

Effect of Money Market Operations on Industrial Productivity in Nigeria

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DOI: [10.36348/sjef.2023.v07i07.002](https://doi.org/10.36348/sjef.2023.v07i07.002)

| Received: 20.05.2023 | Accepted: 25.06.2023 | Published: 04.07.2023

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Abstract

Nigeria's industrial zone is often seen as an instrument of economic development, and the financial sector is frequently seen as the fuel that accelerates the growth of that sector. These two areas are bound to interact in a way that benefits both. To that end, this study evaluated the impact of money market activities on industrial production in Nigeria. Quantitative data (time series data) was sourced from the Central Bank of Nigeria's statistics bulletin in 2021. The findings discovered that the interest rate was a highly predictive and negative factor for industrial sector production in Nigeria, but had little to no influence on production directly. But there exists a strong positive correlation amid the money supply and industrial production in Nigeria. Findings suggest that money market interest rates should be decreased and maintained by regulatory bodies at current levels. It is the job of the central bank to make sure there is always enough cash on hand for productive endeavours.

Keywords: Money Market, Industrial Productivity, Interest Rate, Money Supply, Credit to Private Sector, Money Market Instruments.

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INTRODUCTION

The money market's fundamental function, that of financial intermediation, is crucial to the progress of any economy. It is defined as a method through which resources may be moved from an abundant to a depleted area. Institutions in the money market perform their financial intermediation role by combining deposits and savings and transforming them into loans and investments (Bloch & Tang, 2013). As such, the intermediation role is such that, these monetary institutions have the professional competence of merging the interest of account holders with those of debtors by giving a coordination function for two stakeholders (Olokoyo, Adetiloye & Ikpefan, 2016).

Therefore, the ability to engage in financial intermediation entails progress, constructive change, and the separation of the saving and investing roles in an economy. The phrase "money market" is used to describe the market where short-term, often less than a year, securities are traded. Unlike organized securities and commodities exchanges, it has no central location; businesses are usually transacted by telephone, fax, or telex or it can be executed online via what is generally referred to as money market instruments (Ikpefan &

Osabuohien, 2012). The central bank (CBN), governments, businesses, enterprises, mutual funds, and investors all play significant roles in the money market.

Firms that engage in the transformation of inputs into outputs constitute what is known as the "industrial sector". It serves as an instrument of sustaining growth and development by increasing productive capacity, enhancing revenue, creating employment opportunities, ensuring effective income distribution, poverty reduction, and contributing to export and gross domestic product (Okoye, Nwakoby & Okorie, 2016). The importance of the industrial sector to the Nigerian economy, in general, has led several governments over the years to develop several industrial policies and programs to boost the productivity of the industrial sector.

Such industrial policies involve government intervention in embarking on powerful reforms that will assist in widening the sectorial base of the economy (Aza & Dodo, 2014) and they are potent instruments for resuscitating and enhancing the effectiveness and efficiency of the industrial sector in the utilization of national resources for stimulating rapid economic growth and development (Akinwale & Adekunle,

2019). The intent of these and other changes was to make Nigeria's economy more accessible to global trade, increase its capacity for manufacturing, and make the manufacturing subdivision the primary instrument of growth as well as long-term development.

Nigeria's indigenization policy, trade and financial liberalisation, Structural Adjustment Programmes (SAP), and the National Economic Empowerment and Development Strategy (NEEDS) are just a few of the methods that have been tried. The Nigeria Export-Import Bank (NEXIM), the Urban Development Bank (UDB), the Bank of Industry (BOI), and the Bank of Agriculture (BOA) were all set up to provide assistance to the industrial sector in the form of funding, specialised assistance, guidance, and management, respectively. The CBN has also provided assistance by arranging specialised credit plans at concessionary loan charges, particularly in agriculture financing, export development, and small and medium-sized businesses. These attempts reveal the importance of the money market as a provider of finance and a medium of monetary policy (Akinola, Efuntade & Efuntade, 2020).

Nigeria's industrial sector contributed significantly to the overall output of the economy in the 1980s and 1990s. Its contribution to GDP averaged 40.97% from 1981 to 1989. The rate declined to 40.07% in the 1990s and further declined to an average of 30.55% from 2000 to 2010. Between 2011 and 2021, the contribution of the industrial sector to GDP averaged 20.03% (CBN Statistical Bulletin, 2021). The recent volatility of oil prices in the global market as well as dwindling reserves and failing export earnings have led recent governments to turn their attention towards stimulating industrial sector productivity and this has led to rising concerns about the function of the money market in stimulating industrial productivity in Nigeria.

