistics, including mean, median, kurtosis, Jarque-Bera, skewness, and others, as reported in Table 1.

Table 1: Descriptive for variables

<table>
<thead>
<tr>
<th>NOEV</th>
<th>BCNOS</th>
<th>GFCF</th>
<th>EXGR</th>
<th>BLR</th>
<th>INFR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>11.22002</td>
<td>11.38493</td>
<td>7.957275</td>
<td>4.248701</td>
<td>2.909063</td>
</tr>
<tr>
<td>Median</td>
<td>11.45928</td>
<td>11.48019</td>
<td>8.254850</td>
<td>4.835337</td>
<td>2.906491</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>2.421047</td>
<td>2.198297</td>
<td>1.702027</td>
<td>1.389475</td>
<td>0.199689</td>
</tr>
<tr>
<td>Skewness</td>
<td>-0.199103</td>
<td>-0.015260</td>
<td>-0.451264</td>
<td>-1.114902</td>
<td>-0.136780</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>1.823180</td>
<td>1.620879</td>
<td>2.134924</td>
<td>3.095654</td>
<td>4.385583</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>2.250897</td>
<td>2.775070</td>
<td>2.279250</td>
<td>7.264217</td>
<td>2.908901</td>
</tr>
<tr>
<td>Probability</td>
<td>0.324507</td>
<td>0.249690</td>
<td>0.319939</td>
<td>0.026460</td>
<td>0.233529</td>
</tr>
</tbody>
</table>

Sources: Authors' Computation (2024).

Table 1 presents the descriptive statistics used to analyse the credit and non-oil exports of deposit money banks in Nigeria. The table provides information on the mean values of various variables, including the volume of non-oil exports, banks' credit to non-oil exports, gross fixed capital formation, exchange rate, deposit money banks' lending rate, and inflation. These mean values are calculated to be 11.22002, 11.38493, 7.957275, 4.248701, 2.909063, and 2.676097, respectively. The standard deviation values in the table indicate the level of discrepancy in the series. It can be observed that the volume of non-oil exports has the highest discrepancy value, while the lending rate of deposit money banks has the lowest discrepancy value. Skewness, which measures the asymmetry or deviation of the variables, reveals that all variables, except the inflation rate, have a negative value, indicating a long left tail. This suggests the presence of outliers in these variables. In contrast, the inflation rate has a long right tail.

Kurtosis, which indicates the flatness and peak of the variables, reveals that the exchange rate and deposit money banks' lending rate have kurtosis values exceeding 3 and are therefore classified as leptokurtic. On the other hand, the volume of non-oil exports, banks' credit to non-oil exports, gross fixed capital formation, and inflation have kurtosis values less than 3, indicating a platykurtic distribution. The normality distribution, as determined by the Jarque-Bera test, indicates that the volume of non-oil exports, banks' credit to non-oil exports, gross fixed capital formation, deposit money banks' lending rate, and inflation are normally distributed, as their probability values exceed 5%. However, the exchange rate is not normally distributed.

4.1 Unit root test

Table 2: ADF unit root test

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF Test at Level</th>
<th>Critical Values at 5%</th>
<th>ADF Test at FD</th>
<th>Critical Values at 5%</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOEV</td>
<td>-1.729560</td>
<td>-2.951125</td>
<td>-6.704632</td>
<td>-2.954021</td>
<td>I(1)</td>
</tr>
<tr>
<td>BCNOS</td>
<td>-0.913231</td>
<td>-2.951125</td>
<td>-6.264238</td>
<td>-2.954021</td>
<td>I(1)</td>
</tr>
<tr>
<td>GFCF</td>
<td>-1.555474</td>
<td>-2.951125</td>
<td>-4.178923</td>
<td>-2.954021</td>
<td>I(1)</td>
</tr>
<tr>
<td>EXGR</td>
<td>-3.432551</td>
<td>-2.951125</td>
<td>NA</td>
<td>NA</td>
<td>I(0)</td>
</tr>
<tr>
<td>BLR</td>
<td>-4.896138</td>
<td>-2.951125</td>
<td>NA</td>
<td>NA</td>
<td>I(0)</td>
</tr>
</tbody>
</table>
Table 2 presents the stationarity results for all variables when considering both the level and first differencing. The results indicate that when considering the variables at the level before differencing, the ADF values of the volume of non-oil export, deposit money banks' credit to non-oil export, and gross fixed capital formation are below the Mackin non-critical value, particularly at an absolute term and a 5% significance level. On the other hand, the opposite is true for variables such as the exchange rate, deposit money banks' lending rate, and inflation rate. To ensure that the variables, which are not stationary in their original form at the level, become stationary, it is necessary to take the first difference of these variables. The results further reveal that the volume of non-oil export, deposit money banks' credit to non-oil export, and gross fixed capital formation all become stationary after being converted into first differencing.

