

## **NEXUS BETWEEN INTERNATIONAL TRADE AND FINANCIAL DEPTH IN NIGERIA**

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**ABSTRACT:** This study focused on international trade and financial depth in Nigeria. The independent variables were total foreign trade, trade openness and bank loans to international traders while ratio of domestic credit to GDP was the dependent variable. Using econometric procedures i.e., unit root, Johansen cointegration and error correction model, we found that total trade increased financial depth but not significantly, trade openness decreased financial depth significantly while bank loans for international trade increased financial depth significantly. The conclusion was that international trade in Nigeria has not had the desired effect on the financial sector because of the non-significance of total trade while trade openness showed negative effect on financial depth in Nigeria. The recommendation was that Nigeria should intensify efforts towards achieving full productive economy so as to increase the country's trade standings which will have positive effect on the trade financing functions of the financial sector.

**Keywords:** Export, import, international trade, financial depth, trade openness

### **INTRODUCTION**

Globally, it is understood that a key factor in promoting global commerce and long-term economic growth is the degree of financial strength of individual countries. The efficiency and efficacy of the financial sector, which mediate between a country's surplus and deficit units, is highly dependent on the progress of the financial system. A well-developed international trade mechanism leads to efficient resource allocation through adherence to the comparative advantage theory, faster accumulation of human and physical capital exchange, and rapid technological advancement (Bankola, 2022). These factors increase the financial system, adoption of financial services, and profitability of the financial sector (Bankola, 2022). When the size, effectiveness, and stability of financial markets grow together with expanded access to financial markets by international trade actors, there is a rise in financial depth (Guru & Yadav, 2019). According to Okafor, Onwumerey, and Chijindu (2016), financial depth is the state of having enough liquidity and a seamless financial liquidation.

The financial sector, particularly the banking industry, has undergone significant evolution over time. From an era of free banking (1892–1951) to one of strict regulation (1959–86), followed by liberalization between 1986 and 2003, and more recently, the period of bank consolidation from 2004–2006 (Okafor & Nwosu, 2021). The National Financial Inclusion Strategy, which was unveiled in October 2012, is an impressive initiative made to deepen Nigeria's financial system. According to the Strategy, by 2020, just 20% of adult Nigerians will be unable to access financial services and products, down from the 46.3 percent recorded in 2010 (CBN, 2021). According to a study released by the Central Bank of Nigeria in December

2022, financial inclusion had averaged 18.7% at the end of the year, which was 2% lower than planned.

With the increasing focus on enhancing external trade flows through the diversification of the economy to non-oil trade, Nigeria's export trade reached N19.2 trillion in 2021 while import reached N22.3 trillion same year 2021. Trade openness averaged 25% over the last decade indicating positive trend for international trade transactions (CBN, 2021). Thus, the banking sector has a lot to gain from the increasing trend of international trade transactions. For instance, the roll-out of the payment systems vision 2020 by the Central bank of Nigeria in 2007 led to a sharp increase in the number of new FinTech companies that offer mobile/electronic payments, foreign exchange transactions, etc., (ITA, 2022). These have aided international trade and also helped to increase financial depth in Nigeria. It becomes pertinent at this point to carry out a critical study on the nexus between international trade and financial depth in Nigeria using econometric procedures and drawing from theoretical postulations.

Nigeria's financial sector has witnessed tremendous development with visible evidences through increased money and capital market activities, rapid expansion of banking operations and development of various financial networks of Automated Teller Machines (ATMs), Point of Sales (POS) devices, digitized/electronic fund transfer among others (Samuel-Hope, Ehimare & Osuma, 2020). However, the developments in international trade activities and how it affects the financial sector has received less attention from researchers.

Although empirical literature on Nigeria has a lot of literature on the effect of financial deepening on the economy and the financial sector (Guru and Yadav, 2019; Ndebbio, 2020; Afolabi, 2022; Adeyemo and Tamunowariye, 2022; Osinsanwo, 2018, etc.), little attention has been paid to the analysis of the reverse case effect of international trade on financial depth in Nigeria. This presents a research problem and considering the above problems identified, this study has the main objective of examining the effect of international trade on financial depth in Nigeria for the period 1986-2021.

### **Objectives of the Study**

The specific objectives were to:

1. determine the effect of total foreign trade on financial depth in Nigeria;
2. investigate the extent to which trade openness has affected financial depth in Nigeria;
3. analyse the intervening effect of bank loans for international trade transactions on financial depth in Nigeria.

