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Money Market Operations and Credit to Private Sector in Nigeria

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Abstract

This paper examined the effect of money market operations on credit to private sector in Nigeria from 2000 to 2024. Money market operations were disaggregated into treasury bills, certificates of deposit, commercial papers, and bankers' acceptances while credit to the private sector as the endogenous variables. A quasi-experimental research design was adopted whereby secondary data on the above-stated dependent and explanatory variables were sourced from the 2024 edition of the Central Bank of Nigeria (CBN) bulletin. The data so generated were analyzed using the ARDL model. The study found that treasury bills (tb) has a negative significant effect on credit to private sector in Nigeria, certificates of deposit (cd) has positive insignificant effect on credit to private sector in Nigeria, commercial papers (cp) has positive insignificant effect on credit to private sector in Nigeria and Bankers acceptance (ba) has negative significant effect on credit to private sector in Nigeria**.** It was therefore concluded that money market operations have a significant effect on credit to private sector. The study recommends that there is need for regulatory authorities to increase the issuance of money market instruments as this would enhance credit to the private sector.

Keywords: Money Market, Operations, private sector credit

Introduction

In contemporary development finance and economic literature, private investment has been adjudged as the pathway to sustainable growth (Okorie & Chikwendu, 2019). According to Onodugo, Anowor, Ukweni and Ibiam (2014), private investment activities are seen as the foundation of industrialization based on its expected impact and potential contributions

towards a diversified production base. Private investment is also a significant and important unit of aggregate demand that depends so much on finance especially for developing countries such as Nigeria. Financial intermediation, being a critical determinant of private investment, entails the sourcing and credit allocation by banks and other deposit-taking institutions. The financial intermediation process is a complex web of financial activities that extends beyond just the traditional deposit and lending functions performed by banks. The market structures that comprises this process include the credit market, money market, stock/equity market and the bond market. All these financial market structures involve transferring funds from the surplus economic unit to the deficit economic unit for optimum result from resource allocation (Ugwu, Okoh & Mbah, 2017). The failure of the financial intermediation process means that money will not only become unproductive but will fail to drive economic growth.

It is important to note that just as the management of long-term capital is important for private investment activities, so is the liquidity management in the working capital management context. This is what the money market does, hence managing short-term funds is important to both the banks and corporate entities. When firms get involved in money market financing, they expect to experience cash inflows or outflows which are affected by the financial strategies of companies (Omag, 2016). While banks use money markets to manage liquidity, corporations use the money market for short-term working capital management and the government use it for meeting short-term cash crunch (Pavtar, 2016). Although individuals can invest in many money market instruments, the money market is primarily a wholesale market where large institutions trade low risk, highly liquid short-term financial claims are issued in high denominations (Burton, Nesiba & Brown, 2010).

For banks, the money market serves as a form of financial intermediation through which funds are sourced from individuals, firms and the government (money market funding sources) and use other money market facilities to lend them out (money market funds uses). Borrowers in the money market are diverse as the instruments on which they borrow (Stigum & Crescenzi, 2007). The money market brings together borrowers such as financial and non-financial firms that have short-term borrowing needs with those lenders, including other financial and non-financial firms, which have short-term funds to lend. Again, money market mutual funds are professionally managed funds that buys money market securities on behalf of individual investors. Implicitly speaking, the lenders in money market can be referred to as investors while the borrowers are the users of funds (Burton, Nesiba & Brown, 2010).

As part of fund and liquidity management strategies, money market instruments enable banks to meet deposit and loan demands (Ekmekaoglu, 2013). Examples of such strategies include holding of short-term financial assets to meet regulatory requirements, issuing short-term securities to meet depositors' demands and generate investment profits. A portfolio of short-term money market securities held by a bank can be easily sold or rediscounted for cash. When Central Bank actions and regulations restrict the profit-making activities and operations of banks, they search for alternative ways of making profit (Atanda & Ajayi, 2012). The effect of this alternative venture is in the patronage of money market investment.

The private sector has been adjudged in economic literature as an important economic driver in both developed and developing economies alike (African development Bank (ADB), 2019). In developed economies, the private industry is the largest contributor to the Gross Domestic Product (GDP) as it dominates the service industry in the majority of Organization of Economic Cooperation and Development (OECD) nations (Andabai& Eze, 2018). Essentially, the development of the private sector is hinged on the strengthening of the investment climate which is vital for sustaining and growing firms and promoting economic growth and development (Okeke, Maduka & Okonkwo, 2022). Evidently, many emerging economies such as Taiwan, Korea, India, Brazil and Pakistan in the past 20 years owe

much of their development predominantly to the private sector and international capital which have been driven primarily by private institutions (market) and permitted to thrive by supportive environments (UNCTAD, 2021).

