

## INFLUENCE OF INTEREST RATES DYNAMICS ON FINANCIAL DEEPENING IN NIGERIA

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### Abstract

The main objective of the research is to investigate the impact of interest rate reform on Nigeria's financial deepening. As estimation techniques, Co integration, Autoregressive Distributed Lag (ARDL), and Ordinary Least Square (OLS) were used. Time series data from 1994 to 2021 are analyzed in this study. The results point to a long-term connection between interest rates and financial deepening. We also learn that the interest rate change has a positive and significant effect on Nigeria's financial development. The findings highlight the necessity for policymakers to put policies in place that promote economic growth, the liquidity reserve ratio, the domestic savings/GDP ratio, and reforms to ensure the efficiency and development of the financial sector.

**Keywords:** interest rates, financial deepening and economic growth

### Introduction

Reforming interest rates as a financial sector policy has been crucial to the liberalization process. Interest rate changes are intended to improve the effectiveness of the monetary system and promote financial development. The process of financial deepening entails developing a financial system that is largely free from financial restrictions. (1998; Nnanna and Dogo). In this situation, the market ought to control the conduct of both

lenders and borrowers. Odhiambo and Akinboade (2009) assert that financial liberalization comprises changing interest rates, removing credit restrictions, allowing for unrestricted entry into the banking industry, granting the industry autonomy, allowing for private participation in banking, and liberalizing capital flows. Tuaneh and Ewubare (2016) contend that financial deepening is important for economic growth. According to Ikhida and Alawode (2001), Nigeria's financial reforms began with the deregulation of interest rates in 1987. Prior to this, interest rates were restrained and rules governed the financial sector (Onodugo, Kalu and Anowor, 2013). When a country sets low deposit and lending rate ceilings in relation to inflation, this is the biggest contributor to financial repression. Therefore, negative interest rates in the banking industry commonly deter saving, which has an effect on the amount of investment and economic growth (Onodugo, Anowor and Ofoegbu, 2018). According to McKinnon- Shaw (1973), a higher real interest rate may entice people to save more, which would boost investment. As a result, the possibility of an interest rate shift would encourage domestic savings and expand the pool of money that banks may lend out.

Global recognition for the advancement of financial systems has been achieved. According to the World Bank (2015), increased access to financial services by families and businesses tends to reduce income gaps and boost economic growth. Due to the equitable distribution of income, increased access to financial services can therefore greatly aid in the growth and development of the economy. Financial deepening, according to Nwanna and Chinwudu (2016), was anticipated to improve economic conditions due to improved spirited competence in the financial

markets and the positive spillover effects on the real sector.

In order to achieve an equitable distribution of income and the eradication of poverty, countries must increase access to financial services for both individuals and enterprises, according to an assessment by the World Bank, the World Economic Forum, and the United Nations. This was done to acknowledge the impact that financial deepening has on interest rates. In order to promote rapid economic development, nations were urged to prioritize financial inclusion in their monetary policy frameworks (Nwonye et al, 2020). According to the World Bank (2012), the financial sector should encourage competition and offer people the right incentives in order to hasten the reduction of poverty and equitably distribute resources. The Central Bank of Nigeria (CBN) has consistently pushed for the improvement of regulations to promote rapid growth and sustainable development. Through the employment of monetary policy tools, the CBN promotes the growth of actual industries that have a greater chance of reducing poverty and income disparity.

The National Financial Inclusion Strategy was introduced by the CBN in 2012 with the intention of reducing the percentage of people who lack access to financial services from 46.3 percent in 2010 to 20 percent in 2020. The Apex Bank also introduced the Anchor Borrower's Programme (ABP) and granted licenses to 25 mobile money operators CBN (2017) in an effort to further expand the financial system's inclusion and generate opportunities for the development of the economies. The capital requirement for MFBs has also been increased to make sure that they are well-positioned to offer sustainable microfinancing services in keeping with the overall objective of NFIS. Despite an increase in demand for Enhancing Financial Innovation and Access (EFInA), the rate of financial inclusion and innovation has remained below average.

