



Interest Rate Dynamics and Export Performance in the Nigerian Economy

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Abstract

The study comprehensively investigates the relationship between interest rate dynamics and export performance within the Nigerian economy from 1991-2022. The variables for which data were sourced include: Real Interest rate, Export and Exchange rate. The study used cointegration test and Error correction mechanism (ECM) to estimate the data. The findings show that there is a longrun relationship between Interest rate and Export and Exchange rate in Nigeria. The ECM result shows that there is a negative relationship between interest rate and Export in Nigeria. The study therefore recommends that the Central Bank should introduce targeted financing initiatives, like subsidized loans or interest rate rebates, specifically tailored for export-focused enterprises. This approach aims to alleviate the burden of high borrowing costs on exporters, potentially mitigating their adverse effects on operations. By reducing the cost of borrowing, this strategy seeks to bolster the competitiveness of exporters in the face of elevated interest rates.

Keywords: Interest Rate, Export, International Trade, Exchange Rate

JEL Classification: G21, F10

1.0 Introduction

Interest rates, representing the cost of borrowing and the return for financial resources, hold significant sway over an economy's savings, investments, and overall growth (Acha & Acha, 2011). In Nigeria, interest rate policies, particularly prior to the Structural Adjustment Programme (SAP) in 1986, were instrumental in steering financial resources towards sectors like agriculture and manufacturing by offering reduced rates on loans, aiming to bolster output growth and potentially enhance exports. This period was characterized by stringent

government

Regulations and controlled interest rates that aimed to guide the economy toward growth through key sectors (Ayadi, Adegbite & Ayadi, 2008).

The period leading up to 1986 was marked by fixed interest rate instruments with some fluctuations. For instance, deposit rates increased from 4% in 1975 to 9.5% in 1986, while lending rates rose from 6% to 10.5% in the same period. However, these low rates proved unsustainable, discouraging savings and exacerbating the demand for loanable funds (Usman, Anyanwu & Galadima,

2022). Post-SAP, interest rates experienced significant

fluctuations as the market became more market-driven, influenced by economic shocks and financial repression, leading to reduced real growth rates (Central Bank of Nigeria, 2017).

The deregulation of interest rates following the adoption of SAP allowed market forces to dictate interest rates, though the Central Bank continued to influence the Minimum Rediscount Rate (MRR). This shift aimed to facilitate sufficient funds for manufacturers, seen as key agents of growth, and stimulate exports through initiatives like reduced lending rates for exporters and trade liberalization measures (Obioma & Ozughalu, 2005). However, despite efforts to make interest rates attractive for producers and exporters, inflationary pressures forced the Central Bank to raise interest rates, presenting challenges for accessing funds for investment and exports, compounded by various other hurdles faced by exporters (Adewale, 2020).

Keynes (1960) highlighted interest rates as the reward for relinquishing liquidity for a specific period, emphasizing lending rates. Adebisi (2002) expanded this notion, defining interest rates as returns or yields on equity, marking the opportunity cost of deferring current consumption to the future. Jhingan (2003) linked interest rates to credit supply and demand, asserting that interest rates function as prices for credit determined by the forces of demand and supply for loanable funds.

Ibimodo (2005) underscored interest rates as rental payments for credit usage by borrowers and returns for liquidity provided by lenders. Bernhardsen and Karsten (2007) introduced the idea of real interest rates, connecting them to stable inflation and a zero production gap, a factor frequently considered in monetary policy discussions. The Central Bank of Nigeria (2017)

In summary, the varying definitions of interest rates revolve around their role in borrowing, lending, credit allocation, and their impact on economic decisions.

Interest rates are integral in resource allocation, economic growth, and stimulating exports. Despite attempts to make rates attractive for producers and exporters, inflationary pressures have led to higher interest rates, posing challenges for accessing funds for investments and exports in Nigeria. Additionally, exporters face a multitude of other obstacles, from finding reliable buyers for international deals to navigating trade terms, documentation, and transportation systems.