The industrial sector is a major anchor of the Nigerian economy; it is a crucial driver of economic productivity and infrastructural development. A well-functional industry sector ultimately translates to healthy economic growth. However, recent observations have shown that in recent times, the industrial sector has contributed less and less to the Nigerian economic growth and this is worrying as real economic growth has moved at increasingly slower rates on annual bases. One of the major determinants of industrial sector performance is the availability of capital for recovery, survival, production and/or expansion (Effiong & Ekong, 2022). The money market is a major market for obtaining short-term funds for industries in Nigeria. However, recent malicious and unethical practices have moved some money market players into exploitative practices that have nullified the role of the money market in providing capital for productivity.

Other factors that have hampered the money market's role towards the industrial sector is the high rate of loan default, low viability of money market investments and low availability of capital among other issues. These issues have led money market agencies to raise their interest rates and demonstrate a reluctance to lend money to or invest in industries in Nigeria. Furthermore, the low effectiveness of monetary operations to control inflation in recent times in Nigeria coupled with depreciating exchange rates has seen the cost of raw materials production (especially imported ones) rise sporadically. These issues have distorted the performance of the industrial sector, in terms of productivity and contribution to GDP. As a result, productivity in the country has been crippled, as most of the products used in Nigeria are imported. This has called into question, the role of the money market in promoting industrial sector productivity. Contrasting results among empirical studies have also increased the need for current studies to examine how money market operations have affected the productivity of industries in Nigeria.

However, after a rise of 4.7% in the previous quarter, Nigeria's industrial output dropped 2.9% in September 2019. A well-articulated and executed macroeconomic policy framework is required to realize the advantage of capital in the industrialization process before Nigeria can begin a meaningful path to industrialization, as shown by the experiences of industrializing nations. A stable monetary system is necessary for the collection and investment of savings.

Thus, Imoughele and Ismaila (2014); Shobande (2019) opined that, in order to position Nigeria's manufacturing sector for the purpose of leading economic transformation, the monetary authority has formulated diverse monetary policies through different monetary channels to ensure that the manufacturing sector operates optimally in the economy. To keep the manufacturing sector running smoothly, the central bank has worked to maintain a stable exchange rate, price level, and other macroeconomic indicators.

As they encourage local commerce and provide enough liquidity for the production sector, banks and other financial institutions may also serve as a spur to contemporary development. Banks influence firms' financing choices via the lending process, allowing them to choose the best suitable financing strategy for their needs. Thus, the supply of settlement and payment facilities offered by the money market activities improves transactions and the growth of enterprises in Nigeria.

As a result, several theoretical and empirical studies have tried to examine the effects of money market operations on industrial productivity in Nigeria

in order to proffer solutions to the dwindling productive contribution of the industrial sector. Some such studies have attested to the pivotal role played by the money market in boosting productivity in the Nigerian industrial sector (Akpunonu & Orajaka, 2021; Osakwe, Ibenta & Ezeabasili, 2019; Okonkwo, Egbulonu & Emerenini, 2015) while other studies revealed contrasting findings (Owolabi & Adegbite, 2014; Ezeaku et al, 2018). It is therefore upon this backdrop that the researcher presently finds reasons to examine the effect of money market operations on industrial productivity in Nigeria.

LITERATURE REVIEW

Theoretical Review

Economic growth in Nigeria is commonly agreed upon to be driven by the interplay between the country's thriving manufacturing sector and its liquid money market. These two industries have to work together for mutual benefit. Therefore, the impact of money market activities on Nigeria's industrial output is investigated in this study without bias. Interest rates, the quantity of money in circulation, private sector credit, and the market value of money market instruments are the subsets of money market activities. The qualitative information came from books, articles, and studies already published online. The statistics bulletin (2021) published by the Central Bank of Nigeria (CBN) provided the time series data used in this study's quantitative analysis.

In Nigeria, the results showed that money supply positively and significantly predicted industrial sector output and money also had a significant effect on industrial sector output, while the interest rate negatively and significantly predicted industrial sector output but had no significant effect on it. The study concludes that interest rates in the money market should be lowered and that regulatory bodies should keep them from rising to an unproductive level. That banks and businesses have access to sufficient funds to engage in constructive endeavours is another responsibility of the monetary authorities.

