Exogenous Variables and their Influence on Domestic Credit Provision in Nigeria: Evidence from Quantile Regression

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Abstract

The relevance of domestic credit to an economy has spurred interest in studies that seek to examine the factors that determine it. In this study, the focus is to evaluate the role of exogenous factors in influencing domestic credit provision in Nigeria. The study used a monthly dataset that covered the period from 2007M12 to 2024M5 under the framework of quantile regression. The findings of the study reveal that oil price had a positive and significant impact on domestic credit provision at all the quantiles, while world interest rate had a negative and significant impact on domestic credit provision at the 25th quintile. The exchange rate and bank reserves exerted a positive and significant impact on domestic credit provision at all the quantiles, while the impact of the Treasury bills rate was positive and significant only at the 25th and 50th quantiles. The study suggests that, in regulating credit provision in Nigeria, monetary authorities should closely monitor these exogenous variables as well as exchange rate movement.

Introduction

In an economy that experiences a shortfall in investment funds, credit provision should be an issue of great concern. Nigeria is a typical case where access to funds for investment and other purposes is scarce, prompting the cost of borrowing to be high. The government over the years has put in place several measures to boost credit to the private sector including the increase in the capital base of deposit money banks and selective credit control measures. Despite these measures, there is still a paucity of credits to the domestic economy. The World Bank has defined domestic credit provided by the financial sector to include all the credit extended to various sectors of the economy. The financial institutions that offer these credits include the monetary authorities, deposit money banks and other financial institutions among which are, foreign exchange companies, pension funds and insurance corporations. The growth of domestic credit has been

sluggish over the years as can be seen in Figure 1. Several factors have been fingered to be responsible for the low credit supply in the country. Among these factors are inadequate collateral securities, excessive lending rate, fear of non-performing loans on the part of banks and other lending institutions as well as their apathy towards short-term borrowing. As observed by Ozili & Ndah (2021), volatility in oil receipts and the implementation of unfavourable monetary policy equally play an adverse role. Furthermore, Eseyin *et al.* (2022) noted that both real gross domestic product (GDP) and domestic debt influence credit availability in Nigeria.

Figure 1

Trend in Credit to the Private Sector, in billions of Naira
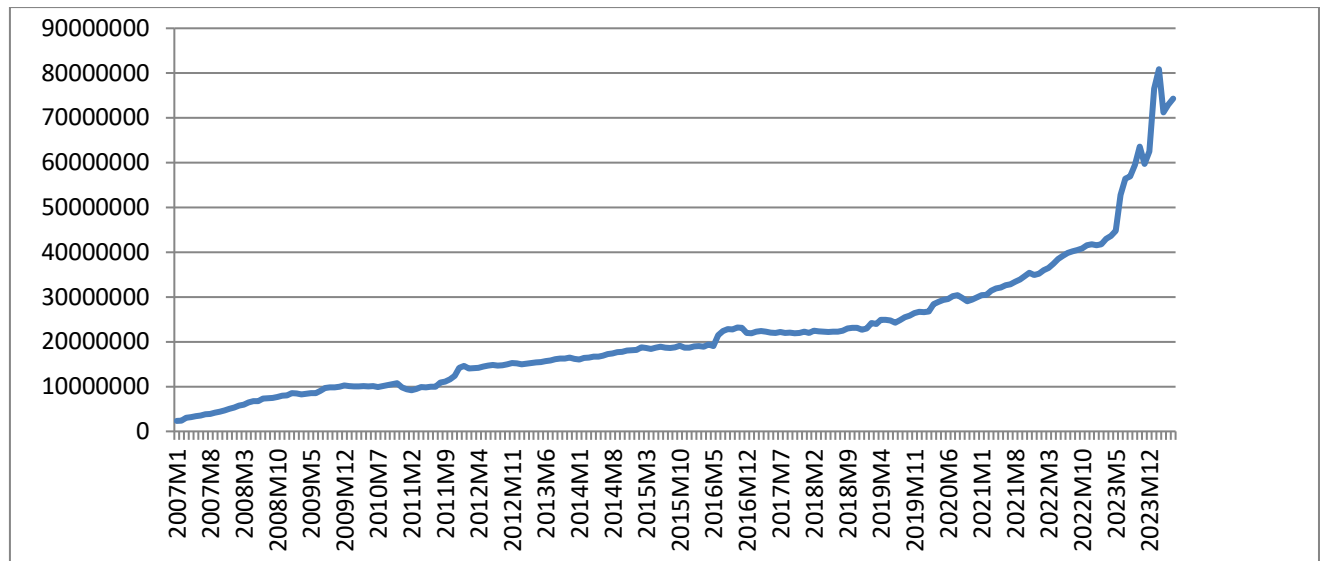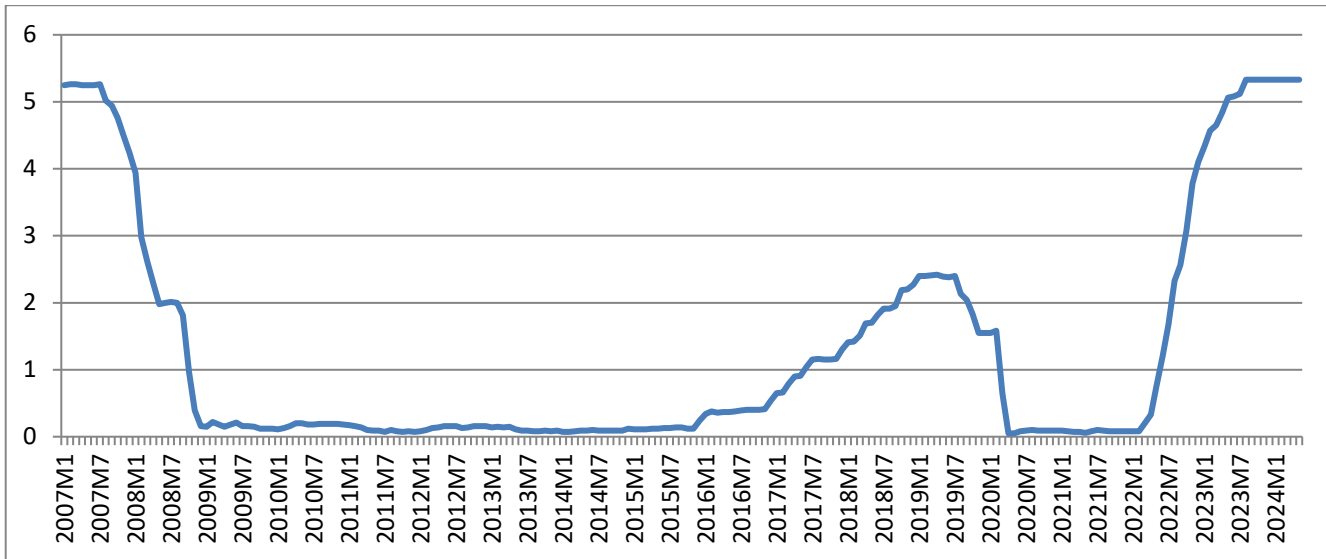