The GNI index, which gauges income inequality, has an average score between 2009 and 2018 of 45.27 percent CBN (2018). Again, according to data from the International Labour Organization's ILOSTAT (2018), the labor force participation rate between 2009 and 2018 averaged 55.39 percent. Discussions over the macroeconomic effectiveness of financial deepening in fostering economic growth by generating jobs and more equitable income distribution have been started as a result. Again, the level of development in Nigeria's financial system suggests that monetary policies meant to promote financial deepening are surprisingly ineffective at fostering economic growth.

However, the CBN aimed to play a significant role in regulating the financial sector in order to enhance and assist the creation of business-friendly environments. However, certain externalities, particularly those brought on by fiscal policy, have affected how monetary policy is carried out in Nigeria, which has constrained the CBN's ability to fulfill its responsibility of supporting a sound financial system (Anowor, Uwakwe and Chikwendu, 2019). According to EFInA (2016), as of 2016, 41.6% of adults in Nigeria were economically excluded. According to the CBN (2017) research, it was paradoxical that despite efforts to reform the Nigerian financial system, high rates of income inequality, poverty, and low labor absorption capability had persisted in the country's economy. The effectiveness of financial deepening has been explained in a number of previous attempts, but the emphasis has always been on economic growth, with little to no attention devoted to interest rate reform. To fill this research gap, an evaluation of the empirical relationship between the effects of interest rate dynamics on financial deepening in Nigeria from 1990 to 2020 is made.

A financial repression policy that discourages saving is likely to impede the financial development of a nation. The liberalization

program's full execution, however, led to higher deposit rates and a more robust financial system for the nation. This shows that the financial system's increased complexity, which has aided economic growth by boosting investment productivity, is a result of interest rate change. According to the analysis of the prior literature, financial reform leads to financial deepening, which encourages low interest rates and economic growth. This essay examines the impact of interest rate reforms on the financial development of Nigeria from 1994 to 2021, using co-integration and Autoregressive Distributed Lag (ARDL) estimation techniques,

### **Literature Review**

Interest rate is concerned with its equilibrating influence on supply and demand in the financial sector. Interest rate premiums on financial assets and liabilities have a significant impact on how savings are invested and who incurs financial responsibilities Colander (2001). The interdependent relationship between the financial and real sectors shapes the role of interest rates. Through such a relationship, the impact of interest rates on the financial sector is transferred to the real sector. In order to attain price stability, the fiscal authorities then modify the policy rate, which has an impact on the amount of savings and the availability of credit.

Financial institutions must be able to successfully deploy savings for investment purposes if financial deepening is to occur. Financial deepening, according to Nnanna and Dogo (1999), is a system devoid of financial repression. Mbutor and Uba (2016), Onodugo et al (2019) offered a general view of financial inclusion, making available financial services such as savings, credit and insurance to the disadvantaged and low-income population at affordable costs. Today, financial inclusion is a significant international policy goal, included as an

enabler of many of the UN Sustainable Development Goals (SDGs).

The classical hypothesis holds that savings and investment are the only factors that affect the rate of interest. The theory describes how the factors of supply and demand for cash drive interest rates. As a result, the money that is lent to investors for their purchases of capital goods comes from the savings that other people have generated from their present wages. By delaying consumption, they free up resources for the creation of capital goods. It was also emphasized that savings are elastic to interest rates. Therefore, consumers will be incentivized to save more money if the interest rate is higher. According to Uchendu (1993), the classical approach sees the interest rate as the yield on equity, return on investment, or opportunity cost of delaying present consumption.

The neo-classical loanable funds hypothesis states that the rate of interest is established when the supply and demand of loanable funds are equal. This demonstrates categorically that the theory is a development of the conventional theory, which holds that the rate of interest depends on savings and investment. The Keynesian theory of interest rates views interest as a compensation for releasing liquidity for a predetermined amount of time, as opposed to savings. People can decide how much of their money they want to save and how much they want to spend. The level of compensation for holding money in bonds or other assets as opposed to holding it in cash determines the interest rate. The relationship between investments and savings affects it. The Keynesians also hold that changes in the money supply and prices have an indirect and nonproportional link through the interest rate.