Empirical Review

From 1981 to 2018, Effiong and Ekong (2022) examine the effect of bank lending on the expansion of Nigeria's industrial sector. The statistics bulletin published by the Central Bank of Nigeria served as the data source for this study. The data was subjected to the ARDL Bounds test to look for a persistent link. The ARDL findings for both short-run dynamics and long-run form demonstrate that bank loans had a favourable and statistically significant influence on the performance of the industrial sector. Lending rates have a little negative impact on industrial production. For investors in the industrial sector to borrow more money, the report recommended lowering the lending rate and instituting effective credit rationing in favour of the industrial sector.

Ogundipe (2022) looked at how the Central Bank of Nigeria's monetary policy affected Nigeria's SMEs. The data quality was investigated using a battery of tests, including the unit-root test and descriptive statistics. Both our explanatory variables and our dependent variable were examined for time-varying volatility and leptokurtosis using descriptive statistics. The Augmented Dickey-Fuller (ADF) unit root test was used to further examine the long- and short-term connections between the variables. Co-integration testing was carried out to confirm the outcome of the unit root test and to determine whether or not the variables were linked throughout time. Growth in small and medium-sized enterprises (SMEs) is positively associated with the money supply, commercial bank loans and advances, and bank reserves, but negatively correlated with lending interest rates.

Akpunonu and Orajaka (2021) studied the link between monetary policy and industrialization in Nigeria between 1986 and 2019. The information for this analysis came from the 2019 issue of the CBN Statistical Bulletin. Following the development of a multiple regression model, the data was analysed using Ordinary Least Squares (OLS) regression. Manufacturing GDP growth in Nigeria was shown to be positively and statistically significantly influenced by Open Market Operation (OMO), as measured by the Treasury bill rate. The Cash Reserve Ratio (CRR) has a substantial positive effect on manufacturing GDP in Nigeria, whereas the Monetary Policy Rate (MPR) has a considerable negative effect.

George-Anokwuru and Bosco (2020) examined the effect of interest rates on Nigeria's manufacturing sector from 1980 to 2018. The Statistical Bulletin of the Central Bank of Nigeria (CBN) data was analysed using the Autoregressive Distributed Lag model. The ARDL Bounds test confirmed a statistically significant association between the variables over the long run. Findings from a Nigerian study suggest that interest rates may have an effect on manufacturing output. The study found that investors should be incentivized to borrow funds for business purposes by a low interest rate that the Central Bank of Nigeria, as the country's primary monetary authority, should establish.

Hammed (2020) examines how a change in Nigeria's monetary policy affected the country's manufacturing output using time series data that spans 1981-2018. Co-integration testing was done to establish the existence of a long-term relationship between the variables, and a Structural Vector Auto-Regressive model was used to look for shocks. A study found that industrial output would be little affected by a negative shock to interest rates, but would benefit greatly from a positive shock to the total money supply. But the study shows that a shock to broad money is the primary monetary policy weapon that might boost industrial output in Nigeria. Finally, the essay urges that this

consideration be given top priority by government and policymakers when they implement unconventional monetary policy.

Akinwale and Adekinle (2019) examined how different industrial policies in Nigeria affected the country's manufacturing output. This research analysed secondary data from the Central Bank of Nigerian Statistical Bulletin between 1986 and 2017 using the Augmented Dickey-Fuller Unit Root Test, the Johansen Co-integration, and the Error Correction Model. The unit root test and the stationary first differences test both showed that industrial production, trade openness, the exchange rate, credit to the private sector, and government capital spending are all interrelated over the long term, as did the Johansen Co-integration test. The results of the error correction model showed that trade liberalisation had a little, and perhaps negative, effect on industrial output.

Iganiga (2019) analysed the performance of the manufacturing sector in relation to GDP growth using the manufacturing index as a primary indicator of industrial sector development. A structural variance autoregressive (SVAR) model was applied to data from Nigeria between the years 1970 and 2015, with the data being separated in various ways. The analysis concludes that the theoretically predicted continued higher trend in official lending interest rates has discouraged investment and, by extension, industrial output. Financial depth (M2/GDP) has a beneficial influence on industrial output, although this effect is not statistically significant.