An empirical study of this nature cannot be complete without testing hypotheses. This led to the formulation of three hypotheses which are to be tested at 5% level of significance thus:

H<sub>01</sub>: There is no significant effect of total foreign trade on financial depth in Nigeria.

H<sub>02</sub>: Trade openness has not significantly affected financial depth in Nigeria.

H<sub>03</sub>: Bank loans for international trade transactions has not significantly affected financial depth in Nigeria.

## **REVIEW OF RELATED LITERATURE**

### **International Trade**

International trade is viewed as cross-border economic dealings, that is, with other nations (Hermant, 2019). It has been stated that it contributes significantly to the expansion of the financial industry as a whole, as well as economic growth and productivity. Trade, according to Ezirim (2005), is a recurrent series of exchanges of products through market transactions. If it entails exchanges that take place beyond the purview of a sovereign political power, it is referred to as international trade.

The system through which countries export and import commodities, services, and capital is how Samuelson (2002) perceives international commerce. They found the following three distinctions between home and foreign trade: First, compared to domestic commerce, there is opportunity for enlarged trading prospects, second, international trade involves more than one sovereign nation while domestic trade is within frontiers of a nation, and third, international trade involves the use of exchange rates as it involves more than one currency while domestic involves only one currency. These distinctions, he said, have significant economic and practical ramifications. The forces driving external trade are specialization's increase in productivity and trade's promotion of specialization. According to Jhingan (2012), foreign trade has always been and continues to be a powerful economic force that has fueled exploration, colonialism, invention, and growth, expanded societal patterns, and continuously fanned the flames of conflict.

There are three main types of international trade, according to Sun and Heshmati (2010): export trade, which involves selling goods and services to other countries; import trade, which involves purchasing goods and services from other countries; and entrepot trade, which involves importing goods and services to be later re-exported to other countries, such as the importation of used cars in the Benin Republic to be re-exported to Nigeria through the Seme border.

### **Financial Depth**

Financial depth is the combined size of banks, other financial institutions, and financial markets in a nation as compared to an indicator of economic activity, according to World Bank (2023). Private credit as a percentage of GDP is a proxy that has drawn significant attention in the empirical literature in this respect. The variable is defined more explicitly as domestic private credit to the real sector as a proportion of local currency GDP by deposit money banks (Do and Levchenko, 2019). Therefore, credit given to governments, government entities, and public businesses is not included in the private credit. Additionally, central bank credit is not included (World Bank, 2023). Private credit's contribution to GDP varies substantially between countries and is closely correlated with income. For instance, high-income countries have a private credit to GDP ratio of 103%, which is more than four times higher than the ratio in low-income countries overall (Demirgüç-Kunt and Levine, 2018). Many of the economies in

Europe have strong financial systems according to this metric, and Canada, Australia, and South Africa are also among the nations with the highest ratios of private credit to GDP. In terms of this metric, China's financial system also ranks higher than other significant emerging economies including Russia, Brazil, and India (Čihák, Demirgüç-Kunt, Feyen, and Levine, 2021). Despite being above average, the US financial system is not as sophisticated as China's. Private sector loan to GDP ratio for the Nigerian economy is still much lower than that of similar international nations (Bankola, 2022).

Financial depth, which is roughly measured by the ratio of private credit to GDP, has a significant statistical relationship with long-term economic growth. It is also strongly related to other economic indicators including the decline in poverty, the expansion of the financial sector, and increases in per capita income. Private credit, for instance, had an annual average value of 39 percent with a standard deviation of 36 percent across all nations. In Angola, Nigeria, and a few other emerging African nations on average between 1980 and 2021, private financial institution credit was less than 10% of GDP (World Bank, 2021), while it was greater than 85% of GDP in Austria, China, and the United Kingdom.

A relatively high ratio of private sector credit to GDP is not always a positive thing, according Robert and Levine (2013). In fact, each of the eight nations (Cyprus, Ireland, Spain, Netherlands, Portugal, United Kingdom, Luxembourg, and Switzerland, listed from top to lowest) with the greatest ratios of private sector credit to GDP as of 2021 has had a significant crisis event since 2008. Total banking assets to GDP, a quantity that is also present in the Global Financial Development Database (World Bank, 2021) offers an alternative to private credit to GDP, as suggested by the World Bank (2023). In any event, because they gauge how deep the financial sector is in relation to the overall economy, the two variables are somewhat connected.