In Nigeria, the private sector comprises large corporations, multinational companies, medium and small-scale businesses, privately owned banks, educational institutions etc. (IFC 2020). Interestingly, in the past few years the private segment of the economy has been faced with several challenges. However, according to Otubu and Paul (2019), one notable obstacle that has continue to confront the private sector overtime is the un-availability and un-affordability of funds for profitable investments, which has resulted in low productivity and economic growth.

Clearly, bank credit constitutes the most significant source of investment finance for private firms in emerging nations including Nigeria (Chisom & Chikwendu, 2019). Private investment is directly influenced by the amount and ease with which access to bank credit are available to private-sector borrowers. In 1980, the private sector received 66.7% of gross credit in the economy, 59.7% in 1981 and 52.1% in 1982 (Okere & Ugonma, 2020). Thereafter, credit to the Nigerian private sector declined. It was 28.9% in 1986 and 34.0% in 1993 (Chisom & Chikwendu, 2019). According to Orjiude, (2022), the amount of credit (loans) granted by the Nigerian banking industry to the private sector rose by ₦5.1 trillion (16.67%) from January to December 2021.

Despite this marginal increase, the provision of credit facilities to the private sector in Nigeria is deemed unsustainable by banking institutions due to the excessive liquidity and high interest rates (Sogules & Nkoro, 2016). Like many emerging nations, such as Nigeria, concerns have been expressed about a lack of access to industrial credit which has caused a shortage of investment in various sectors of the economy (Olokoyo et al, 2016). One way to complement the shortfall in bank credit to the private sector is through the inflow of migrants remittances which individuals in diaspora send to their relatives at home for either consumption or for business investment purposes (ADB, 2019; Gelb et al, 2021; Ratha, 2022).

Remittances from overseas are regarded as a veritable source of financial investments for Africa's main emerging economies (Adarkwa, 2015; Adeniyi, 2015). According to Kanu et al (2017), remittances referred to the influx of money or gain back home by migrants from other nations. In recent times, there has been a continual surge in remittance flow from overseas into developing-country economies, a development that has pique the interest of different stakeholders (Sanjeev, 2009; World Bank, 2020).

In recent times, successive Nigerian administrations have recognized the need for money to support private sector activity and have sought liberal investment policies to create healthy investment prospects for international companies. From the monetary side, the Nigerian government has also promoted the Structural Adjustment Programme (1986) to liberalize lending, boost the financial market to support private sector activities, and develop the banking sector and money market all in a bid to smoothen the progress of financial intermediation and boost lending to the economy (Uruakpa, 2019). However, the Nigerian money market has been deemed limited, inadequately integrated, and in certain cases, non-existent in the true meaning of the word, despite being the initial channel via which monetary policy actions are transmitted to the economy (Nwosu & Hamman, 2008).

Most works suggest that the Nigerian money market operates immature secondary market, characterized by undiversified instruments (Pavtar, 2016), preponderance of government instruments, paucity of private sector instruments, uncertainty and lack of confidence in the market, wide margins between lending and deposit rates (Uruakpa, 2019) and lack of depth and a weak domestic payment system (Uruakpa, 2019; Pavtar, 2016; Eze & Nera, 2017). All these factors, can make the money market lack sufficient liquidity to ensure investors' funds safety and adequate support for the working capital

needs of private enterprises (Eze & Nera, 2017). If finance is a crucial element of private investment activities (Okorie & Chikwendu, 2019; Ugwu, Okoh & Mbah, 2017), As a result of all factors, the money market may not have sufficient liquidity to protect investors' money and provide private businesses with the working capital they require (Eze & Nera, 2017).

Previous studies on the effect of money market activities have mainly tried to examine the nature of the causality between money market and economic growth. Many of the studies are well captured in Iwedi and Igbanibo (2015), Eze and Nera (2017), Uruakpa (2019), Agbada, and Odejimi (2015), Obi (2021), and Etale and Ayunku (2017). Although none of the previous studies on the effect of money market operation has considered its effect on Credit to the private sector in Nigeria, but the lead from Ezeoha, Ogamba and Onyiuke (2009), who examined the relationship between stock market and private investment growth in Nigeria, gave insight into the possible link between the money market and private investment. Also, if the money market activities by banks are decomposed into funding/savings and uses/credits, then studies like Al-Afeef and Al-Qudah (2015), Nasiru and Usman (2013), Kaya(2010) and Orji, Ogbuabor and Anthony-Orji(2015), which explored the relationship between savings and investment, gives an empirical leading on the effect of money market funding sources by banks on private investments. Also, studies such as Okorie and Chikwendu (2019), Mose (2017) and Onodugo, Anowor, Ukweni and Ibiam (2014), carried out on the relationship between credit and private investment, validate the empirical direction of banks' fund uses/credit through money markets and private investment. Since most work has not been able to ascertain the effect of money market operation on credit to private sector in Nigeria, this study intends to investigate the effect of money market operation on credit to private sector using TB, CD, CP and BA as predictor variables while DMBs credit to private sector remains the endogenous variable. Therefore, this paper sets out to investigate the effect of money market operations and credit to private sector in Nigeria.