Source: CBN (2024)

It is apposite at this juncture to state that beyond domestic factors, external factors may also influence credit availability in Nigeria since the country is tied to the global financial system through embracing financial liberalization. It is hard these days to identify a country which is an island unto itself. In a nutshell, the influence of some exogenous factors such as world interest rate and volatility in oil prices on domestic credit provision cannot be wished away. Regarding the world interest rate, the hegemonic role of the US in the international monetary system has been crucial in influencing the domestic interest rates of many economies, mainly developing countries. In Figure 2, it is revealed that the US interest rate was flat between 2008 and January 2016. After January 2016 the rate exhibited a rising trend and got to a peak in January 2019 after which it decelerated. Between March 2020 and March 2022, the rate remained flat and then has been accelerating. It should be noted that before 2009, the rate was high and during these periods capital markets across the world experienced much liquidity as US interest rate-bearing investment assets yielded high returns.

However, the bubble burst around 2009, leading to serious repercussions across various financial jurisdictions. It can also be inferred that the effect of the COVID-19 pandemic may have contributed to the flat trend in the rate between March 2020 and March 2022. Arteta, Kamin & Ruch (2022) have observed that in emerging market and developing economies (EMDES), rising US interest rate has led to significant spillovers on borrowing costs. This is equally supported by Miranda-Agrippino & Rey (2020) who revealed that the contractionary monetary policy stance of the US led to a contraction in the supply of global credits. In summary, the tightening of US monetary policy which manifests in rising interest rate has wider implications for credit provisions across global economies.

Figure 2

Trend in World Interest Rate, in percentage, proxy by US interest rate

Source: CBN (2024)

Another exogenous factor that shapes domestic credit provision, especially for oil-dependent countries such as Nigeria is oil price fluctuations. The oil sector has been playing a dominant role in Nigeria's economy ever since the discovery of crude oil in commercial quantity, so much so that it has almost crowded out other sectors of the economy. The volatile nature of oil prices as depicted in Figure 3 is a major source of concern to both monetary and fiscal authorities in the country. In periods of rising oil prices, the reserve position of the country is improved and this rubs off on the liquidity in the banking sector. As a reaction to this, monetary authorities in the country often embark on monetary tightening as they anticipate rising inflation. The implementation of such contractionary monetary policy through an increase in the benchmark monetary policy rate (MPR) and/or increase in the reserve requirement often results in reducing the liquidity position of deposit monetary banks; thus affecting their ability to extend credit. Monetary policy implementation during periods of falling oil prices equally has its repercussion on banks' ability to extend credit. Apart from the impact of monetary policy implementation during periods of oil price fluctuations, the banking system in Nigeria is equally adversely affected particularly in periods of falling oil prices. Since the banks and other lenders usually invest in oil and gas, oil price falls could result in non-performing loans which adversely impact their liquidity position and the ability to extend credit. The impact of fluctuations in oil prices has been identified by scholars such as Miyajima (2017) who revealed that the stability of banks in oil-exporting countries has been affected by the volatility in the international price of oil.