Despite the fact that many empirical studies in Nigeria concentrated on banks (since data were readily available), ideal measurements of financial depth go beyond banks. The current economic crisis brought on by the worldwide pandemic in 2020 has brought attention to problems with non-bank financial institutions (NBFIs), who are key participants in the Nigerian government's quest for financial inclusion. NBFIs are an integral aspect of the financial industry, despite the fact that their data coverage is far less extensive than that of banks. However, banks are the specific focus of the current study.

### **International Trade and Financial Depth in Nigeria**

The financial depth, as measured by the ratio of private sector credit to GDP (CP/GDP), grew somewhat after the banking system reform from 7.84 percent in 2004 to 7.95 percent in 2005, according to a trend analysis of important macroeconomic indicators. According to Nwosu, Itodo, and Ogbonnaya-Orji (2002), starting in 2006, the ratio of private sector credit to GDP increased from 10.58 percent in 2007 to 19.77 percent at the end of 2008 and then to 22.79 percent in 2009, reflecting the increased financing of economic activities attributable to the bank consolidation exercise, which increased the capital base of banks.

The benefit of the bank merger, however, was only temporary due to the effects of the global financial crisis in 2007 and 2008. Banks were encouraged to make high-risk investments by the increase in capital funds. As a result, when the capital market bubble broke, bank balance

sheets were severely damaged, and many of them came to rely heavily on the CBN discount window. Variables relating to international commerce somewhat increased. In 2008, exports outpaced imports by a little over N5 billion, resulting in a 40% trade openness (CBN, 2021).

The financial depth was observed to increase to 22.75 percent in 2009 as a result of the CBN's supportive policy measures to combat the effects of the global financial crisis through the development of a framework for the establishment of FinTech companies, while trade growth decreased slightly by 17.2 percent (CBN, 2021). This was not unexpected given the belief that recovering international trade figures will lead to the stimulation of the financial industry. As a result of the regulatory actions requiring banks to account for non-performing loans (NPLs) in their portfolios and the fact that many banks involved in financing oil exports suffered significant losses when the price of oil fell in 2009, the stability of the country's banks was further threatened (Nwosu, Itodo, and Ogbonnaya-Orji, 2021). Increases in financial depth and a persistent effort to diversify the economic base of the nation may be responsible for the significant increase in bank loans for international trade transactions to N1.71 billion in 2021, the rise in trade openness to 23.6% that same year, and the encouraging growth in both export and import trades (Afolabi, 2022).

### **Financial Intermediation and the Trade Finance Theory**

The work of Gurley and Shaw (1960) served as the foundation for the notion of financial intermediation. The notion of information asymmetry and the agency theory are the foundations of the financial intermediation theory. Financial intermediation, which is defined as the degree to which financial institutions bring together surplus and deficit spending units, is facilitated by efficient financial deepening (Ndebbio, 2020). Why do investors lend to banks first, who then lend to borrowers, as opposed to directly financing to borrowers, is a key topic that theories attempt to address. Arguments make the case that banks may perform the function of delegated monitoring by successfully monitoring borrowers. This brings us to the function of banks in operations involving global commerce, which is effectively explained by the trade finance theory.

Ninety per cent of global commerce, according to Auboin (2009), comprises trade financing. The collection of instruments used to finance global commerce has recently been the subject of a significant body of study. Trade credit is the original type of trade financing. This is comparable to credit given by one business to another. Employing a third party (such as a bank or insurance company) between the importer and the exporter, intermediated trade financing is another option used by exporting businesses. The trade finance theory's micro level viewpoint supports the theoretical claims that trade might influence finance. Following the micro-level analysis of how exports affect enterprises' financial restrictions, Anne-Gal (2019) took a macro-level approach and investigated how much global trade spurs financial development.

First, exports may make it easier for businesses to access global financial markets and provide them the chance to better diversify their risk and funding options. Second, participating in exports could help businesses become less reliant on the domestic economic cycle, assuming that national financial circumstances are not fully connected. Finally, the company's efficiency and capacity to absorb export-specific expenses might be seen favorably by interpreting its presence in international markets. This might enhance both its financial situation and access to

capital sources (Anne-Gal, 2019). According to Greenway et al. (2007), exporting results in ex-post financial advantages. According to the authors, companies that exported in 2013 had an average liquidity ratio that was much greater than those that did not.