Review of Related Literature

In the first place, the endogenous and exogenous variables used in this research were depicted in the operational conceptual framework described in figure 2.1 below

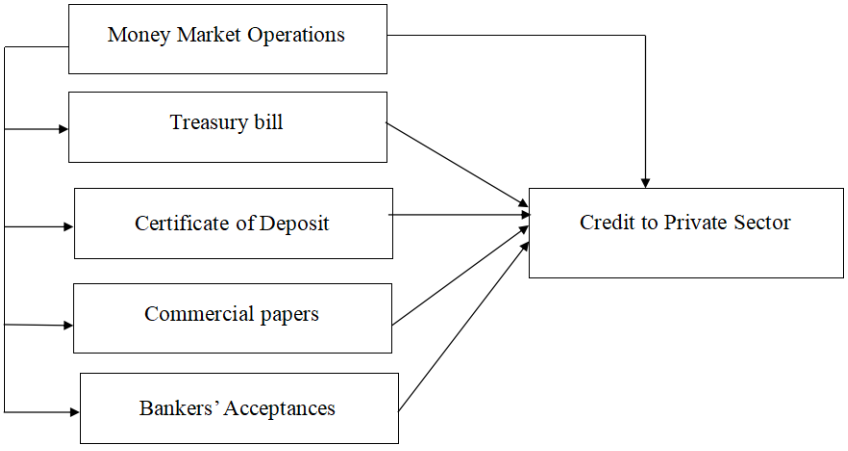


Fig 2.1 Operational Conceptual Framework Source: Researchers' Desk (2026).

Money market operation is a financial market that involves the trading of short-term credit instruments of high quality which includes treasury bills, treasury certificates, bankers' acceptances, commercial papers and certificate of deposits among others (Ndugbu, Duruechi & Ojiegbe, 2016).

The major participants in the money market include the deposit money banks, government, corporations, enterprises, money market mutual funds, the Central bank of Nigeria, pension managers among others (Ndugbu et al. 2016). Money market instruments play a very key role in banks' liquidity management and facilitate the re-distribution of resources from the surplus unit (savers) to the deficit unit (borrowers) and thus provide funds for investments.

On the other hand, the private sector comprises all establishments created through private initiatives and funding and which owe their survivor to the ability and assiduity of the entrepreneurs and their management, though with the exception of trust fund, non-governmental organizations, clubs, and other social and privately funded charitable organizations.

According to OECD (2019), a substantial part of the growth and survival of private sector organizations depends on their ability to continuously make a profit. In Nigeria, the private sector consist of large corporations, multinationals, medium and small-scale businesses outfits, and privately created banks as well as educational institutions, among others (IFC, 2020).

Theoretical Framework

Related theories of the research abounds which includes the portfolio theory, loanable fund theory of interest and the finance lending theory otherwise known as a finance-led development theory. However, the paper relied on the finance lending theory which is based on the premise that the financial sector health influences economic growth. In other words, the growth of the financial sector determines the accessibility of financial services (Boldbaatar and Lee, 2015). According to the finance lending argument, the rise of the financial sector leads to the most effective resource allocations (Puatwoe and Piabuo, 2017). More specifically, a well-developed financial sector reduces transaction and high monitoring cost as well as information asymmetry, thereby enhancing financial intermediation.

Empirical Review

Epor, Steve, Yua and Ityavyar (2023) Money market and private investment activities: Any empirical evidences of causation and causality from the Nigerian banking sector The study was specifically undertaken to assess the efficiency and effectiveness of the money market. The independent variables were: aggregate funds to banks from money market funding facilities (MMF) and aggregate credits by banks through money market facilities (MMC). Control variables adopted for the study were: aggregate broad money supply (M3) and aggregate credit to the private sector from the banking sector (CPS). Data for this series were collected from 1990 to 2021 from the CBN statistical bulletin as well as the World Bank data base. Autoregressive Distributed Lag technique was employed to estimate the models of interest rate. Result from the ARDL model estimation revealed that: aggregate money market funds to banks significantly supported private investment in Nigeria; while money market credits by banks were deleterious to domestic private investments in Nigeria. The study therefore recommends more depth for the Nigerian money market to create room for more financial inclusion, and probably, a second-tier market be introduced for lower income cadre. As a matter of policy target, private investments as well as money market ratio to the GDP be pursued at 25% level; and finally, there is a need to address the preponderance of government instruments and paucity of private sector instruments, to make the Nigerian money market more responsive to the financing needs of the private sector.