Considering that the unit root test results indicate that the variables used in the analysis have different integration orders, specifically order zero and one, the use of the autoregressive distributed lag (ARDL) approach, commonly known as the bound test co-integration approach, is required.

### 4.2 Lag length selection

In light of the unit root outcome suggesting ARDL co-integration, the need to select an appropriate lag length for the study becomes evident. To address this, Vector Autoregressive Estimates were used, as they allow for the examination of the linear relationship between variables and provide information from their lags. The selection of the lag length can be determined through any of the suggested criteria, such as LR, FPE, AIC, SC, or HQ. These criteria are presented in Table 3.

<table>
<thead>
<tr>
<th>Lag</th>
<th>LogL</th>
<th>LR</th>
<th>FPE</th>
<th>AIC</th>
<th>SC</th>
<th>HQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-52.21627</td>
<td>NA</td>
<td>1.24e-06</td>
<td>3.424486</td>
<td>3.693844</td>
<td>3.516345</td>
</tr>
<tr>
<td>1</td>
<td>108.2532</td>
<td>254.8633*</td>
<td>8.48e-10*</td>
<td>-3.897247*</td>
<td>-2.011742*</td>
<td>-3.254236*</td>
</tr>
</tbody>
</table>

Sources: Authors’ Computation (2024).

Based on the suggestions made by LR, FPE, AIC, SC, and HQ lag length, it can be observed that they all recommended using lag one for this estimation. Therefore, this was taken into consideration in formulating the ARDL model and analysing the causality results.

Table 5: Bound test ARDL for NOEV model

<table>
<thead>
<tr>
<th>NOEV Model</th>
<th>Significant @ 5%</th>
<th>F-Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower Bound I(0)</td>
<td>Upper Bound I(1)</td>
</tr>
<tr>
<td></td>
<td>2.39</td>
<td>3.38</td>
</tr>
</tbody>
</table>

Sources: Authors’ Computation (2024).

The F statistics, as indicated in the bound test result, give a value of 50.09499 compared to the 5% significant levels of 2.39 and 3.38 for the lower and upper bound tests, respectively. This indicates that the model has a valid long-run relationship.

Table 6: ARDL long run (a) and short run (b)

(a)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCNOS</td>
<td>1.005057</td>
<td>54.633041</td>
<td>0.0000</td>
</tr>
<tr>
<td>GFCF</td>
<td>-0.065189</td>
<td>-1.592527</td>
<td>0.1238</td>
</tr>
<tr>
<td>EXGR</td>
<td>0.185843</td>
<td>6.641287</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Sources: Authors’ Computation (2024).
Table 6b indicates the short-run relationship among the variables used in the examination of credit and non-oil export in Nigerian deposit money banks. In the first instance, the negative sign of the ECM coefficient supports the expected theoretical sign and indicates that about 74% of the previous year's disequilibrium in the volume of non-oil export has been corrected and incorporated into the long run. This also accounts for the rate or speed of short-run adjustment to the long run.

Since the study confirmed the establishment of a valid long-run co-integration relationship, an effort was made to interpret the long-run results. The results show that credit extended by deposit money banks to non-oil export has a significant positive coefficient of 1.005057 units on the volume of non-oil export in Nigeria. This implies that a unit increase in credit extended to non-oil export will increase the volume of non-oil goods exported to other countries. Similarly, gross fixed capital formation has a coefficient of -0.065189 units, indicating that a unit increase in gross fixed capital formation will decrease the non-oil export volume in Nigeria by 0.065189 units. EXGR has a significant positive relationship of 0.185843 units in the long run. This implies that a unit increase in the favourable exchange rate will increase the non-oil export volume in Nigeria by 0.185843 units. The coefficients of deposit money banks' lending rate and inflation rate are significant and negative, with a value of -0.204526 and -0.026161 units, respectively. This means that a unit increase in banks' lending rate and the inflation rate will lead to a reduction in the volume of non-oil exports in Nigeria by -0.204526 and -0.026161 units, respectively.
Table 7 presents the causality test conducted to analyse the relationship between credit provided by deposit money banks to non-oil sectors and the volume of non-oil exports. The findings indicate that there is no causal relationship between the credit given to non-oil sectors and the non-oil export volume. Similarly, there is no reciprocal causality between EXGR and non-oil export volume. However, a unidirectional causality is observed between gross fixed capital formation and non-oil exports, with the flow of causality from the former to the latter. Additionally, a unidirectional causality exists between the lending rate of banks and non-oil exports, with the influence flowing from the latter to the former. Finally, there is a unidirectional causality between the inflation rate and non-oil exports in Nigeria, with the impact flowing from the latter to the former.