Interest rates were defined by Jhingan (2005) as the rental payment for the utilization of credit by borrowers and the return for lenders parting with their cash. Similar to other pricing, interest rates ration the finite supply

of credit among the numerous competing requests. The interest rate can also be thought of as the cost of credit, which may be vulnerable to inflation-related distortions. A borrower pays interest for the usage of money they borrow from a lender at a certain rate, according to Wikipedia (2005). It is sometimes expressed on an annual basis and can also be thought of as a rate that is charged or paid for the use of money. Credit availability may not be linear for additional private investment Guncavdi, (2008). In other words, if we assume that credit constraints exist at all interest rate levels, then when the impact of a rise in real interest rates on the loan supply exceeds the cost brought on by an increase in rates due to asymmetric information problems, a decrease in the sensitivity of private lending

Furthermore, investments in loans with higher interest rates should be anticipated. Jorhenson (2013) formalized the relationship between real interest rates and private (real sector) investment spending by deriving the desirable stock of capital as a function of real output and the opportunity cost of capital. A representative firm optimizes the current value of its projected future cash flows in this scenario. The targeted capital stock is inversely correlated with capital cost and directly correlated with production. An increase in the desired capital stock and investment spending results from a decline in the real interest rate since it lowers the opportunity cost of capital.

Government interest rate fixing and its detrimental effects on the financial system and economy are referred to as financial repression. An investment function that reacts adversely to the effective real rate of interest and favorably to the growth rate is one of the fundamental claims made for the McKinnon-Shaw model. The demand for money, which is defined as savings and term deposits as well as checking accounts and other currency, increases as the proportion to national income, which in turn encourages

growth; this leads to financial deepening, or a higher level of intermediation Ucer (1997). Ucer (1997) asserts that the elimination of interest rate regulations is a key component of the liberalization process due to the significance of interest rates in savings, investment, and economic growth.

Olawumi, Lateef, and Oladeji (2017) investigated the impact of financial deepening on the profitability of a number of Nigerian commercial banks. Financial deepening (M2/GDP), the ratio of credit to the private sector to GDP, and the ratio of deposit liabilities to GDP were used by the researchers to empirically investigate the relationship between financial deepening and bank performance. Profitability was used as the performance measure of interest. In order to investigate the impact of financial deepening on bank performance, they used a descriptive research design. The data were analyzed using descriptive and empirical methods, and the models' adherence to predictions, statistical significance, and explanatory power were assessed using pertinent statistics. This presents empirical evidence that financial deepening contributed positively to the degree of profitability of the chosen commercial banks in Nigeria. Findings showed that each component of financial deepening indicators has a strong association and is statistically significant. According to the study's findings, each financial deepening component significantly and positively affects the performance of a few selected commercial banks.

For the years 1970–2013, Karimo and Ogbonna (2017) looked at the causal relationship between financial development and economic expansion in Nigeria. The study used the Toda-Yamamoto augmented Granger causality test, and the findings revealed that in Nigeria, the relationship between growth and financial deterioration is consistent with the supply-leading hypothesis. This indicates that financial deepening precedes growth rather than the

other way around. The report suggested, among other things, that governmental initiatives should be focused on removing barriers that impede the expansion of lending to the private sector and must regain investors' faith in stock market operations.

Paul (2017) used secondary source data to investigate the effects of financial deepening on economic growth in Nigeria (1986-2015). He used the Co integration, Error Correction Model (ECM), and Ordinary Least Square (OLS) techniques as estimate methods. To determine whether the variables were stationary, the Augmented Dickey-Fuller (ADF) and Philips-Perron (Pp) tests were both run. His findings demonstrated that the financial depth indexes had an impact on long-term economic growth in Nigeria. Additionally, financial deepening and economic growth are favorably and significantly correlated. Therefore, he advocated for financial inclusion, financial reforms, infrastructure development, efficient payment systems, and increased public confidence in the stock market and money market to encourage investment and effective resource allocation.