Obi (2021) investigated the relationship between the money market instruments and economic growth of Nigeria. Money market instruments were proxied by treasury bill, certificate of deposit, commercial papers and bankers' acceptance as predictor variables while economic growth was proxied by gross

domestic product (GDP) as dependent variable. Time series analysis from 1981-2019 with the Error Correction Mechanism (ECM), was used and the study found that there was a significant relationship between money market instruments and economic growth in Nigeria but insignificant in the development of the Nigerian financial system. Orugun,

Saliu, and Ajayi (2020) sought to examine the impact of selected money market instruments on Economic growth from 1989 to 2019 with multiple-regression, and found that the selected money market instrument had a significant effect on GDP in the short run but not in the long run. Uruakpa (2019) examined the impact of money market reforms on economic growth of Nigeria, covering the period 1990-2017 with OLS, and found that money market value has positive and significant effect on GDP and concluded that money market reform has helped boost the effect of the market on Nigeria's economic growth.

Godfrey and Agwu (2019) investigated the relationship between money market instruments and economic growth in Nigeria using the ARDL method from 1981 to 2017. The study found that there is evidence that nominal GDP is autoregressive, and money market instruments have no significant effect on nominal GDP in the short-run and long-run. Okorie and Chikwendu (2019) examined the extent to which private sector credit impacts on private sector investment in Nigeria from 1984 to 2016 with the ARDL technique, and found that private sector credit has positive and significant impact on private sector investment in the short run, but not in the long run. Ayebaemi and Francis (2018) investigated the effect of selected money market instruments on the growth of the Nigerian economy from 1981 to 2017 with the Autoregressive Distributive Lag (ARDL) approach, and found that money market variables are positively related with economic growth rate both in the short run and the longrun, except for Certificate of Deposit and Commercial Paper with inverse relationships.

Odufoye (2017) examined the effect of bank loans on the Nigerian economy between the period of 1992 to 2015. The study used GDP as a proxy variable for economic growth while loans to the private sector, commercial bank loans to small and medium-sized businesses, interest rate and money supply were used as proxy indicators for bank credit.The results showed that while commercial banks loans to businesses, money supply, private sector loans and interest rates had no effect on GDP, bank credit instruments did.

Eze and Nera (2017) studied the role of money market on economic development of Nigeria from 1990 to 2014 with regression analysis, and found that money market (bankers' acceptances and certificates of deposits) had significant impact on the growth of the Nigerian economy. Etale and Ayunku (2017) examined the relationship between money market and economic growth in Nigeria from 1989 to 2014 with multiple regression, and found that Treasury bills and commercial papers had positive and significant influence on economic growth while bankers' acceptances had a positive but insignificant influence. Ugwu, Okoh and Mbah (2017) investigated the link between bank credit and private sector investment in Nigeria from 1980 to 2014 using Ordinary Least Square (OLS) regression, and found that banks credit to the private sector, trade openness, exchange rate, and total bank saving exerted positive influence on private investment, while capital expenditure, and interest rate had negative influence.

Mose (2017) used a historical research design to establish the effect of credit on private investment from 2008 to 2017 with the Modified Flexible Accelerator model, and found that domestic credit availability to private sector had a positive and significant effect on private investment. Aminu, Bambur and Aliyu (2017) examined the performance of money market as a catalyst of economic growth and development in Nigeria from year 1999 to 2017 with the ordinary least square method (OLS), and found that the money market immensely contributes to the economic growth and development in Nigeria. Pavtar (2016) investigated the nexus between money market and Nigerian economic growth: A time

series analysis from 1985 to 2014 with the ordinary least square (OLS) multiple regression technique, and found that Treasury bill, Treasury certificate, Commercial paper does not have any significant effect on the gross domestic product, while Certificate of deposits was found to significantly impact on the gross domestic product (GDP) of Nigeria.

Combey (2016) investigated the main determinants of private investment in the West African Economic and Monetary Union (WAEMU) with Dynamic Fixed-Effects, and found that, in the short-run, private investment is determined by the aggregate demand conditions: gross domestic product and output gap, while, in the long-run, it is determined by gross domestic product, and political stability. Iwedi and Igbanibo (2015) examined the nexus of money market operations on economic growth in Nigeria from 1980 to 2013 with the vector autoregressions (VAR), Johansen Co-integration, and Granger causality tests, and found among other things that there is a positive significant short-run and long-run relationship between money market operations and economic growth in Nigeria. The result shows that causality flows from economic growth proxied by GDP to money market operations but not vice versa.