Additionally, this theory's micro level viewpoint started by taking a nation that is closed to international commerce into account. Free access to global financial markets grows as the financial system matures, increasing competition, transparency, and contract enforcement. Financial institutions consequently find it increasingly challenging to profit from rents and unofficial relationships with businesspeople. As a result, financiers are against financial development. This also applies to established businesses, as financial liberalization would probably make it possible for competitors who did not previously enjoy a special connection with established financiers to be funded by international financial institutions. Finally, there are powerful incentives for both financiers and established businesses to oppose financial development.

Second, the idea took into account a nation that is free to trade. It may be demonstrated that certain established enterprises now support financial deregulation, in contrast to the prior instance. The least resilient industrial enterprises experience lower rents and earnings as a result of competition from overseas businesses. It becomes increasingly challenging for them to get funding from established financiers. Thus, they have a motivation to support further financial liberalization in order to gain the benefits of improved financial circumstances, including lower interest rates and more readily available financing, and fewer opaque partnerships. According to Anne-Gal (2019), more private interests prefer financial deregulation when trade flows are liberalized. According to this theory, financial development is shaped by trade openness. This serves as the main theoretical foundation for our investigation.

### **Empirical Review**

The relationship between financial deepening, international trade, and economic growth in Nigeria and elsewhere has been examined empirically in a number of studies. Igwebuike, Udeh, and Okonkwo (2019) investigated the impact of financial deepening on Nigeria's economic development during the years 1981 to 2016 using two fundamental components of the financial sector: insurance businesses and the banking sector. They discovered that whereas the contribution of the insurance business to GDP was positive but not statistically significant, the contribution of commercial banks' loans to GDP was positive and statistically significant. In his investigation of the connections between finance and global commerce, Anne-Gal (2019) found that one of the major factors affecting the performance of an export is the sector's or firm's reliance on external financing. Firms or industries that are more vulnerable export less than others.

Guru and Yadav (2019) used panel data from the BRICS to investigate the key indicators of financial development and macroeconomic factors and discovered significant differences across the chosen nations. The study confirmed the presence of turnover ratio in metrics like the credit-to-deposit ratio, the size of financial intermediaries, the value of traded shares, and the credit-to-private sector, all of which are positively significant in determining economic growth. This suggests a complementary relationship between the development of the banking sector and the development of the stock market.

The connection between financial deepening and the stability of the Nigerian financial system was established by Ahonkhai (2020). They discovered that, throughout the time period under study, financial deepening had a favourable and substantial impact on Nigeria's financial stability. Ogbuagu and Ewubare (2020) used a generic model of error correction and causality model using time series derived from the Central Bank of Nigeria Bulletin 2012 to study the connection between financial depth, macroeconomic volatility, and economic development in Nigeria. While the error correction term suggested no long-run influence of financial depth on growth volatility in Nigeria, the outcome demonstrated a long-term impact of financial deepening on exchange rate volatility and economic growth.

The relationship between financial deepening, financial system instability, and economic development in Nigeria was examined by Nwosu, Itodo, and Ogbonnaya-Orji in 2021. They used a non-linear co-integrating ARDL model and discovered that there was a non-linear link between financial system fragility and economic growth, but a positive association between financial deepening and growth. Bankola (2022) looked at the effects of financial deepening on export success in Nigeria from 1981 to 2020. They discovered that although money supply, foreign direct investment, and trade openness were positively correlated with financial deepening but negatively correlated with Nigerian export success, suggesting issues with credit allocation, financial regulation, and supervision.

More recently, Afolabi (2022) used yearly time-series data for the years 1981 to 2018 to analyse the impacts of financial liberalization, trade openness, and their interactions on the expansion of the Nigerian economy. The econometric research showed that trade openness and its interactions with financial development did not have any significant effects on economic growth in Nigeria, although financial development, exchange rate, and interest rate spread did. Using time series data extending from 1980 to 2020, Wasurum and Tamunowariye (2022) investigated the impact of foreign trade and the expansion of the financial sector on economic growth in Nigeria. According to their study, loans to the private sector foster economic growth over the long term, whereas export commerce and imports hinder economic growth in Nigeria. In their study of financial deepening and economic growth in Nigeria, Udoh, Jack, Prince, Ekeowa, Ndubuaku, and Udo (2022) discovered that economic growth responds nonlinearly and more quickly to changes in financial deepening. In their investigation of the relationship between financial development, trade performance, and growth in Nigeria, Adeyemo and Tamunowariye (2022) discovered that government expenditure and financial development coefficients had long-term, positive relationships with real gross domestic product and were statistically significant.