For a 33-year period, from 1981 to 2013, Okafor, Onwumere, and Chijindu (2016) conducted a causality and impact analysis on financial deepening and economic growth in Nigeria. The Phillips-Peron test for unit root was employed in the study to determine whether or not the variables are stationary. To ascertain whether the data set was normally distributed, the VEC residual normality test and the Histogram-Normality test were applied. The Johansen cointegration test was used to test for a long-term association. Both the Granger causality test and the Error Correction Model were used. The results showed that there is a long-term relationship between economic growth, a large money supply, and private sector lending. This relationship is also characterized by a high rate of adjustment toward a long-term equilibrium.

The findings also showed that whereas private sector credit has a negative and insignificant impact on growth, broad money has a positive and non-significant impact on it. According to the results of the Granger causality test, neither a large money supply nor private sector credit can cause economic growth. The study thus suggests that policies that are supportive of the private sector be put in place to guarantee that investors not only have access to credit but also that this credit is available at a reasonable cost, or at a relatively low interest rate. The economic goal of continuous growth and stability should be attained through the coordination of monetary and fiscal policies.

High interest rates on loans are bad for productive investment and consequently for economic growth. According to Soyibo and Olayiwola (2000), borrowers with profitable assets may be deterred from applying for loans, which could have a negative impact on the caliber of applicants. Once more, high lending interest rates could lead to a situation where borrowers take out loans to avoid bankruptcy rather than making investments or financing working capital. The behavior of the interest rate structure tends to favor large spreads between the maximum lending rate and savings rates, which may stimulate speculative financial activities. The interest spread or interest margin of banking institutions is a frequently used metric to assess the benefits of financial sector reforms, as suggested by Edirisuriya (2008). The gap between interest revenue and interest expenses is known as the interest spread. According to theory, interest margins decrease as banks compete with one another.

Recently, the Nigerian financial system has undergone a number of changes, including the structural Adjustment program as a result of heavy regulation, stifled competition, improper resource allocation, improper management of interest rates, and poor banking structure, among other economic indicators Otieno (2013 ). The expansion of





At most 4	0.357182	
5.320316	15.49471	
0.7739		
<hr/>		
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)		Max-
Hypothesized Eigen	0.05	
No. of CE(s)	Eigenvalue	Critical value
statistic		
prob.**		
<hr/>		
None*	0.991044	
78.23096	47.85613	
0.0000		
At most 1	0.743469	
21.64640	29.79707	
0.3186		
At most 2	0.357182	
5.320316	15.49471	
0.7739		
At most 3	0.357182	
5.320316	15.49471	
0.7739		
At most 4	0.357182	
5.320316	15.49471	
0.7739		

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level  
 \*denotes rejection of the hypothesis at the 0.05 level  
 \*Mackinnon – Haug-Michelis (1999) p-values

After proving that financial deepening and interest rate variables are cointegrated, the previously defined long-run equation in

levels form will be estimated and shown in table 3.

**Table 3: Long –run Coefficients, dependent variable is FD**

Levels Equation			
Variable	Std. Error	coefficient	Case 3: Unrestricted Constant and No trend
		t-Statistic	Prob.
IRT	0.117431	0.865323	
	0.4850	0.734322	
LR	0.142618	0.195640	
	0.1823	1.325763	
MS	0.166839	-0.473412	
	0.0127	-2.90437	
CPS	0.053114	0.425842	
	0.0000	7.798172	
<hr/>			
FD = (0.8653*IRT + 0.1956*LR + -0.4734* MS + 0.4258*CPS)			

**Source: Author’s Computation 2023**

The above table's interest rate coefficients show the percentage change in the financial deepening variable as a result of changes in interest rates. The results show a significant connection between the money supply, interest rates, and Nigeria's financial development. This information supported the theoretical predictions, despite the fact that there was a negative, significant correlation between *saving* and financial deepening. Financial institutions restrict lending options



in reaction to fiscal thinning, which is shown by an increase in interest rates, claim Gbenga, James, and Adeyinka (2019). This supports McKinnon's (1973) theoretical claim that financial repression results from interest rate regulation. The estimation's findings confirmed the expectation that the money supply would have a favorable impact on financial deepening. It was found that the money supply ratio corresponded to a rise in financial deepening of around 42.5 percent. This result supports the claim made by Otalu, Aladesanmi, and Mary (2014) that the money supply has a statistically significant impact on the amount of credit created by banks through savings and deposits.