Osakwe, Ibenta, and Ezeabasili (2019) studied the effects of monetary policy shifts in Nigeria on the country's manufacturing sector. Manufacturing (MANU) sector output is the dependent variable, with the monetary policy rate, the rate of Treasury bills, the cash reserve requirement, and the money supply serving as the explanatory variables. This study took a backwards look at the situation by using data that had already been gathered (secondary data) from the CBN Statistical Bulletin. Studies were conducted over a 32-year period, from 1986 to 2017. The data were run through an Augmented Dicker Fuller stationarity test to determine the best econometric strategy for analysis. We use the Autoregressive Distributed Lag (ARDL) technique to estimate this model. The results demonstrate that Nigeria's manufacturing sector's output is profoundly affected by monetary policy instruments in the short to medium run. According to the findings, the manufacturing sector in Nigeria might benefit from the use of monetary policy instruments in the near run.

Simon-Oke and Jolaosho (2016) examined the impact of monetary shifts on rising manufacturing output in Nigeria. Industrial productivity growth was measured by each sector's proportionate contribution to GDP, while the interest rate, the money supply to GDP,

and the exchange rate were employed as surrogates for financial reform. In order to examine the data, vector auto-regression was utilised. The ratio of money supply to GDP and the exchange rate were shown to have significant effects on industrial productivity development in Nigeria.

The Johansson cointegration and error correction model (ECM) was used by Okonkwo *et al.*, (2015) to examine the effects of monetary policy shifts in Nigeria on the manufacturing sector. Data on explanatory variables, such as money supply, credit to the private sector, inflation, and the interest rate, was gathered throughout the whole 32-year period, commencing in 1981, while the dependent variable was the industry's contribution to GDP. According to the results, Nigeria's manufacturing sector profited greatly from both increased money supply and private-sector credit.

The effect of money market activities on industrial output in Nigeria is studied, taking into consideration a variety of parameters such as credit to the private sector, interest rate, and money supply. To the author's knowledge, however, none of these research accounted for the full value of money market instruments in their regression analysis. Numerous short-term financial instruments exchanged on the money market by banks, governments, and private investors make up this variable. These include such things as banker's acceptances, certificates of deposit, and treasury notes. The value of all money market instruments is included as a new independent variable in the analysis to help address this gap. Since no research were found that used time series data beyond 2019, the author also allows for a two-year lag.

METHODOLOGY

This study examined the effect of money market operations on industrial productivity in Nigeria. The study therefore adopted the *Ex-post Facto* research design which involves drawing inferences about an economic phenomenon from past occurrences. In other words, findings about the effect of money market operations on industrial productivity were drawn from an analysis of its past trends. This research design was chosen because of its suitability to the data available for the study – the annual time series data.

The data used in this study are quantitative in nature. The qualitative data were used to build up the background of the study as well as the literature exploration. On the other hand, the secondary data was used to conduct the analysis for the procurement of relevant findings. The qualitative data were sourced from journals, webpages, other internet sources and previous research projects. The quantitative data (which is the time series data) were sourced from the Central Bank of Nigeria (CBN) statistical bulletin (2021). The data used covered the period from 1992 to 2021.

This study adopts a similar model to the study of Akinola, Efuntade and Efuntade (2020) in their study on the effect of bank financing on the industrial sector in Nigeria. The researchers expressed industrial sector growth as a function of domestic money supply, banks' credit and maximum bank lending rate. However, this study expresses Industrial Sector Output (ISO) as a function of Interest Rate (INR), Money Supply (MOS), Credit to Private Sector (CPS) and the total value of Money Market Instruments (MMI).

The functional model of the study is therefore expressed below as;

$$ISO = f(\text{INR, MOS, CPS, MMI}) \quad 3.1$$

In line with the methods of data analysis, the researcher restates the functional model by including properties such as regression coefficients, constant terms and error terms. By ascribing econometric properties to the functional model, the model becomes an econometric model and is stated thus;

$$ISO = \alpha_0 + \alpha_1\text{INR} + \alpha_2\text{MOS} + \alpha_3\text{CPS} + \alpha_4\text{MMI} + \varepsilon_t \quad 3.2$$

Where α_0 is the constant term, also known as the intercept; α_1 , α_2 , α_3 and α_4 are the coefficients of the regression.

Description of the Variables

The variables in the research are split into two groups: those that are "dependent" on the other variables, and those that are "independent." Interest variables are called dependent variables. In this analysis, industrial production in Nigeria serves as a proxy for industrial productivity. The value of this variable, stated in billions of naira, indicates the industrial sector's contribution to Nigeria's GDP.