Olowofeso, Adeleke and Udoji (2015) utilizing Gregory and Hansen's (1996) cointegration test and completely modified ordinary least square analyze the effect of credit to the private sector on economic development for the period of 2000 to 2014 in Nigeria. The results showed that while prime lending rate negatively impacted Nigeria's economic development, credit to the private sector, government spending and gross capital creation did not.

Iwedi, Dumini and Unuegbe (2015) examined the impact of domestic bank credit on economic development in Nigeria utilizing time series data for the period 1980 to 2013. The study's finding revealed that while domestic bank credit had a short-term negligible impact on Nigeria's Gross Domestic Product (GDP), credit to the government sector and credit to the private sector had positive and significant effects.

Igbinosa and Aigbovo (2015) assessed the impact of money market development on Nigerian economic development between 1986 and 2013 with a multivariate OLS analysis, and found that banker acceptances significantly influence economic development, while value of treasury bills and commercial papers as well as the monetary policy rate have significant impact on economic development only in the long run. Al-Afeef and Al-Qudah (2015) investigated the causal relationship between savings and investment in Jordan from 1980 to 2013 with Johansen co-integration test, and found that savings and domestic investment have long run positive and significant impact on the Jordanian economy while FDI has negative but insignificant impact on the economy.

Orji, Ogbuabor and Anthony-Orji (2015) investigated the determinants of private savings and private investment in Nigeria from 1970 to 2010 linear regression model, and that real disposable income and real interest rate are positively related to private savings in Nigeria. Also previous savings and inflation are found to be significant determinants of private savings in Nigeria. Furthermore, previous investment, interest rate and real exchange rate are found to be significant determinants of investment in Nigeria.

Duruechi and Ojiegbe (2015) empirically examined the determinants of investments in the Nigerian Economy from 1990 to 2013 using the OLS model, and found that only government expenditure has a significant influence on investment in Nigeria thus leading the study to conclude that investment in Nigeria is still at a very low level.

Agbada and Odejimi (2015) explored the link between developments in Money market operations and Economic viability in Nigeria from 1981 to 2011 with Multiple Regression technique, and found that Money market operations had no convincing and significant influence on GDP. Onodugo, Anowor, Ukweni and Ibiam (2014) empirically examined the relationship between financial intermediation and

private sector investment in Nigeria from 1980 to 2010 with the Ordinary Least Square (OLS) model, and found that increases in bank loans and advances to the private sector results to increases in income and spur to private investment in Nigeria. Onodugo, Kalu and Anowor (2013) examined the relationship between financial intermediation and private sector investment in Nigeria with multiple regression model, and found that three out of the five coefficients are statistically significant.

Anthony (2012) utilized the Distributed Lag Error Correction Model (DLECM) and distributed model to examine the factors that affect bank savings in Nigeria and the effect of bank credit and savings on Nigeria economic growth from 1970 to 2006. The results revealed a positive correlation between financial development, GDP per capita, and interest rate spread and a negative correlation between inflation rate and real interest rates, and the amount of private domestic savings. In addition, it was shown that exchange rate spread, public sector credit, private sector credit and total private savings, all contributed to economic development.

Akpansung and Babalola (2011) examined the nexus between bank credit and economic growth for the period 1970-2008 in Nigeria using the two-stage least square method. The results revealed that why lending rates hindered economic growth over the sample period, private sector credit had a beneficial influence on it. In a related study, Aliero, Abdullahi and Adamu (2013) utilized autoregressive distributed lag (ARDL) approach to investigate the relationship between credit to the private sector and economic growth in Nigeria. The results showed that a long-run equilibrium relationship exist between the duo within the period under investigation.

Onafowara, Owoye and Huart (2011) examined the relationship between savings and investment in eight advanced economies of the European Union from 1970 to 2008 with the Autoregressive Distributed Lag (ARDL) approach, and evidence of long-run causality running from saving to investment in the Netherlands and the United Kingdom, a reverse causality in Denmark, Germany, and Luxembourg, bidirectional causality in Belgium, and neutrality in France and Italy.

Ogamba and Onyiuke (2009) examined the relationship existing between stock market development and the level of investment flows in Nigeria from 1970 to 2006 with Johansen Cointegration, and found that development in the Nigerian stock market was able to spur growth in domestic private investment flows, but unable to do so in the case of foreign private investment.

This study has identified the existence of knowledge gap from the reviewed literatures. Previous studies have addressed the impact of money market finance on economic growth (Orugun1, Saliu & Ajayi, 2020; Pavtar, 2016; Eze & Nera, 2017; Uruakpa, 2019) without consideration as to how money market finances can impact on private investments. Private investment is seen as an ideal conduit through which the financial market impact on economic growth. This study believes that the significance of money market to the economy is only possible through private investment activities.