Financial deepening was found to be significantly benefited by savings and deposits. According to estimates, a change in the real interest rate accelerates financial deepening by roughly 12.97%. The actual interest rate has been increasing, according to an analysis of interest rate spread in Nigeria. Interest rates were roughly -2.61 percent between 1987 and 1999, when liberalization was completely implemented and before universal banking was enacted. It continued to increase, reaching 4.25 percent between 2000 and 2006, before the banking consolidation reform, and reached 7.39 percent after the reform until the review period of 2020. The financial liberalization theory's theoretical tenet that "high level of interest rates enhances the level of financial deepening" is supported by a considerable interest rate, according to Eke and Inyang (2015). Interest rates are not a reliable indicator of financial repression, according to De Gregorio and Guidotti (1995). Finally, lending and interest rates have no statistically significant impact on Nigeria's financial development. Table 2's average lending rate of 15.47 percent is regarded as being too high to support the credit of the private sector. This is consistent with Ekpo's (2017) argument that private investors in Nigeria are discouraged by high lending rates. Contrarily, the minimal influence of interest rates is a

symptom of ineffective financial intermediation, according to Sheriff and Amoako (2014). The inefficiency results from the fact that although low deposit rates discourage saving, high lending rates incentivize banks to lend.

After the ARDL long-run model has been established and estimated, it is necessary to estimate the error correction model within the ARDL framework. Table 4 presents the estimation of the error correction model for financial deepening.

**Table 4:** Autoregressive Distributed Lag (ARDL)

Dependent Variable: FD  
 Method: ARDL  
 Date: 04/12/23  
 Time: 01:24  
 Sample (adjusted): 1994 2021  
 Included observations: 28 after adjustments  
 Maximum dependent lags: 4 (Automatic selection)  
 Model selection method: Akaike info criterion (AIC)  
 Dynamic regressors (4 lags, automatic): CPS IRT  
 LR MS  
 Fixed regressors: C  
 Number of models evaluated: 2500  
 Selected Model: ARDL(2, 3, 4, 4, 2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	-		-	
FD(-1)	0.3830	0.1724	2.2215	0.057
	87	40	59	0
FD(-2)	0.2460	0.1061	2.3172	0.049
	01	62	14	1
CPS	0.0006	0.0002	2.5044	0.036
	80	72	69	7
CPS(-1)	0.0004	0.0002	1.6450	0.138
	85	95	11	6