The independent variable, on the other hand, is the one whose change or occurrence is hypothesized to have an influence on the dependent variable. That is, we think that if we change the independent variable, it will have an effect on the dependent one. The factors that may be changed include the interest rate, the amount of

money in circulation, the amount of credit extended to the private sector, and the overall value of money market instruments. The values of these macroeconomic indicators are a reflection of the actions taking place in the money markets. Interest rates are measured in percentages, whereas the money supply, loans to the private sector, and total value of money market instruments are all measured in billions of naira.

A Priori Expectation

What this means is the impact that the independent variable is expected to have on the dependent ones. Before creating the outcomes of the study, the researcher has expectations about what the analysis would reveal. A priori assumptions are those that can be backed up by theory, data, or good reasoning. The Finance-Growth theory serves as the basis for the researcher's anticipations before beginning the study analysis. The table below provides a summary of the researcher's prior expectations:

Table 1: A Priori Expectation of the Researcher

Variables	Expected Sign
ISO and INR	Negative (+)
ISO and MOS	Positive (+)
ISO and CPS	Positive (+)
ISO and MMI	Positive (+)

Source: Researcher's Expectation; Finance-Growth Theory

Data Analysis

Both the Ordinary Least Square (OLS) regression analysis and the Granger Causality test were used to examine the data. While the conventional least square was used to look at how strongly two variables were related to one another, the Granger Causality test was used to see which way the link went. In order to determine whether or not the independent variable has an impact on itself and the direction of this effect (positive or negative), both approaches were combined.

DATA ANALYSIS AND INTERPRETATION

Table 2: Ordinary Least Square Regression

Dependent Variable: LISO				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCPS	-0.480594	0.326862	-1.470327	0.1539
LINR	-0.804786	0.283433	-2.839423	0.0088
LMMI	-0.225444	0.212014	-1.063346	0.2978
LMOS	1.441361	0.421641	3.418452	0.0022
C	4.581964	0.922728	4.965671	0.0000
R-squared	0.981797	Mean dependent var		8.712378
Adjusted R-squared	0.978884	S.D. dependent var		1.454712
S.E. of regression	0.211388	Akaike info criterion		-0.119233
Sum squared resid	1.117120	Schwarz criterion		0.114299
Log likelihood	6.788501	Hannan-Quinn criter.		-0.044524
F-statistic	337.0961	Durbin-Watson stat		1.220583
Prob(F-statistic)	0.000000			

Source: Eviews 11.0 Regression Output, 2023

The result of the OLS regression reveals that Credit to Private Sector (CPS) negatively predicts Industrial Sector Output (ISO). This indicates that an increase in credit to the private sector will likely be met with a decline in industrial sector output. The corresponding regression coefficient indicates that increasing credit to the private sector by one per cent will coincide with a 0.48% decline in the ISO. However, this prediction is insignificant, indicating a high rate of predictive error than is allowed for this study.

Likewise, the OLS results revealed that Money Market Instruments (MMI) negatively predict Industrial Sector Output (ISO). This indicates that an increase in money market instruments will likely coincide with a decline in industrial sector output. The corresponding regression coefficient indicates that increasing money market instruments by one per cent will coincide with a 0.23% decline in the ISO. However, this prediction is also insignificant, indicating a high rate of predictive error than the 5% allowed for this study.

The interest rate was found to negatively and significantly predict industrial sector output. This shows

that with an error limited to 5%, we can predict that rising interest rates are associated with lower industrial sector output. The corresponding regression coefficient indicates that increasing the interest rate by one per cent will coincide with a 0.8% decline in the ISO. Conversely, Money supply positively and significantly predicted industrial sector output. This shows that with less than 5% error, we can predict that an increase in the money supply is associated with an increase in the industrial sector output. The resulting coefficient of the regression indicates that increasing money by one per cent will coincide with a 1.4% rise in the ISO.

The R-squared shows that the model of the study is well-fitted in predicting industrial sector productivity. With a value of 0.9818, it can be concluded that about 98% of the trends in industrial sector output can be predicted or explained by the combined trends in the money market variables (MMI, MOS, CPS and INR). The prob(F-statistic) of the regression analysis value of 0.000 is less than 0.05 revealing that the overall model prediction is significant.