The gap this present study tries to fill is the reverse effect of international trade on financial depth in Nigeria. This is because there is ample empirical evidence on financial development as it affects trade and the economy as seen in the empirical literature. Also, most of the previous research works did not consider bank loans to international traders as an important international trade variable. The concentration was mainly on export, import trade, trade openness etc.

## **METHODOLOGY**

The ex-post facto design was chosen because the researcher wanted to use secondary data to assess the hypothesis that was developed. The Central Bank of Nigeria Statistical Bulletin

(2021) edition was used as the source for secondary data on total foreign trade, trade openness, and bank loans. These data were submitted to econometric analysis using unit root, Johansen Cointegration, and Error Correction Model.

### Model Specification

The model is a modification of the specification made in the work of Bank-Ola (2022). The model of Bank-Ola (2022) is specified thus:

$$EXP = \gamma_0 + \gamma_1 DCP + \gamma_2 BMS + \gamma_3 FDI + \gamma_4 INF + \gamma_5 TOP + \mu \quad [i]$$

Where EXP = Export accomplishment; DCP = Domestic Credit to Private Sector; BMS = Broad Money (% of GDP); FDI = Foreign Direct Investment Net Inflows (% of GDP); INF = Inflation rate and TOP = Trade Openness.

However, by way of modification, we shall introduce bank loans in the model, and then aggregate export and import trade as total foreign trade while also retaining trade openness. Also, we shall replace the dependent variable with financial depth indicators (CPS/GDP) and then re-specify to suit our purpose thus:

$$CPS/GDP = f(TFT, TRO, LON) \quad [ii]$$

Where:

CPS/GDP = Ratio of credit to private sector to gross domestic product

TFT = Total foreign trade in Nigeria

TRO = Trade openness (ratio of total trade to GDP)

LON = Bank loans for international trade transactions

We go further to put the functional equation [ii] in a linear econometric form thus:

$$CPS/GDP_t = \beta_0 + \beta_1 TFT_t + \beta_2 TRO_t + \beta_3 LON_t + \varepsilon_t \quad [iii]$$

Where:

$\beta_0$  is intercept of the model

$\beta_1 - \beta_3$  = Unknown coefficients of the model to be estimated

$\varepsilon_t$  = Stochastic error term, and other variables are as previously defined.

The a-priori expectation of the model is such that  $\beta_1 > 0$ ,  $\beta_2 > 0$ ,  $\beta_3 > 0$ , i.e. the international trade variables are expected to have positive and significant effect on financial depth in Nigeria.



## RESULTS

The summary of Augmented Dickey Fuller (ADF) unit tests carried out on each of the variables is shown below. The test is done at 5% critical value as follows:

**Table 1: Summary of Unit Root Test Result**

Variable	ADF Test statistics		Decision	Order of Integration
	At Level	1 <sup>st</sup> Difference		
Ln CPS/GDP	-1.027110	-5.014142*	Stationary at 1 <sup>st</sup> difference	I(1)
Ln TFT	-1.186060	-4.566102*	Stationary at 1 <sup>st</sup> difference	I(1)
Ln TRO	-0.741922	-8.527088*	Stationary at 1 <sup>st</sup> difference	I(1)
Ln LON	-0.903738	-5.124297*	Stationary at 1 <sup>st</sup> difference	I(1)
Critical value at 5%	-2.951125	-2.951125		

*Source: Researchers' Computation using E-Views 9.0*

The unit root test above reveals that credit to private sector ratio to GDP (CPS/GDP), total trade, trade openness and bank loans are all stationary at first difference and are said to be integrated of order one, I(1). This implies that the data have statistical properties that do not vary over time and so can be used for forecasting purposes. Based on this result, we test for the existence of a long-run relationship or cointegration amongst the variables.