From the position that money market finances (savings and credits) are a form of financial intermediation, there appear to be contradictory findings concerning financial intermediation and private investment. For instance, Onodugo, Anowor, Ukweni and Ibiam (2014), Okorie and Chikwendu (2019) and Mose (2017) have shown that credits have positive impact on private investment. By implication, money market credits are expected to depict positive relationship with private investment. Again, Ugwu, Okoh and Mbah (2017), Al-Afeef and Onafowara, Owoye and Huart (2011) posited that savings and investment have positive relationship. by extension, money market funds (savings through money market instruments) are expected to exhibit positive relationship with private investment.

It is important to admit that the existence of knowledge gap also created a situation for evidence and empirical gaps because findings are almost non-existence in this relationship. Empirical gap suggests that, apart from Ezeoha, Ogamba and Onyiuke (2009) that investigated stock market and private

investment, no prior research have explored how money market influence the credit to the private sector for investment.

This study therefore intends to ascertain the effect of money market operations on credit to the private sector and also contribute to knowledge.

Methodology

The study adopted quasi-experimental research design. The secondary source of data collection was employed in this study. Data for TA, CP, CD, BA and CPS were sourced from Central Bank of Nigeria statistical bulletin 2024 edition. The study employed Auto regression distributive lag (ARDL) model, since its most suitable for the model of this nature since the stationarity test of the data set were stationary at this level of integration

Model Specification

The model for this study is specified thus;

The relationship is expressed mathematically Thus:

CPS = F(TB, CP, CD, BA)

This is further written as a regression equation thus.

$CPS = b_0 + b_1TB + b_2CD + b_3\mathbf{CP} + b_4BA + l$

Where:

CPS = Credit to Private Sector

TB = Treasury bill

CD = Certificate of deposit

CP = commercial paper

BA = Bankers acceptance

b_0 is a constant (intercept); while b_1, b_2, b_3, b_4

Represents shops coefficients and l is the error term.

Table 4.1 Logged form of Data

YEAR	LogCPS	LogTB	LogBA	LogCD	LogCP
2000	2.724582	5.667953	4.502084	2.073352	4.278811
2001	2.88364	5.766811	4.487885	2.106871	4.548359
2002	2.968714	5.766811	4.508047	3.385856	4.567946
2003	3.040023	5.916483	4.530204	3.121986	4.677324
2004	3.152797	5.940306	4.380264	3.364438	4.903715
2005	3.264438	5.931879	4.61409	3.480524	5.289123
2006	3.359953	5.845966	4.660329	3.391852	5.286707
2007	3.564507	5.759615	4.912934	3.397575	5.560348
2008	3.89758	5.750673	5.019718	3.284047	5.674781
2009	3.995178	5.759615	5.189135	3.264487	5.727513
2010	4.02194	5.759615	5.186633	3.513896	5.792806
2011	3.982272	5.673877	5.105609	3.512711	5.843561
2012	4.123644	5.673877	4.82216	3.654408	5.915242

YEAR	LogCPS	LogTB	LogBA	LogCD	LogCP
2013	4.160211	5.636049	4.854147	3.373905	5.844056
2014	4.224093	5.737931	4.889378	3.711208	5.874073
2015	4.271573	5.807487	4.870496	3.665375	5.779932
2016	4.322741	5.877128	4.951152	3.567273	5.858851
2017	4.351394	5.901721	4.794095	3.391182	5.706785
2018	4.354998	5.510714	4.867687	3.289076	5.624602
2019	4.409542	5.720553	4.112384	3.512097	5.593001
2020	4.462847	5.87894	4.851452	3.436465	5.363814
2021	4.516478	5.014212	4.800213	3.574205	5.493563
2022	4.591202	5.014212	4.714817	3.437655	5.329136
2023	4.723331	5.014212	4.539831	3.393628	5.628647
2024	4.69331	5.014212	4.909034	3.560206	5.322291

Source: Authors' Computations, 2026.

Table 4.2 Result of Unit Root Test

VARIABLES	ADF TEST STATISTICS AT LEVEL	5% CRITICAL VALUES	LEVEL OF INTEGRATION	REMARKS
TB	-5.595835	-2.998064	I (1)	Stationary @ 1st Diff.
CD	-4.134977	**-2.991878**	I (0)	Stationary @ Level
CP	-3.797520	-3.012363	I (0)	Stationary @ Level
BA	-7.177243	-2.998064	I (1)	Stationary @ 1st Diff.
CPS	-3.194252	-2.998064	I (1)	Stationary @ 1st Diff.

Source: e-views output , 2026

In the unit root test result above, the ADF statistics reveal CD and CP were stationary at level while CPS, TB and BA were stationary at first difference. This implies that the series are integrated (stationary) at different order of integration (i.e order I(0) and I(1). We therefore affirm that the variables have statistical properties that are constant and do not change over the time period under study. Based on the above result, ARDL model is deemed appropriate for analyzing the data set since all the variable were stationary at different order of integration.