Granger Causality Test

Table 3: Granger Causality for INR and ISO

Pairwise Granger Causality Tests			
Lags: 1			
Null Hypothesis:	Obs	F-Statistic	Prob.
LINR does not Granger Cause LISO	30	3.12103	0.0886
LISO does not Granger Cause LINR		12.2924	0.0016

Source: Eviews 11.0 Granger Causality Test Output, 2023

The results of the Granger Causality test shown in Table 4.3 reveals that the p-values for both cases between LINR and LISO are 0.0886 and 0.0016. Only the second p-value is below 0.05. Therefore there

is a uni-directional causality flowing from industrial sector output to interest rate. It implies that changes in interest rate does not cause change in ISO, rather changes in ISO cause changes in interest rate.

Table 4: Granger Causality for MOS and ISO

Lags: 1			
Null Hypothesis:	Obs	F-Statistic	Prob.
LMOS does not Granger Cause LISO	30	5.65410	0.0248
LISO does not Granger Cause LMOS		0.18924	0.6670

Source: Eviews 11.0 Granger Causality Test Output, 2023

In the case of money supply and industrial sector output, the results reveal that the p-values for both cases between LMOS and LISO are 0.0248 and 0.6670. Only the first p-value is less than 0.05.

Therefore there is uni-directional causality flowing from the Money supply to LISO. It implies that changes in MOS cause changes in industrial sector output and not the other way around.

Table 5: Granger Causality for CPS and ISO

Lags: 1			
Null Hypothesis:	Obs	F-Statistic	Prob.
LCPS does not Granger Cause LISO	30	3.26634	0.0819
LISO does not Granger Cause LCPS		2.72077	0.1106

Source: Eviews 11.0 Granger Causality Test Output, 2023

The results reveal that the p-values for both cases between LCPS and LISO (0.0819 and 0.1106) are above 0.05. Therefore there is no form of causality between CPS and ISO. It implies that changes in credit

to the private sector do not cause changes in industrial sector output neither does changes in industrial sector output cause changes in credit to the private sector.

Granger Causality for MMI and ISO

Pairwise Granger Causality Tests			
Lags: 1			
Null Hypothesis:	Obs	F-Statistic	Prob.
LMMI does not Granger Cause LISO	30	4.67501	0.0396
LISO does not Granger Cause LMMI		2.56552	0.1209

Source: Eviews 11.0 Granger Causality Test Output, 2023

In the case of money market instruments and industrial sector output, the results reveal that the p-values for both cases between LMMI and LISO are 0.0396 and 0.1209. Only the first p-value is less than 0.05. Therefore there is uni-directional causality flowing from the Money market instrument to LISO. It implies that changes in MMI cause changes in industrial sector output and not the other way around.

Test of Research Hypotheses

The research hypotheses were tested using the p-values of the Granger Causality tests shown in the tables.

Hypothesis One:

H₀ 1: Interest rate does not have a significant effect on industrial productivity in Nigeria.

As shown, the probability between LINR and LISO is 0.8886 which is greater than 0.05 indicating a confirmation of the null hypothesis. Therefore, the Interest rate does not have a significant effect on industrial productivity in Nigeria.

Hypothesis Two:

H₀ 1: Money supply does not have a significant effect on industrial productivity in Nigeria.

As shown, the probability between MOS and ISO is 0.0248, which is less than 0.05 indicating a rejection of the null hypothesis. Therefore, money supply has a significant effect on industrial productivity in Nigeria.

Hypothesis Three:

H₀ 1: Credit to the private sector does not have a significant effect on industrial productivity in Nigeria.

As shown, the probability between DINFR and DDGDP is 0.0819 which is greater than 0.05 indicating a confirmation of the null hypothesis. Therefore, credit to the private sector does not have a significant effect on industrial productivity in Nigeria.

Hypothesis Four:

H₀ 1: Total value of money market instruments does not have a significant effect on industrial productivity in Nigeria.

The probability between MS and GDP is 0.0396 which is less than 0.05 indicating a rejection of the null hypothesis. Therefore, the total value of money market

instruments has a significant effect on industrial productivity in Nigeria.