### Johansen Cointegration Test

*Null hypothesis (H<sub>0</sub>): No long run relationship exists amongst the variables (no cointegration)*

*Alternate hypothesis (H<sub>1</sub>): There is long run relationship amongst the variables*

**Table 2: Summary of the Johansen Cointegration Test**

Hypothesized No of CE (S)	Trace Statistic				Max-Eigen Statistic		
	Eigen-Value	Trace statistics	5% Critical Value	Prob.	Max-Eigen statistics	5% Critical value	Prob.
None *	0.592410	83.11178	69.81889	0.0030	30.51474	23.87687	0.0196
At most 1 *	0.489985	52.59704	47.85613	0.0168	22.89268	20.58434	0.0181
At most 2	0.296601	29.70436	29.79707	0.0512	11.96224	19.13162	0.5514
At most 3	0.255394	17.74212	18.49471	0.2226	10.02659	14.26460	0.2102

Note: \*\*Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

\*\*Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level (*Source: Researchers' Computation using E-view 9*)

The Trace and Max-eigen data for the Johansen cointegration test are summarized in Table 2 above. At least one cointegrating equation was present at a 5% level, according to both statistics. To reject the null hypothesis that there is no cointegration, there must be at least one cointegrating equation in this case. As a result, while the Max-eigen statistics also revealed two cointegrating equations, the Trace test did not. We reject the null hypothesis since this exceeds the decision criteria and come to the conclusion that there is a long-term association between foreign commerce and financial depth in Nigeria.

### Short Run Model Estimation

Table 3: Result of the short run estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.995672	0.732860	5.452164	0.0000
TFT	0.061142	0.118622	0.515439	0.6104
TRO	-0.380954	0.158964	-2.396479	0.0237
LON	0.240469	0.059728	4.026052	0.0004
ECM(-1)	-0.052774	0.015872	-3.324975	0.0026
R-squared	0.870240	Mean dependent var		2.413466
Adjusted R-squared	0.846211	Durbin-Watson stat		1.556783
F-statistic	36.21536			
Prob(F-statistic)	0.000000			

*Source: Researchers' Computation using E-view 9*

The Table 3 above summarizes the short run estimates which shows the short run relationship between international trade variables and financial depth in Nigeria as well as the long run speed of adjustment. The coefficient of total foreign trade is positive which means that foreign trade exerts 0.06114 unit effect on financial depth in Nigeria. In other words, a unit change in foreign trade will result to 0.06114 unit increase in financial depth in Nigeria. The positive effect of foreign trade adheres to the a-priori expectation.

Trade openness has negative coefficient of -0.38095 which means that as trade openness changes, financial depth decreases by 0.38095 units. This is an inverse relationship and does not conform to the a-priori expectation. Loans to international traders has a positive coefficient of 0.24047. This implies that as loans increases, financial depth increases as well to the tune of 0.24047 units. This is in line with our economic a-priori expectation.

The intercept of the model shows positive coefficient of 3.99567 meaning that holding the international trade variables constant at zero, there will be 3.99567 units increase in financial depth which is attributable to the stochastic effects. The speed of adjustment of the model to long run equilibrium is estimated at 5.28 per cent and this implies that holding the international trade variables at a steady state of increase of 5.28 per cent annually financial depth will experience long run equilibrium movement.

### Test of Hypotheses

The hypotheses are tested at 5% level of significance using the t-statistic from the least square regression result. The t-statistic values are compared with the t-table value of 1.96 and if the t-statistic is greater than the t-table, we reject the null otherwise, we accept the null hypothesis.

#### Hypothesis One

H<sub>01</sub>: There is no significant effect of total foreign trade on financial depth in Nigeria.

t-statistic = 0.5154

t-table =  $t_{0.025,31} = 1.960$

**Decision Rule:** Since the t-statistic is less than the t-table value at 5% level of significance, we accept the null hypothesis and conclude that there is no significant effect of foreign trade on financial depth in Nigeria. However, the positive coefficient of foreign trade which increases financial depth by 0.06114 units was not found to be significant.

#### Hypothesis Two

H<sub>03</sub>: Trade openness has not significantly affected financial depth in Nigeria.

t-statistic = -2.3965

t-table =  $t_{0.025,31} = 1.960$

**Decision Rule:** We reject the null hypothesis and come to the conclusion that trade openness has had a substantial impact on Nigeria's financial depth since the t-statistic is bigger than the t-table value at the 5% level of significance. In other words, it was determined that the negative trade openness coefficient was significant at the 5% level. As a result, trade openness greatly reduces financial depth.

#### Hypothesis Three

H<sub>04</sub>: Bank loans for international trade transactions has not significantly affected financial depth in Nigeria.

t-statistic = 4.0261

t-table =  $t_{0.025,31} = 1.960$

**Decision Rule:** Since the t-statistic is greater than the t-table value at 5% level of significance, we reject the null hypothesis and conclude that bank loans for international trade transactions has significantly affected financial depth in Nigeria. The coefficient value of 0.24047 implies that bank loans increased financial depth significantly for the period under review.