	-	-	-	-
CPS(-2)	0.0004	0.0002	1.5636	0.156
	34	77	73	5
	-	-	-	-
CPS(-3)	0.0009	0.0002	3.6805	0.006
	65	62	63	2
	-	-	-	-
IRT	0.0730	0.1293	0.5644	0.587
	31	90	29	9
IRT(-1)	0.0692	0.1232	0.5623	0.589
	94	32	05	3
IRT(-2)	0.1053	0.1346	0.7824	0.456
	69	58	94	5
IRT(-3)	0.0480	0.0959	0.5005	0.630
	28	57	16	2
IRT(-4)	0.2228	0.1129	1.9727	0.084
	54	69	09	0
LR	0.0772	0.1217	0.6348	0.543
	90	38	85	2
LR(-1)	0.2764	0.0768	3.5964	0.007
	85	77	83	0
	-	-	-	-
LR(-2)	0.0280	0.0582	0.4817	0.642
	85	99	40	9
	-	-	-	-
LR(-3)	0.2407	0.0685	3.5092	0.008
	06	92	59	0
	-	-	-	-
LR(-4)	0.1830	0.0724	2.5272	0.035
	94	47	99	4
MS	0.0014	0.0003	4.0959	0.003
	42	52	65	5
	-	-	-	-
MS(-1)	0.0001	0.0003	0.3541	0.732
	08	05	33	4
	-	-	-	-
MS(-2)	0.0010	0.0003	3.3210	0.010
	60	19	05	5
C	12.369	4.5646	2.7099	0.026
	94	93	17	7
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R-squared	0.9967	Mean	16.89	
Adjusted R-squared	0.9891	72dependent var	663	
S.E. of regression	0.5039	S.D.	4.827	
Sum squared resid	2.0313	07dependent var	969	
Log likelihood	3.0012	Akaike info criterion	1.642	
F-statistic	130.02	50criterion	2.594	
Prob(F-statistic)	0.0000	Hannan-Quinn criter.	1.933	
	00	25Quinn criter.	851	
		90Durbin-Watson stat	2.693	
			174	

\*Note: p-values and any subsequent tests do not account for model selection.

Source: Author's computation 2023

Our financial deepening model converges to its long-run equilibrium at a speed of adjustment of 0.17.24 percent, according to the negative coefficient of the error correction term (ECT). A Durbin-Watson statistic of 2.693174 indicates that the model is not affected by first order autocorrelation, and an F-statistics probability of 0.000000 suggests that the model is significant overall.

A diagnostic test was used to check for serial correlation and residual series. It was found that there is no serial correlation and that the residual series are normally distributed and homoskedastic. The tests in question are the LM test, the ARCH and Breusch-Godfrey tests for serial correlation, and the Jarque-Bera test for normalcy. Below the estimates from diagnostic tests

**Table 5: Diagnostic Tests Estimates**

Diagnostic Tests	Probability of F-Statistics	Remark
Jarque-Bera	0.8672	Normal distribution
Heteroskedasticity Test: Breusch-Pagan –Godfrey	0.8236	Homoskedastic distribution
Breusch-Godfrey Serial Correlation LM Test:	0.4667	No Serial Correlation

Source: Author's Computation 2023

The p-value of the F- statistic in each of the three tests was greater than 0.05, indicating that the null hypothesis is accepted. The data series are homoskedastic, normally distributed, and not serially correlated, the researchers conclude. The model's stability and fit were once again demonstrated.

### Findings and Policy Implication

According to the findings, interest rates and financial deepening have a lasting relationship. We also discover that the interest rate change has had a favorable and considerable impact on Nigeria's financial progress.

The results demonstrate that a 1.32 percent increase in the loan rate discouraged private investors, resulted in inadequate job creation, and negatively impacted the real sector of the economy.

According to the research, policymakers must adopt measures to encourage financial development, economic growth, the liquidity reserve ratio, the domestic savings/GDP ratio, and reforms to guarantee the efficiency and development of the financial system.

### Conclusion and Recommendation

The results point to a long-term connection between interest rates and financial deepening. Additionally, it was demonstrated that interest rate change had a positive and significant influence on Nigeria's financial development. The findings are consistent with Asamoah's (2008) hypothesis that financial reforms boost financial market competition, which raises interest rates to encourage saving and free up funds for investment. This mechanism leads to economic growth.

Policymakers should influence financial deepening, interest rates, the liquidity reserve ratio, the domestic savings/GDP ratio, and undertake financial reforms, according to the study's findings, in order to guarantee the efficacy and expansion of the financial system. Financial choices that support the country's economy will be made in light of the findings.

To encourage investment and hasten economic growth, we therefore implore Nigeria's monetary authorities to reduce loan interest rates. to exert pressure on the government to fight growing inflationary rates.

Policymakers should carefully explore policies that would cut interest rates and create internal control mechanisms in order to encourage economic growth.

Future research on the influence of financial reforms on economic growth should consider both the magnitude of the impact and the level of democratization in the country.

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