From the foregoing, it is obvious that credit provision may be influenced by factors other than domestic variables. The main objective of this present study is to determine the effect of world interest rate and oil price on domestic credit provision in Nigeria. Since the major policy thrust of the Central Bank of Nigeria (CBN) is inflation-targeting, identifying the roles of these variables in shaping the direction of credit provision is crucial. The study is also necessary, considering that the Nigerian financial system is tied to the vagaries of developments in the international financial system just as the country's source of income is mainly the oil sector. While the focus of previous papers was mainly on domestic factors that influence bank performance, this paper contributes to the extant literature by integrating two exogenous variables in a model and evaluating their impact on domestic credit provision in Nigeria.

The author argues that methodologies that handle symmetric relationships which have been used variously in the literature concerning this topic is not ideal since they cannot deal with possible asymmetric relationships between these two exogenous variables and domestic credit provision. Against this backdrop, the study used quantile regression in the analysis to take care of the existence of asymmetric relationship. One major limitation of the study is the non-inclusion of some relevant variables in the model because of a lack of data

on them. Though their inclusion could impact the outcome of the study differently, providing more insights into the findings; however, this does not significantly affect the focus of the paper.

The structure of the paper is as follows: Section 1 focuses on the literature review, Section 2 presents the methodology adopted, Section 3 describes the quantile regression model, and Section 4 presents and discusses the results of the findings. The study ends by summarizing the findings and drawing conclusions from the analysis.

Figure 3
Trend in Oil Price, in US Dollars
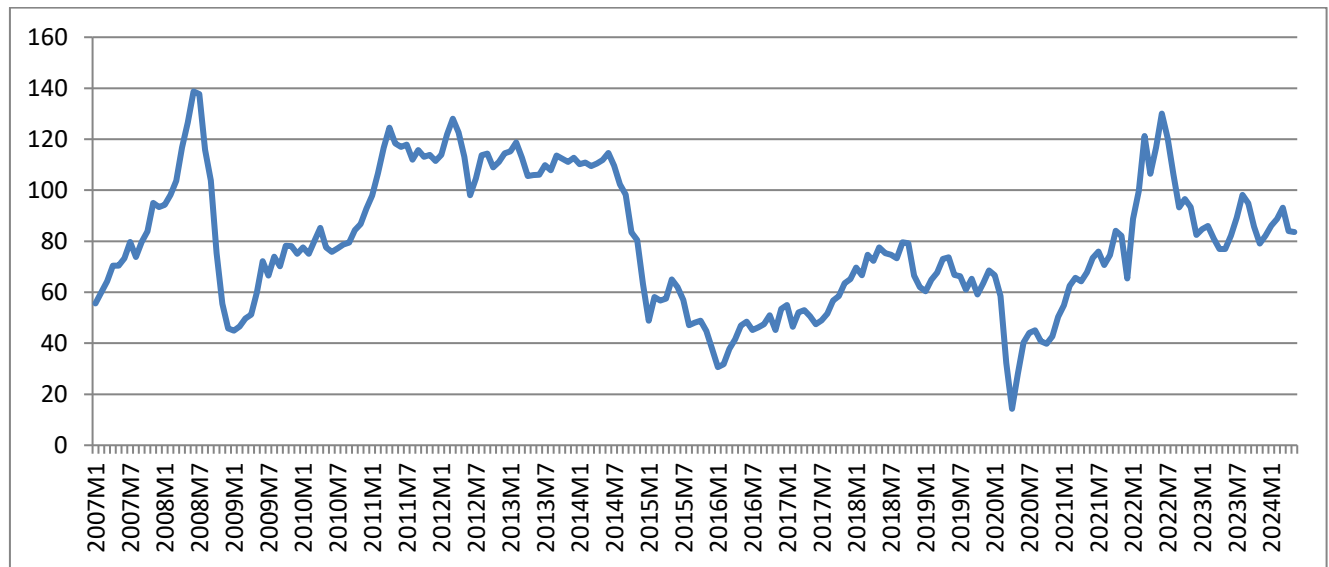
Source: CBN (2024)

Literature Review

The determinants of domestic credit provision have often occupied the interests of researchers across different countries. Interests in this area are based on the fact that credit availability is a panacea for investment, consumption and the smooth running of the economy. Several factors have been identified in literature to influence the direction of credit just as different methodologies have been adopted in the analysis. A preponderance of past studies has focused mainly on the internal factors that influence domestic credit provision. However, in this present review, an attempt is made to focus on papers that examined the influence of oil price and world interest rate on credit provision.