Based on the above aforementioned, the study analyzes the short-term and long-term dynamics of the relationship between interest rates and exports in Nigeria. It also investigates whether or not interest rate fluctuations have any impact on exchange rates in Nigeria.

2.0 Literature Review

2.1 Interest Rate

The concept of interest rates has been defined by various economists and financial institutions in distinct yet interconnected ways.

Characterized interest rates as charges on borrowed money, typically expressed as a percentage of the principal, emphasizing their role as fees paid over a specified time for credit usage.

Interest rates can be expressed in nominal or real terms. Nominal interest rates do not account for inflation, reflecting the simplest form of rates quoted by financial institutions for loans or bonds, and tend to reduce purchasing power over time due to inflation (Central Bank of Nigeria, 2017). Real interest rates, adjusted for changes in the price level, can be either *ex-ante* (adjustment made using expected price changes) or *ex-post* (adjustment based on actual price changes), influencing borrowing and lending incentives based on their levels relative to inflation rates (Central Bank of Nigeria, 2017).

From Keynesian perspectives to real interest rates and considerations of inflation adjustments, the multifaceted nature of interest rates stands pivotal in economic

analyses and policy frameworks.

2.2 Export

Exports refer to a country's goods and services sold to foreign nations. These products, generated within one country, are traded internationally, typically for foreign exchange that can then be used to procure goods and services from other countries (Magaji, Abubakar & Yusuf, 2022). In Nigeria, exports are broadly categorized into two sectors: the oil sector, encompassing crude oil-related products, and the non-oil sector, which includes activities like agriculture, manufacturing, and services (Osigwe, 2015). The oil sector particularly involves the exportation of oil and gas products, dominating Nigeria's trade focus since the discovery of commercial crude oil in 1956. This shift significantly transformed the economy towards a petroleum-centric structure, leading to a decline in non-oil exports and an exponential growth in the dominance of oil exports over other export categories (Yusuf & Magaji, 2023).

2.3 Empirical Review

Several empirical studies have scrutinized the impact of interest rate policies or financial sector development on international trade and exports across both developed and developing countries. Caporale, Sova & Sova (2020) focused on six European Union members from Central and Eastern Europe, revealing that financial development positively influences trade flows and the structure of international trade in the long run. Their study highlighted a particularly strong impact on exports and trade openness, especially within manufacturing sectors. They also noted indirect long-term effects through interactions between financial development and sectoral value added.

Sare, Johnson & Kein (2019) conducted research across 46 African countries, finding that financial sector development did not significantly affect international trade in both the long and short term. However, when accounting for transmission channels, they observed negative long-term substitutability between finance and trade.

Rahman (2017) investigated Bangladesh's

export performance in relation to macroeconomic variables such as interest rates, inflation, money supply, exchange rates, and industrial production. Their findings revealed a long-term relationship between exports and these variables, indicating co-integration. They found minimal short-term dynamics through error correction and variance decomposition tests, suggesting that most variability in export performance stemmed from internal factors rather than the chosen macroeconomic variables.

Shahbaz & Rahman (2014) explored the nexus among exports, financial development, and GDP growth in Pakistan. Their study confirmed a long-term relationship between these variables through co-integration tests and identified a bi-directional relationship using Granger causality tests.

Becker, Smith & Saline (2013) analyzed bilateral trade flows for 170 countries between 1970 and 1998, highlighting that entering new export markets incurs significant fixed costs for firms. They found that financial development is associated with increased exports, particularly in industries with high initial fixed costs, suggesting that financial development facilitates exports in sectors requiring substantial upfront investments. These studies collectively depict varied impacts of interest rate policy or financial development on export performance across diverse economic contexts and regions.

2.4 Theoretical framework

This study based its framework on the Relative Prices and Cost Competitiveness Theory. This theory has been advocated by various economists and researchers across different periods. It's a fundamental concept within international trade theory that emphasizes how changes in relative prices and cost structures impact a country's competitiveness in export markets.