Results of Coefficient of the ARDL Estimate

Dependent Variable: D(LOGCPS)
Method: Least Squares
Date: 01/25/26 Time: 20:21
Sample (adjusted): 2002 2024
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.703432	0.893959	1.905492	0.0810
LOGTB(-1)	-0.185891	0.020043	-9.274609	0.0000
LOGCD(-1)	0.068998	0.081018	0.851642	0.4111
LOGCP(-1)	0.180457	0.142741	1.264223	0.2302
LOGBA(-1)	-0.175846	0.038075	-4.618411	0.0069
R-squared	0.740101	Mean dependent var		0.078681

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Adjusted R-squared	0.656851	S.D. dependent var		0.077630
F-statistic	5.409268	Durbin-Watson stat		2.338943
Prob(F-statistic)	0.023016			

Source: **e-views output , 2026**

Test for long run relationship using bounds test

Wald Test:

Equation: Untitled

Test Statistic	Value	Df	Probability
F-statistic	5.009308	(5, 12)	0.0494
Chi-square	10.04654	5	0.0539

Null Hypothesis: C(7)=C(8)=C(9)=C(10)=C(11)=0

Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(7)	-0.242068	0.096293
C(8)	-0.185891	0.120043
C(9)	0.068998	0.081018
C(10)	0.180457	0.142741
C(11)	-0.175846	0.138075

Source: **e-views output , 2026**

Restrictions are linear in coefficients.

Pesaran Criteria

Critical value	Lover Bound	Upper Bound
1%	3.74	4.99
5%	2.86	4.01
10%	2.45	3.52

The F-statistics of the bound test was obtained as 5.009308. Since the f-statistic is greater than the upper and lower bounds of pesaran critical value at 1% and 5% respectively. We therefore infer that a long run effect exists in the model.

Test for Goodness of fit

The adjusted R^2 of the model shows 0.74indicating that about 74% of the variations in credit to private sector is being accounted for or explained by explanatory variable which is a very good fit. The remaining 36% is taken care of by other factors included in the error term.

Autocorrelation Test Result

The Durbin Watson value of 2.3tends towards 2 than 0 which is an indication that there is no autocorrelation among the variables. The absence of autocorrelation further confirmed that the variable is independent of each other.

Breusch-Pagan-Godfrey Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	**0.462817**	**Prob. F(10,12)**	**0.8844**
Obs*R-squared	6.401662	Prob. Chi-Square(10)	0.7805
Scaled explained SS	4.389715	Prob. Chi-Square(10)	0.9281

The test for heteroscedasticity indicates that the probability value of the F- statistic is0.8844.which is greater than 0.05. On the other hand, observed R squared and scaled explained SS respectively have probabilities that are above 5%. All these imply that there is no heteroscedasticity in the model hence the model is homoscedastic.

Test of Hypotheses

H_{01}: Treasury bill has no significant effect on credit to private sector.

The P-value of TB was obtained as 0.0000, which is less than the critical value at 5% (0.05). this implies that treasury bill has significant effect on credit to private sectorin Nigeria

Test of Hypotheses Two

H_{02}: There is no significant effect of certificate of deposit and credit to private sector

The P-value of certificate of deposit was obtained as 0.4111which is greater than the critical value at 5% (0.05). this implies that certificate of deposit has insignificant effect on credit to private sector in Nigeria

Test of Hypotheses Three

H_{03}: Commercial papers have no significant effect on credit to private sectorin Nigeria.

The P-value of commercial paper was obtained as 0.2302, which is greater than the critical value at 5% (0.05). this implies commercial paper has no significant effect on credit to private sectorin Nigeria.

Test of Hypotheses Four

$H0_4$: There is no significant effect bankers acceptance and credit to private sector in Nigeria.

The P-value of bankers acceptance was obtained as 0.0069, which is less than the critical value at 5% (0.05). This implies bankers acceptance has significant effect on credit to private sectorin Nigeria.

The effect of Treasury bill on credit to private sector

Treasury bill (TB) has negative significant effect on credit to private sector of Nigeria economy. This direct relationship implies that a percentage increase in the slope of TB will result to a corresponding decrease in credit to private sector in Nigeria to the tune of -0.185891.

The effect of certificate of deposit (CD) on credit to private sector

Certificate of deposit (CD) has positive insignificant effect on credit to private sector of Nigeria economy. This direct effect implies that a percentage increase in the slope of CD will result to a corresponding increase in credit to private sector in Nigeria to the tune of 0.068998.