Extant literature on the link between oil price and domestic credit provision have revealed some outcomes which are germane for policy simulation, particularly in oil-dependent countries. These studies have shown that the performance of banks is impacted by oil price movement and this has an influence on their ability to extend credit. A study in Bahrain by Hawaldar *et al.* (2017) indicates that during the oil pre-crisis period,

there was a noticeable difference between the performance of conventional banks and Islamic banks, but during the crisis period, there was no such significant difference. In Qatar, Saif-Alyousfi *et al.* (2018) found that shock in oil price had a significant influence on the non-performing loans of banks, exposing them to risk. In Nigeria, Osuma *et al.* (2019) identified the existence of a significant and positive impact of oil prices on the banks' performance under three main indicators such as net interest margin, profit after tax and current ratio. The study observed that these indicators are influenced mainly during periods of declining oil prices.

Adetutu *et al.* (2020) found that in Kazakhstan, an increase in oil prices had an adverse impact on the productivity of banks. In Oman, Vidal & Vidal (2021) found a positive and statistical impact of oil price on Return on equity (ROE) and a non-significant positive impact of oil price on Return on assets (ROA) and Capital Adequacy Ratio (CAR). Wang (2021) observed that banks whose operations are exposed to oil-dependent counties in the US experienced a fall in demand deposit. The study noted that these banks are faced with liquidity problems which force them to offer high deposit rates

but reduce lending to small-scale businesses. In Iran, Seyyedkolaee, Aghaei & Abbaspoor (2022) found that fluctuations in oil price had a significant adverse effect on the growth of credit of specialized banks. For Russia, Albulescu (2022) revealed that rising oil prices impacted positively on the stability of public banks in the long run, but in the short run the impact is not noticeable. Gelain, Lorusso & Zaman (2024) found that shocks in oil prices resulted in a decline in the credit extended by the US banks which led to an increase in the country's credit spread.

The link between world interest rate and economic activities has also been documented in literature. In a cross-country study comprising both advanced and emerging economies, Iacovielloy & Navarro (2018) indicated that contractionary monetary policy in the US led to a massive decline in economic activities in developing economies compared to advanced economies. In another study, Miranda-Agrippino & Rey (2020) found that contractionary monetary policy in the US caused a decline in domestic credit provision globally. Such monetary tightening affected global lending adversely as it encouraged a decline in asset prices. In South Africa, Ntshuntsha (2021) revealed that US monetary policy hurt the country's growth in both the short run and the long run. Arteta, Kamin & Ruch (2022) found that in Emerging and Developing Economies (EMDE), a rise in the US interest rates influences movements in financial markets.

From the foregoing, evidence shows that past literature has focused more on either the impact of oil price on bank performance or the impact of foreign interest rate on bank performance. However, little evidence is provided on the combined impact of these variables on domestic credit provision. Since the two variables are sensitive to the economy of developing countries; mainly oil-producing countries like Nigeria, studying their joint impact on credit provision is necessary. The findings of this present study support the outcomes of extant literature that have found the two variables to influence bank performance. However, by focusing explicitly on the influence of the two variables on domestic credit provision, this present study contributes to the literature as it provides results that can challenge future studies.

Data and Empirical Methodology

Data Sources

This paper used a monthly dataset to examine the influence of two exogenous variables on the provision of domestic credit in Nigeria over the period ranging from 2007M12-2024M5. The two exogenous variables used are oil price and world interest rate. In addition to these, three control variables, namely: exchange rate, bank reserve and Treasury bill rate were included in the study. While the oil price is a proxy by the international price of Bonny Light (Nigeria's brand of oil) and is measured in US Dollars, the world interest rate which is measured in percentage is a proxy by the US Federal Fund rate (Kim & Roubini, 2000). Except for data on world interest rate which was obtained from the Federal Reserve Bank of St. Louis, the data for other variables were sourced from the Central Bank of Nigeria Statistical Bulletin. Exchange rate, bank reserve and credit to the private sector are in log form to enhance ease of interpretation and for normalization. The exchange rate which is expressed as the rate at which the US Dollars exchange for Nigeria's domestic currency (naira) is measured in nominal form. On the other hand, while both bank reserve and credit to the private sector are measured in Billions of naira, the Treasury bill rate is measured in percentage. The rationale for the inclusion of bank reserve is that the ability of banks to extend credit is based on the volume of reserves they have. The higher the bank reserve, the more ability banks have to give out loans. In another vein, the Treasury bill rate is included because it serves as an alternative investment outlet available to banks. The higher the Treasury bill rate, the possibility of banks to lower the credit extended to the private sector since banks consider investing in the Treasury as an avenue to generate more revenue, especially because Treasury bill rate is a secure investment outlet compared to credit extended to the private sector. The same argument can be extended to exchange rate inclusion in the study. Trading in exchange rate provides an investment opportunity for banks in Nigeria as they prefer to buy exchange rate at the official rate and resell to the parallel market at a higher spread. Thus, they would rather invest in such venture than grant loans to the private sector because of the short-term period in which returns from exchange rate transaction can be realized.