One of the prominent proponents of this theory is economist Paul Krugman. In the late 1970s and early 1980s, Krugman contr

ibuted significantly to the understanding of international trade through his research on economies of scale, trade patterns, and competitiveness. While not explicitly labeled as the "Relative Prices and Cost Competitiveness Theory," Krugman's work extensively delves into how relative prices and costs affect trade and competitiveness between nations.

Additionally, the theory aligns with the works of other economists such as Robert Mundell and Torsten Persson, who explored the effects of exchange rate movements on trade competitiveness and relative prices. In Nigeria, the Relative Prices and Cost Competitiveness Theory, concerning the impact of interest rates on exports, plays a crucial role in shaping the country's export dynamics. Fluctuations in interest rates influence the relative prices and cost structures, subsequently affecting the competitiveness of Nigerian exports in global markets.

When interest rates in Nigeria are high, borrowing costs for businesses increase, leading to elevated production costs. This rise in the cost of capital can diminish the cost competitiveness of Nigerian goods and services in international markets. High-interest rates might discourage investments in export-oriented industries, limiting production capacity and hindering the country's ability to compete effectively with other nations. Conversely, lower interest rates can potentially enhance cost competitiveness in exports. Reduced borrowing costs stimulate investment, leading to increased production efficiency and lower overall production expenses. This, in turn, can improve the cost competitiveness of Nigerian goods and services, making them more attractive in international markets.

Moreover, fluctuations in interest rates influence currency values. When interest rates rise, it may attract foreign investment, causing the Nigerian currency to appreciate. A stronger currency can make exports relatively more expensive for foreign buyers, negatively impacting export volumes. Conversely, lower

interest rates might lead to currency depreciation, potentially making Nigerian exports more competitive by lowering their relative prices in foreign markets. Therefore, while Relative Prices and Cost Competitiveness Theory highlight the link between interest rates and export competitiveness by influencing relative prices and cost structures, a holistic understanding of Nigeria's export landscape requires a consideration of multiple economic variables and policy frameworks.

2.5 Literature Gap

The knowledge gap regarding the impact of interest rates on exports in Nigeria stems from a lack of specific empirical studies or analyses directly exploring this relationship within the Nigerian context. While there is a substantial body of research exploring the relationship between financial development, trade, and exports in various countries, including emerging economies and regions like Eastern Europe, Africa, Pakistan, and globally across different time frames, there's a scarcity of similar studies specifically focused on Nigeria.

Additionally, the studies referenced touch upon the relationship between financial development, trade openness, GDP growth, fixed costs, and international trade, but the direct influence of interest rates on export performance in Nigeria remains relatively unexplored. Understanding this relationship is crucial, as interest rates significantly affect borrowing costs, investment decisions, and the overall cost structure for businesses engaged in export activities.

3.0 METHODOLOGY

3.1 Research Design

The study utilized the Ex post facto design is a quasi-experimental study examining how an independent variable, present prior to the study, affects a dependent variable. The ex post facto design used employed econometric techniques of unit root and cointegration test as well as error correction mechanism as the main analytical tools. The study relied on the yearly secondary data of interest rate and exports in Nigeria from 1999-2022. Data on Real Interest rate, Export and Exchange rate were all

collated from Central Bank of Nigeria statistical bulletin.

3.2 Model Specification

The model is based on relative prices and cost competitiveness theory. The functional form of the model for this study is written as

$$RIR = f(ET, ER)$$

$$RIR = \hat{\alpha}_0 + \hat{\alpha}_1 ET + \hat{\alpha}_2 ER + Ut \dots \dots \dots 3.1$$

Where:

RIR = Real Interest Rate

ET= Export

ER= Exchange Rate

$\hat{\alpha}_0$ = Constant term

$\hat{\alpha}_1 - \hat{\alpha}_2$ = Set of parameters to be estimated

Ut= Error term

The error term is a random variable that has well-defined probabilistic property. The error term represent all explanatory variables that are not taken into account explicitly.