The Durbin Watson statistic: The DW statistic suggests that there is no autocorrelation in the model since the DW value of 1.5568 tends towards 2 than to 0. The Adjusted R-squared value of 0.8462 indicates that about 84.62 per cent of the variations in financial depth are being accounted for by the international trade variables. In other words, exports, imports, trade openness and bank loans explain up to 84.62 per cent of the changes witnessed in financial depth in Nigeria for the period under review.

The F-statistic value of 36.215 with p-value of 0.0000 is very significant and as such we conclude that exports, imports, trade openness and bank loans have a joint significant effect on the financial depth in Nigeria. Thus, putting the international trade variables together, they jointly influence the financial depth in Nigeria.

### **Discussion of Findings**

The findings made in the analysis are discussed based on the research objectives as follows:

#### **Objective 1 – Effect of foreign trade on financial depth in Nigeria**

The result of the short run model showed that the coefficient of foreign trade was positive which meant that foreign trade exerted 0.06114 unit effect on financial depth in Nigeria. This implied that a unit change in foreign trade resulted to 0.06114 unit increase in financial depth in Nigeria. We found that this positive effect of foreign trade conforms to our economic a-priori expectation. That is to say that Nigeria's foreign trade has led to increase in the depth of the financial sector owing to the pivotal role the sector plays in facilitating exchange of monetary values for goods and services exported. This is in agreement with the position of Do and Levchenko (2019) that countries with large financially intensive sectors like export production, financial systems are more developed. Also, the FinTech revolution has helped to expand Nigeria's export trade thus leading to positive trend of financial depth occasioned by increase in export trade (Ahonkhai, 2020). However, the increase in financial depth was not significant for the period which calls for more concerted efforts to make Nigeria a producing nation capable of exporting large percentage of goods to other countries of the world.

#### **Objective 2 – Effect of trade openness on financial depth in Nigeria**

Trade openness had negative effect on financial depth decreasing it significantly by 0.38095 units. This implies that Nigeria's ratio of trade to GDP has not been favourable to financial depth over the years. This was the similar finding of Bankola (2022) who confirmed that financial deepening had negative and significant relationship with export accomplishment in Nigeria. Also, Afolabi (2022) found that the interaction of trade openness with financial development, did not exert any significant impact on economic growth in Nigeria.

#### **Objective 3 – Effect of bank loans for international trade on financial depth in Nigeria**

There was positive and significant effect of bank loans to international traders on financial depth in Nigeria. This implies that as bank loans increased, financial depth increases as well to the tune of 0.24047 units. This agreed with our economic a-priori expectation and goes a long way to prove the sustenance of the banking sector in enhancing financial depth through trade

financing. Although previous studies linking banks loans for international trade and financial depth are not many, few studies such as Nwosu et al (2021) stressed that banks' credit is crucial to the advancement of the financial sector. Also, Sayar (2020) found that export trade increases at the same level of increase in financial development. In the same light, Ogbuagu and Ewubare (2020) upheld the fact that increased access to credit is one critical measure of financial depth.

The intercept of the model showed that holding the international trade variables constant at zero, there will be 3.99567 units increase in financial depth which is attributable to the stochastic effects. Thus, holding the international trade variables at a steady state of increase of 5.28 per cent annually, financial depth will experience long run equilibrium movement. The international trade variables jointly affect financial depth and accounted for up to 84.62 per cent of the variations in financial depth in Nigeria

### **Conclusion and Recommendations**

The conclusion emanating from the study is that Nigeria's international trade statistics still falls below expected as foreign trade has not been significant, while trade openness has been consistently negative over the period of study. In relation with financial depth, there has not been encouraging effect of international trade on financial depth in Nigeria. The only positive outcome is bank loans which has propelled the financial sector towards increased financial depth for the period. There should be concerted effort to deepen financial services through the promotion of trade as recommended below.

The following recommendations should be considered:

1. Nigeria should intensify efforts towards a productive economy so as to increase the country's export trade which will in turn enhance the role of the financial sector in their trade financing functions.
2. Government should strive to enhance trade openness through the removal of certain restrictions on trade financing.
3. The increase effect of bank loans on financial depth should be sustained by way of licensing more banks to make trade effective and seamless.

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