The study did not consider all the variables that could impact domestic credit provision in Nigeria. The reason is to avoid over-parametrizing the model with its consequent loss of degrees of freedom. Secondly, there is a paucity of data on most of these variables in Nigeria.

Estimation Techniques

Before estimating the quantile regression model, the paper presents the descriptive statistics and carries out some pre-diagnostic tests such as the correlation matrix test, the unit root test and the cointegration test. The test for unit root was conducted using both the augmented Dickey Fuller (ADF) and the Phillip Perron (PP), while the ARDL bounds test was used to conduct the cointegration test. The ARDL bounds test was chosen because the unit root unit test indicated that the variables exhibited an admixture of the order of integration; that is they are both *I(0)* and *I(1)*. The impact of the exogenous variables on domestic credit provision was evaluated using the quantile regression. The choice of the quantile regression is because of its ability to capture the asymmetric association between oil price and domestic credit provision on one hand and world interest rate and domestic credit provision on the other hand. As observed by Yang, Wang and He (2016), this method of analysis handles the issue of heteroskedasticity in the error terms as well as being suitable in cases where there are outliers in the model (Benoit & Van den Poel, 2017). Quantile regression has also been noted to be an extension of the linear regression model which is essential if the researcher aims to have ample knowledge of how the predictor variables affect the response distribution (Hao & Naiman, 2007). The fact that quantile regression handles asymmetric relationship makes it superior to other estimation techniques such as the error correction model, the ordinary least squares (OLS) method and other methods which rely on linear relationship. These models cannot dictate if a negative or positive relationship exists between oil price and credit to the private sector on the one hand and between foreign interest rate and credit to the private sector on the other hand. It should be noted that such asymmetric relationships are possible and as such should not be overlooked.

Methodology

The quantile regression model that guided this study is specified as follows:

$$y_t = x_t' \lambda + \varepsilon_t \tag{1}$$

$$E\left(\frac{y_t}{x_t}\right) = x_t' \lambda \tag{2}$$

$$Q y_t \left(\frac{\eta}{x_t}\right) = x_t' \lambda \eta \tag{3}$$

$$\lambda \eta = \lambda + \psi \mu^{-1}(\eta) \tag{4}$$

Where λ is vector of unknown coefficients, Equation 2 defines marginal effects at a specific quantile, η denotes quantile to be estimated, ε_t is random term.

The sample is demarcated into four quintiles, namely: 25th, 50th, 75th and 90th to ensure that all the quantiles have adequate sample from the 209 observations to avoid the problem of loss of degrees of freedom. The quantile regression minimizes the median which differs from the OLS that minimizes the sum of squares. The minimization of median is often referred to as the least absolute-deviation regression which is specified as follows:

$$\sum_{t=1}^{T} \eta \, |\varepsilon_t| + \sum_{t=1}^{T} (1-\eta)|\varepsilon_t| \tag{5}$$

Where $\eta|\varepsilon_t|$ denotes symmetric penalty for under-prediction, $(1-\eta)$ presents symmetric penalty for over-prediction.

The symmetric division allows for simultaneity in the evaluation of both the upward and downward response of domestic credit to fluctuations in the exogenous variables.

The ηth quantile regression estimator $\lambda \hat{\eta}$ minimizes over $\lambda \eta$ the following objective function:

$$Q(\lambda \eta) = \sum_{t=1}^{T} \lambda \quad |y_t - x_t' \lambda \eta| + \sum_{t=1}^{T} \eta \quad (1-\eta)|y_t - x_t' \lambda \eta| \tag{6}$$

$$y_t \geq x_t \lambda \qquad \qquad y_t < x_t \lambda$$

where $0 < \eta < 1$

In the above quantile regression model, while y_t is the dependent variable (log of domestic credit to the private sector - LCRPRIV), x_t' represents the vector of explanatory variables: oil price (OILP), world interest rate (WINTR), log of the exchange rate (LEXCHR), Treasury bill rate (TBR) and log of bank reserve (LBRESERV).

Results and Discussion

The descriptive statistics are presented in Table 1 with findings showing that credit to the private sector, oil price and world interest rate have mean values of 7.2, 79.6 and 1.3 with standard deviation of 0.3, 25.9 and 1.7, respectively. In a similar vein, the exchange rate, Treasury bill rate and bank reserve have mean values of 2.4, 7.9 and 6.4 with standard deviation of 0.2, 4.3 and 0.6, respectively. It is also shown that while credit to the private sector, oil price and world interest rate have the range of 1.5, 124.4 and 5.3, respectively; exchange rate, Treasury bill rate and bank reserve have the range of 1.13, 17.0 and 22.4, respectively. Credit to the private sector, Treasury bill rate and bank reserve exhibited negative skewness, while oil price, world interest rate and exchange rate exhibited negative skewness. All the variables are heavy-tailed since their kurtosis is positive.