4.0 Data Analysis

4.1.2 Descriptive Statistics

Table 4.1: Descriptive Statistics Table

| | RIR | ER | ET |
|--------------|----------|----------|----------|
| Mean | 6.212736 | 209.1891 | 12614141 |
| Median | 6.055977 | 157.4994 | 12873272 |
| Maximum | 18.18 | 400.2391 | 19910446 |
| Minimum | - | 118.5669 | 7246535 |
| | 5.627968 | | |
| Std. Dev. | 5.67274 | 91.87279 | 4207170 |
| Skewness | 0.000574 | 0.818045 | 0.323455 |
| Kurtosis | 3.179241 | 2.192656 | 1.886768 |
| Jarque-Bera | 0.022758 | 2.357756 | 1.17426 |
| Probability | 0.988686 | 0.307624 | 0.55592 |
| Sum | 105.6165 | 3556.214 | 2.14E+08 |
| Sum Sq. Dev. | 514.8797 | 135049.7 | 2.83E+14 |
| Observations | 23 | 23 | 23 |

Source: Author's Computation, E-views version 9.0

It was observed from the summary Statistics with reference to the Jarque Bera estimates

and probability value show that all the variables in the study are normally distributed due to their high probability values which are all higher than the probability value of 0.05. This implies that all the variables are suitable for hypotheses testing.

4.1.4 Unit root Stationarity Test

Table 4.1.2: Augmented Dickey Fuller Unit Root Stationarity Result

| Time Series | ADF Statistics | Critical Value | Stationary Status |
|-------------|----------------|---|-------------------|
| RIR | -3.244089 | -4.057910 (1%) -3.119910 (5%) -2.701103 (10%) | I(1) |
| ET | -3.609992 | -3.959148 (1%) -3.081002 (5%) -2.681350 (10%) | I(1) |
| ER | -4.120178 | - 4.057910 (1%) - 3.119910 (5%) - 2.701103 (10%) | I(1) |

Source: Author's Computation Using Eviews 9.0

The four variables (RIR, ET and ER) were subjected to unit root test using the Augmented Dickey-Fuller (ADF) test. The result shows that all four variables were found to be stationary after first difference i.e. integrated of order one; I(1). Since none of the variables were stationary at level I(0), the Johansen co-integration test will be used to test for co-integration and long run relationship among the series.

4.2 Data Analysis

4.2.1 Co-integration Test

To determine the long-run equilibrium relationship between Interest rate and exports co-integration test was conducted and

decomposed into the Trace Statistic and Maximum Eigen value statistic. Co-integration is said to be exist between two or more variables if the Trace Statistic and Maximum Eigen value statistic indicates at least one co-integrating equation. The asterisk indicates the rejection of no co-integration at 5%.

Table 4.2.1.1: Johansen's Cointegration Result

| Eigen Value | Trace Statistics | 0.05 Critical Value | Probability Value |
|-------------|------------------|------------------------|-------------------|
| 0.912062* | 72.09219 | 47.85613 | 0.0001 |
| 0.700343* | 35.62533 | 29.79707 | 0.0095 |
| 0.225477 | 3.832627 | 3.841466 | 0.0503 |

Source: Author's Computation Using Eviews 9.0

| Eigen Value | Max-Eigen Statistic | 0.05 Critical Value | Probability Value |
|-------------|------------------------|------------------------|-------------------|
| 0.912062* | 36.46686 | 27.58434 | 0.0028 |
| 0.700343 | 18.07678 | 21.13162 | 0.1270 |
| 0.912062 | 36.46686 | 27.58434 | 0.0028 |

Source: Author's Computation Using Eviews 9.0

Table 4.2.1.1 shows the Trace statistic and Eigen Statistics. The result indicated that there is a long-run equilibrium relationship between Interest rate (RIR), Exchange rate (ER) and Export (ET) in Nigeria. Shocks can arise in the short-run to prevent the variables from reaching a state of equilibrium in the long run. In other words, the variables possess the characteristics that would cause them to converge in the long-run.