Table 8: ARDL post-estimations

<table>
<thead>
<tr>
<th>Test for Normality</th>
<th>Statistics</th>
<th>Values</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jarque-Bera</td>
<td></td>
<td>1.710232</td>
<td>0.425234</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LM Serial Correlation Test</th>
<th>Statistics</th>
<th>Values</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obs*R²</td>
<td></td>
<td>0.349762</td>
<td>0.9370</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Heteroskedasticity Test</th>
<th>Statistics</th>
<th>Values</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obs*R²</td>
<td></td>
<td>3.422366</td>
<td>0.9051</td>
</tr>
</tbody>
</table>

Sources: Authors’ Computation (2024).

From the three post-estimations carried out, the results showed a normal distribution of the variables, no serial correlation problem, and no heteroscedasticity problem, as their respective p-values exceeded 5%.

5. Discussion of Findings

From the results, it can be observed that credit provided to the non-oil sector by deposit money banks is significant and positively correlated with the volume of non-oil exports in Nigeria. This indicates that financing from deposit money banks serves as a catalyst for non-oil export volume. This is supported by the research of Muchingami et al. (2017) and Monsef et al. (2017) but contradicts the findings of Okosodo and Imoughele (2019), among others.

The results of the gross fixed capital formation reveal a negative relationship with non-oil exports. The negative impact of gross fixed capital formation is attributed to low capital formation resulting from the weakness or inefficiency of the capital market within the economy, which consequently contributes to a low volume of non-oil exports for the country. This contrasts with the research of Aljebrin (2020). Additionally, the exchange rate has a direct and significant impact on non-oil exports. The results imply that a favourable exchange rate enables non-oil export products to compete favourably in the international market, thereby leading to an improvement in non-oil exports. This is supported by the work of Abu (2018).

The lending rate of deposit money banks shows a negative relationship with the volume of non-oil exports. This suggests that the high lending rates charged by banks directly impact production costs. As a result, producers in the non-oil export sector may face challenges in trading their products in the international market, as the cost of goods intended for export from Nigeria would increase. This finding is supported by the research of Alao and Kolawole (2018), Uwakaeme (2017), and John and Terhemba (2016), among others, but contradicts the research of Abu (2018). Furthermore, the inflation rate demonstrates a significant negative relationship with the volume of non-oil exports.
This indicates that instability in macroeconomic variables, such as the inflation rate, hampers non-oil exports. This aligns with the findings of Uwakaeme (2017).

The causality test conducted in this study reveals the absence of causality between credit granted to the non-oil sectors and the volume of non-oil exports. This contradicts the findings of Akpan et al. (2017), who established a bi-directional relationship between banks' credit and non-oil exports in Nigeria. Similarly, there is no causality between the exchange rate and non-oil export volume, while a unidirectional causality exists between gross fixed capital formation and non-oil export, flowing from the former to the latter. There is also a unidirectional causality between the lending rate of banks and non-oil export, flowing from the latter to the former, as well as between the inflation rate and non-oil export in Nigeria, flowing from the latter to the former.

6. Conclusion and Recommendations

The study examined the effect of credit from deposit money banks on non-oil exports in Nigeria. According to the finance-led growth theory, the availability of credit directly affects non-oil exports within an economy. Non-oil sectors are therefore considered important for boosting Nigeria's revenue, especially considering the declining revenue from the oil sector. The results of the study confirm a long-term relationship between credit from deposit money banks and non-oil exports in Nigeria. However, the study concludes that credit provision alone is not sufficient to enhance Nigerian non-oil exports. It should be supported by a stable interplay of macroeconomic variables in the country. Given the high prevailing inflation rate in Nigeria, which hampers non-oil exports, both the government and monetary authorities need to make concerted efforts to ensure macroeconomic stability and promote growth-oriented programs in the agricultural and other service sectors. This will enhance non-oil exports in Nigeria. Additionally, the Central Bank of Nigeria (CBN) can play a vital role by reducing the bank rate, which will directly impact the lending rate offered by deposit money banks for non-oil exports in Nigeria. It is also crucial to develop laws and policies that simplify export procedures and promote economic diversification. This will encourage increased participation in non-oil sectors and expand the country's export base.

7. Declarations

Funding: This research did not receive any external funding.

Acknowledgements: No acknowledgement to make.

Conflicts of Interest: The author declares no conflict of interest.

Data availability: The data for the study can be found in the body of the work. However, more information is available from the corresponding author on request.

References


**Disclaimer:** The views, perspectives, information, and data contained within all publications are exclusively those of the respective author(s) and contributor(s) and do not represent or reflect the positions of ERRCD Forum and/or its editor(s). ERRCD Forum and its editor(s) expressly disclaim responsibility for any damages to persons or property arising from any ideas, methods, instructions, or products referenced in the content.