Table 1
Descriptive Statistics

	LCRPRIV	OILP	WINTR	LEXCHR	TBR	LBRESERV
Mean	7.247	79.603	1.298	2.369	7.854	6.376
Median	7.272	77.180	0.200	2.293	8.270	6.530
Maximum	7.907	138.740	5.330	3.191	17.030	7.336
Minimum	6.368	14.280	0.050	2.064	0.000	4.985
Std. Dev.	0.298	25.984	1.742	0.242	4.310	0.614
Skewness	-0.425	0.1171	1.358	0.919	-0.031	-0.482
Kurtosis	3.300	2.135	3.433	3.675	1.916	2.104
Jarque-Bera	7.085	6.980	65.936	33.413	10.261	15.113
Probability	0.028	0.030	0.000	0.000	0.005	0.000
Observations	209	209	209	209	209	209

Source: Author's calculations

In Table 2, the results of the correlation matrix reveal that while oil price and Treasury bill rate have a negative and low correlation with credit to the private sector, the correlation between world interest and credit to the private sector is low and positive. However, a strong positive correlation was observed between credit to the private sector and bank reserve and also between credit to the private sector and exchange rate.

Table 2
Correlation Matrix Results

	LCRPRIV	OILP	WINTR	LEXCHR	TBR	LBRESERV
LCRPRIV	*1*	*-0.076*	*0.415*	*0.954*	*-0.084*	*0.834*
OILP	*-0.076*	*1*	*0.028*	*-0.240*	*0.232*	*-0.195*
WINTR	*0.415*	*0.028*	*1*	*0.382*	*0.003*	*0.071*
LEXCHR	*0.954*	*-0.240*	*0.382*	*1*	*-0.106*	*0.842*
TBR	*-0.084*	*0.232*	*0.003*	*-0.106*	*1*	*-0.065*
LBRESERV	*0.834*	*-0.195*	*0.071*	*0.842*	*-0.065*	*1*

Source: Author's calculations

Table 3
Unit Root Results

	ADF		PP	
	Level	First Diff.	Level	First Diff.
LCRPRIV	-1.63(0.460)	-6.82(0.000)*	-2.60(0.094)***	-12.00(0.000)*
OILP	-2.88(0.0494)***	-10.64(0.000)*	-2.62(0.089)***	-10.55(0.000)*
WINTR	-1.69(0.434)	-6.36/(0.000)*	-1.64(0.459)	-6.32(0.000)*
LEXCHR	-3.05(0.999)	-9.82(0.000)*	-3.111(0.999)	-10.22(0.000)*
TBR	-2.38(0.148)	-19.52(0.000)*	-2.95(0.041)**	-1.59(0.000)*
LBRESERV	-1.59(0.485)	-12.70(0.000)*	-1.42(0.571)	-25.45(0.000)*

Note: p-values in parenthesis. Asterisks, *, **, *** indicates the statistical significance of a variable at 1%, 5% and 10%.
Source: Author's calculations

The results of the unit root test in Table 3 indicate that under the ADF, the only oil price has no unit root (is stationary) at the 10 percent level of significant, while others have unit root (are not stationary). Under PP, credit to the private sector, oil price and Treasury bill rate exhibit no unit root at level, while others have a unit root. However, after first differencing, all the variables have no unit root both under the ADF and PP. That is to say that all the variables become *I(1)* after taking the first difference.

The results of the unit root have shown that the variables have a mixture of order of integration. While some exhibited no unit root at level, others achieved no unit root after the first difference. On grounds of the results, the usual Johansen test for cointegration is not appropriate to be used. Thus, the study turned to the auto-regressive distributed lag (ARDL) bounds test form of cointegration which is suitable when the variables have an admixture of order of integration. The result of the ARDL test for cointegration in Table 4 reveals that the F-statistic is 10.53 which is higher than both the upper critical bound (2.62) and lower critical bound (3.35) at the 5% level. Consequently, the study concludes that the variables are cointegrated.

Table 4
ARDL Cointegration Result

Test Statistic	Value	K
F-statistic	10.53	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Author's calculationS

The results of the OLS and quantile regression in Table 5 indicate that under the OLS, oil price impacted positively and significantly the credit to the private sector at the 10% level of significance. The result shows that if the oil price rises by one US Dollar, credit to the private sector improves in average by 0.7 percent. On the other hand, findings reveal that the world interest rate has a negative impact on credit to the private sector even though the result is not significant. The impact of the exchange rate is positive and significant. The result indicates that if the exchange rate depreciates by one percent, credit to the private sector increases in average by 0.58 percent. It is also found that both bank reserve and Treasury bill rate have positive and significant impact on credit to the private sector. One percentage points increase in the

Treasury bill rate leads to an increase in credit to the private sector in average by 0.17 percent, while a percentage increase in bank reserve leads to an increase in credit to the private sector in average by 0.24 percent.