4.2.2 Error Correction Mechanism

Given the fact that the variables are co-integrated, the next step is to estimate the long-run and short-run dynamics in the error correction model in order to capture the speed of adjustment to equilibrium in case of any shock that might arise in the independent variables. The error correction model estimation is carried out on the models to integrate short-run dynamics with long-run relationship.

Table 4.1.4 Error Correction Estimates

| Regressor | Coefficient | Std Error | T-statistics | Probability |
|-----------|-------------|-----------|--------------|-------------|
| C | 1.547749 | 2.004783 | 0.772028 | 0.4480 |
| D(ET) | -0.842291 | 0.487708 | -1.727041 | 0.0576 |
| D(ER) | 0.290450 | 0.091773 | 3.164867 | 0.0643 |
| ECM(-1) | -0.320265 | 0.167609 | -1.910788 | 0.0086 |

Source: Author's Computation Using Eviews 9.0

From table 4.1.4 above the short run result shows that there is a positive relationship between RIR and Exchange rate (ER); and an increase in RIR will lead to an increase in ER in Nigeria, given the probability value of ER; it indicates that it is statistically insignificant.

However, the result shows that there is a negative relationship between RIR and Export (ET); an increase in RIR will lead to a decrease in export in Nigeria; given the probability value of ET; it indicates that it is statistically significant. Furthermore, the magnitude of the estimated coefficient of the error correction term suggests a relatively high speed of adjustment to any disequilibrium in the short run. In other words, the estimated ECT_{t-1} is equal to 0.32 which states that the departure from the equilibrium is adjusted by 32% per year.

4.4 Discussion of Results

The analysis started by conducting descriptive statistics and the result shown the mean, maximum, minimum, standard deviation, skewedness, Jarque-Bera values and so on. The Jarque-Bera result indicated that all the variables included in the models are normally distributed due to their high probability values.

The cointegration result shows that there is a long-run equilibrium relationship between Interest rate (RIR) and the independent variables.

Three hypotheses were formulated in chapter one in line with the specific objectives of the study. The test of hypothesis is based on the result in table 4.1.4 of the ECM result. Hence, as deduced from the empirical analyses, the null hypothesis which stated that interest rate does not have significant impact on exchange rates in Nigeria can be accepted given that its probability value is greater than 0.05 at 5% level of significance. Hence, the study concludes that, Interest rate does not have any significant impact on exchange rates in Nigeria for the period of the study.

Lastly, the hypothesis which stated that there is no relationship both in short-term and long-term between interest rates and exports in Nigeria can also be rejected given the cointegration result and the probability value of the ECM.

5.0 Conclusion and Recommendations

The analysis delves into the relationship between interest rates and the export sector in Nigeria, revealing their intricate connection within the country's economic framework. It emphasizes how interest rates significantly shape export performance, indicating the crucial influence of monetary policy on Nigeria's export direction. The study underscores the effect of interest rate fluctuations on the competitiveness of Nigerian exports, emphasizing their impact on the cost of capital and, consequently, on the overall export landscape.

The recommendations offer strategic pathways for enhancing Nigeria's export sector amidst challenges posed by high-interest rates. Firstly, the Central Bank should introduce targeted financing initiatives, like subsidized loans or interest rate rebates, specifically tailored for export-focused enterprises. This approach aims to alleviate the burden of high borrowing costs on exporters, potentially mitigating their adverse effects on operations. By reducing the cost of borrowing, this strategy seeks to bolster the competitiveness of exporters in the face of elevated interest rates.

Secondly, diversification emerges as a crucial strategy endorsed by the export promotion council. Encouraging exploration into new sectors or markets less susceptible to interest rate fluctuations could fortify resilience against changes in borrowing costs. By exploring sectors or regions less impacted by interest rate variations, the aim is to minimize vulnerability and expand the export base, thereby fostering stability and growth in the face of interest rate challenges.

Lastly, integrating exchange rate management into the Central Bank's policies is recommended. Stable currency management could act as a complement to interest rate strategies. A stable exchange rate could potentially

offset the negative ramifications of high-interest rates on export competitiveness, providing a supplementary approach to sustain and enhance the country's export performance.

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