DISCUSSION OF THE FINDINGS

The establishment, upkeep, development, and expansion of enterprises, all of which contribute to industrialization, rely heavily on short-term finance, the majority of which comes from the money market. Despite the study's finding that Nigeria's industrial sector has grown at a slower pace than the country's economy overall, it is expected that money market activity would boost industrial sector productivity. Therefore, this study set out to examine the impact of Nigeria's money market on industrial production. An true picture of the money market might be seen in interest rates, loans to the private sector, the money supply, and the overall value of money market instruments. The results of the OLS regression analysis and the Granger Causality tests constituted hard data.

The manufacturing sector's production was shown to be strongly and negatively influenced by the interest rate. The Monetary Theory of Credit, which suggests that interest rates affect credit distribution, which is related to economic production, is validated by these findings. Effiong and Ekong's (2022) observation of an inverse relationship between loan rates and industrial production is supported by these data. Ogundipe's studies in Nigeria similarly shown the negative correlation between interest rates and manufacturing production. The findings of the Granger causality test, however, indicated that interest rates were not the source of the forecast of industrial productivity. However, changes in interest rates were shown to be caused by output in the industrial sector. If Nigeria's industrial sector is unable to fulfil expectations, this might lead to an increase in interest rates.

On the other hand, the productivity of Nigeria's industrial sector is positively and significantly correlated with the country's money supply. This suggests that industrial output rises during times of increased money supply. Money as a fundamental tool for influencing economic activity, particularly industrial productivity, is confirmed by this forecast, lending

credence to the Monetary theory of credit and the finance-growth hypothesis. Adegioriola and Ben-Obi's (2022) research found that money supply positively and strongly influenced industrial output, therefore this finding is consistent with their findings. The Granger Causality test provided additional confirmation that the monetary base was causally linked to manufacturing output. When the two sets of data are combined, we find that the production of the industrial sector is positively affected by the money supply.

The study also found that a negative and statistically insignificant correlation existed between private-sector loans and industrial-sector productivity. This contradicts the researcher's assumption, as well as the Monetary hypothesis of Credit and the Finance-Growth hypothesis, both of which argue that credit distribution stimulates industrial activity. Similar results were found by Aiyedogbon and Anyanwu (2016), who found an inverse relationship between private-sector loans and manufacturing output. Ogundipe's research from 2022 also showed a negative correlation between private-sector loans and industrial output in Nigeria. However, results from a Granger causality test showed that there was no connection between private-sector lending and productivity in manufacturing. This demonstrates that the private sector's access to credit has not affected the manufacturing sector's output.

Finally, the results of the regression analysis showed that money market instruments strongly and negatively affected industrial sector productivity, which was the opposite of what was anticipated. This suggests that bad industrial performance occurred more frequently at times when more money market instruments were exchanged. None of the studied ideas fits this result. This weak correlation shows that the link between the two variables is not entirely clear. Interestingly, the Granger Causality test showed that fluctuations in industrial production were caused by the value of traded money market instruments. Combining these findings, it was determined that money market instruments indeed influence industrial sector production; however, it is not possible to say with any certainty whether this influence is beneficial or negative. This indicates that money market instruments have approximately as much of a negative impact on industrial sector production as a positive one.

CONCLUSION

Based on the data, the author finds that the money market has a considerable impact on industrial output, but not in the way that was hoped for or anticipated. The expansion of Nigeria's manufacturing industry may be directly attributed to the country's large money supply. It is not hard to see why private sector productivity has not improved as a result of banks providing loans to the private sector. These loans have historically carried exorbitant rates of interest. This is also why high-interest rate periods have been

characterised by low industrial productivity. It is also possible to conclude that the overall productivity of Nigeria's manufacturing sector has benefited somewhat from the high value of money market instruments exchanged, but has suffered more than it has benefited. That is to say, while it is evident that money market trading activities have had an impact on industrial sector productivity, the direction or signal of this effect is unclear.

Recommendations

Guided by the findings of the study, the researchers made the following recommendations;

1. There should be a downward review of the interest rates in the money market and the regulatory authorities should ensure that these rates are kept at a rate that is not counterproductive.
2. The monetary authorities should also ensure that adequate stock of money required for productive activities is allowed to circulate among economic agents.
3. The credits extended by the deposit money banks to the private sector should be given under more favourable conditions that foster industrial growth. With longer time to maturity, managerial assistance, and lower interest rates, bank credits will contribute more to industrial sector productivity
4. Securities traded in the money market should be backed by economic activities in the industrial sector. This will ensure that trading activities in the money market do not substitute, but rather complement industrial productivity in Nigeria.

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