The effect of commercial paper on Credit to Private Sector

Commercial paper (CP) has positive insignificant effect on credit to private sector of Nigeria economy. This direct effect implies that a percentage increase in the slope of CP will result to a corresponding increase in credit to private sector in Nigeria to the tune of.180457.

The effect of bankers acceptance on credit to private sector

Bankers acceptance (BA) has negative insignificant effect on credit to private sectorof Nigeria economy. This inverseeffect implies that a percentage increase in the slope of BA will result to a corresponding decrease in credit to private sectorin Nigeria to the tune of -0.175846.

The F-statistics of the bound test was obtained 5.009308 . Since the f-statistic is greater than the upper and lower bounds of pesaran critical value at 1% and 5%, respectively. We therefore infer that a long-run effect exists in the model.

Summarily, money market operations were disaggregated into treasury bill, certificate of deposit, commercial paper and bankers acceptance while credit to private sector (CPS) is used to proxy credit to private sector. Quasi experimental research design was adopted whereby secondary data on the above stated dependent and explanatory variables were sourced from 2024 edition of the Central Bank of Nigeria (CBN) bulletin. The data so generated were analyzed using ARDL model and diagnostic statistical test. The diagnostic tests centered on ascertaining the stability of data generated for these variables. However, the statistical test was conducted at 5% level of significance; t-test and goodness of fit test. Results of the diagnostic test showed no presence of either autocorrelation or multicollinearity.

From the analysis of data in section four the following findings were made;

1. Treasury bill (TB) has negative significant effect on credit to private sector in Nigeria
2. Certificate of deposit (CD) has positive insignificant effect on credit to private sector in Nigeria
3. Commercial paper (CP) has positive insignificant effect on credit to private sector in Nigeria
4. Bankers acceptance (BA) has negative significant effect on money supply in Nigeria

Conclusion

The researcher having studied the effect of money market operation and credit to private sector in Nigeria, discovered that Treasury bill and bankers acceptances showed inverse effect while commercial paper and certificate of deposit assert positive effect. However, the study inferred that money market operations has significant effect on credit to private sectors since the joint power of the predictor variables revealed such in our analysis.

Recommendations

The following recommendation were made base on the study:

1. Treasure bill from our analysis is positively signed as such, there is the need for regulatory authorities to increase issuance of Treasury bills as this will increase credit to private sector.
2. The study revealed that commercial paper is positively signed. Increased of this instrument should be encouraged for improved credit to the private sector.
3. There is need for regulatory authorities to maintain policies that will increase issuance of bankers' acceptances in line with economic conditions of the country at a given point in time.

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Appendix

Data set for CPS, TB, BA, CD and CP from 2000 to 2024

YEAR	CPS Nb	TB Nb	BA Nb	CD Nb	CP Nb
2000	530.37	465,535.8	31,774.9	118.4	19,002.5
2001	764.96	584,535.8	30,752.8	127.9	35,347.5
2002	930.49	584,535.8	32,214.2	2,431.4	36,978.2
2003	1,096.54	825,054.5	33,900.3	1,324.3	47,569.0
2004	1,421.66	871,577.0	24,002.9	2,314.4	80,115.3
2005	1,838.39	854,828.0	41,123.5	3,023.6	194,591.2
2006	2,290.62	701,399.8	45,743.5	2,465.2	193,511.6
2007	3,668.66	574,929.4	81,834.0	2,497.9	363,369.5
2008	7,899.14	563,214.0	104,645.0	1,923.3	472,913.0
2009	9,889.58	574,929.4	154,573.4	1,838.6	533,964.9
2010	10,518.17	574,929.4	153,685.7	3,265.1	620,591.6
2011	9,600.02	471,929.5	127,529.1	3,256.2	697,527.6
2012	13,293.64	471,929.5	66,398.7	4512.4	822,700.9
2013	14,461.41	432,563.0	71,473.8	2365.4	698,323.0
2014	16,753.00	546,929.4	77,513.7	5,142.9	748,295.5
2015	18,688.42	641,929.4	74,215.7	4,627.8	602,465.9
2016	21,025.24	753,578.1	89,361.8	3,692.1	722,521.8
2017	22,459.18	797,482.5	62,243.6	2,461.4	509,079.1
2018	22,646.33	324,126.0	73,737.2	1,945.7	421,309.8
2019	25,676.87	525,476.0	12,953.4	3,251.6	391,743.0
2020	29,030.01	756,728.3	71,031.6	2,731.9	231,107.4
2021	32,845.67	103,326.5	63,126.7	3,751.5	311,575.2
2022	39,012.34	103,326.5	51,858.2	2,739.4	213,371.5
2023	52,884.78	103,326.5	34,660.2	2,475.3	425,252.5
2024	49,352.54	103,326.5	81,102.4	3,632.5	210,034.9

Source: CBN statistical bulletin, 2024