The quantile regression results in Table 5 reveal that oil price impacted positively and significantly credit to the private sector in all the quantiles. The rise in oil price by one US Dollar leads to an increase in credit to the private sector by 0.7 percent at the 25th, 50th, 75th quantiles and 0.4 percent at the 90th quantile. It should be noted that the oil sector contributes to a high percentage of the country's GDP. An increase in oil price has the tendency to improve the liquidity position of the country which rubs off on other sectors of the economy, including the banking sector. Thus, banks usually have much leverage to extend credit to the private sector in periods of rising oil prices. It is against this backdrop that the CBN often employs contractionary measures to curb the credit ability of banks in such periods. The results of both the OLS and quantile regression are thus in line with apriori expectation. The positive impact of oil price on bank performance has been identified in Nigeria by Osuma *et al.* (2019), in Oman by Vidal and Vidal (2021) and in Russia by Albulescu (2022).

In another vein, it is found that the world interest rate only has a significant impact on credit to the private sector at the 25th quantile, while the results of other quantiles are not significant. The finding shows that if the world interest rate rises by one percentage point, credit to the private sector reduces in average by 3.96 percent. Interest rate on foreign assets is considered as an investment alternative by domestic investors including the banking sector. Therefore, if the world interest rate rises, the interest rate on these foreign assets increases in tandem, prompting domestic banks to channel their investment to the foreign jurisdiction where these investments are domiciled and this may have the tendency to reduce credit extension to the private sector. This argument therefore justifies the result of this study. However, it is possible that a rise in world interest rate may lead to an increase in domestic credit provision. This could occur when the total interest income accruing from such foreign investment is higher than the total interest cost (Adrian & Shin, 2011). In such a situation, the liquidity position of the banks is increased, giving them the leverage to offer more credit. An asymmetric relationship between world interest rate and domestic credit provision is therefore possible. Such a possibility has been revealed in this present study at the 90th quantile where the world interest rate exerted a positive but non-significant impact on domestic credit provision.

The declining impact of the world interest rate on domestic credit provision finds corroboration in a study by Miranda-Agrippino & Rey (2020).

The study finds that the OLS result of the exchange rate is in line with the quantile regression results as it indicates that across all the quantiles, the exchange rate was found to impact positively on credit to the private sector. The depreciation of the exchange rate by one percent leads to an increase in credit to the private sector by 0.63, 0.58, 0.54 and 0.58 percent at the 25th, 50th, 75th, and 90th quintile, respectively. These results do not follow popular expectation since banks have the tendency to channel their investment to foreign asset-bearing interest rate during period of exchange rate depreciation because the returns will be high when exchanged with the domestic currency. A plausible reason for the rise in domestic credit to the private sector arising from exchange rate depreciation could be that incomes from these foreign investments and other sources improves the liquidity position of the banks; incentivizing them to extend more credit. Also, it should be noted that banks in Nigeria are fond of buying foreign currencies (mainly the US Dollars) at the official rate in anticipation of selling them at the parallel segment of the market in order to take advantage of the high spread. The result of the impact of the exchange rate on credit to the private sector finds support in a study in Nigeria by Olaoluwa & Shomade (2017).

From another angle, findings indicate that the Treasury bill rate impacted positively and significantly on the domestic credit to the private sector at the 25th and 50th quantiles, while the impact in other quantiles is positive, though not significant. If the Treasury bill rate rises by one percentage points, domestic credit to the private sector increases by 0.6 percent and 0.2percent at the 25th and 50th quantiles, respectively. It is found that across the various quantiles, bank reserve has positive and significant impact on domestic credit to the private sector which follows the OLS result. Findings reveal that if bank reserve increases by one percent, domestic credit to the private sector rises by 0.25, 0.24, 0.24 and 0.20 percent at 25th, 50th, 75th and 90th quantiles, respectively. These results are in line with apriori expectation since banks lend out of their reserve. The higher the bank reserve, the more incentives banks have to extend credit to the private sector.

Table 5
OLS and Quantile Regression Results

Variables	OLS	25th Quantile	50th Quantile	75th Quantile	90th Quantile
OILP	0.0007* (0.0001)	0.0007* (0.0001)	0.0007* (0.0001)	0.0007* (0.0001	0.0004* (0.0001)
WINTR	-0.0170 (0.0139)	-0.0396* (0.0079)	-0.0170 (0.0139)	-0.0019 (0.0080)	0.0012 (0.0101)
LEXCHR	0.5826* (0.0596)	0.6286* (0.0671)	0.5826* (0.0596)	0.5385* (0.0561)	0.5826* (0.0839)
TBR	0.0017*** (0.0009)	0.0057* (0.0009)	0.0016*** (0.0009)	0.0010 (0.0010)	0.0012 (0.0013)
LBRESERV	0.2433* (0.0161)	0.2500* (0.0405)	0.2433* (0.0161)	0.2427* (0.0146)	0.2035* (0.0102)
Constant	4.2702* (0.1125)	4.0705* (0.1312)	4.2702* (0.1125)	4.3964* (0.1419)	4.5864* (0.1853)
Pseudo R-squared	0.8252				
Adjusted R-squared	0.8209				
Observations	209	209	209	209	209

Note: Standard errors are in parenthesis and the asterisks, *, **, *** denote statistical ignificance at 1%, 5% and 10%.
Source: Author's calculations.

Conclusion

This present study applied the quantile regression model to examine the pass-through of two exogenous variables (oil price and world interest rate) to domestic credit provision in Nigeria. Findings indicate that under both the OLS and quantile regression, oil price exerts a positive and significant influence on credit to the private sector. However, the world interest rate is found to negatively impact credit to the private sector with the result being significant only at the 25th quantile. In another vein, while exchange rate and bank reserve have

a positive and significant impact on credit to the private sector under the OLS and across all the quantiles, the impact of the Treasury bill is positive under the OLS and at both the 25th and 50th quantiles. Judging from the results of both the OLS and quantile regression, evidence has shown that while under the OLS, oil price has a positive impact on domestic credit provision, however; the results under the quantile regression show that the impact is both positive and negative (asymmetric) even though the negative impact which occurred at the 90th quantile is not significant. Also, it is noteworthy that world interest rate did not exert any significant impact on domestic credit provision under the OLS, however, under the quantile regression; a significant negative impact was revealed at the 25th quantile. What these prove is that the OLS method is not adequate enough to capture the actual relationship between domestic credit provision and the exogenous variables included in the study.

On grounds of the regression results, the study concludes that exogenous variables have influence on domestic credit provision in Nigeria. However, of the two exogenous variables included in the study, the influence of oil price on domestic credit provision is more pronounced as the impact occurred at all the quantiles. The outcome implies that both world interest rate and oil price movement should be consciously monitored when framing up policies to regulate domestic credit provision in Nigeria. Since income from the sale of crude oil occupies a prominent place in the sources of income in Nigeria, the monetary authorities often adjust the monetary policies to checkmate the inflationary impact of rising oil prices, especially regarding the possibility for credit expansion. This study has therefore provided further evidence as to the need for such measure as well as going further to reveal that beyond the impact of oil price, world interest rate equally plays a crucial role in shaping domestic credit extension in Nigeria. As such, it is recommended that these two variables should be simultaneously watched to appropriately regulate domestic credit provision in Nigeria. In particular, during periods of rising oil prices, short-term selective credit measure should be implemented. This will entail a directive to the banks and other lending institutions to channel much of their improved liquidity to the productive sectors of the economy such as the manufacturing and the agricultural sectors. This measure will reduce the tendency for such increased liquidity to cause inflation. Also, as a way to reduce the shock arising from an increase in the world interest rate, the monetary authorities should deliberatively float several investment outlets through the deepening of the capital market. Such outlets should be such that they provide reliable and relatively high yields on investment to enable banks and other domestic investors to avail themselves of such opportunity to invest in the domestic economy. With this in place, the tendency to invest in foreign interest rate-bearing assets will reduce, thus helping to reduce capital outflows. In addition to this, exchange rate policy should be used to direct domestic credit since its continuous depreciation has been shown to encourage credit expansion, which though crucial for increased investment, may be inimical to the quest for price stability.

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Eksogene spremenljivke in njihov vpliv na zagotavljanje domačih kreditov v Nigeriji: Dokazi na podlagi kvantilne regresije

Izvleček

Pomen domačega posojila za gospodarstvo je spodbudil zanimanje za študije, ki poskušajo preučiti dejavnike zagotavljanja domačih posojil. V tej študiji se osredotočamo na oceno vloge eksogenih dejavnikov pri vplivanju na zagotavljanje domačih kreditov v Nigeriji. V študiji je bil uporabljen mesečni niz podatkov, ki je zajemal obdobje od decembra 2007 do maja 2024, v okviru kvantilne regresije. Ugotovitve študije razkrivajo, da je cena nafte pozitivno in pomembno vplivala na zagotavljanje domačih kreditov v vseh kvantilih, medtem ko je svetovna obrestna mera negativno in pomembno vplivala na zagotavljanje domačih kreditov v 25. kvantilu. Devizni tečaj in bančne rezerve sta pozitivno in pomembno vplivala na zagotavljanje domačih posojil v vseh kvantilih, vpliv obrestne mere zakladnih menic pa je bil pozitiven in pomemben le v 25. in 50. kvantilu. Študija predlaga, da bi morala monetarna oblast pri uravnavanju zagotavljanja kreditov v Nigeriji pozorno spremljati te eksogene spremenljivke in gibanje deviznega tečaja.

Ključne besede: domača posojila, denarna politika, obrestna mera, devizni tečaj, kvantilna regresija