Research Article

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Banking Sector Reforms and Economic Growth in Nigeria

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Abstract

Economic expansion is impossible to achieve without a robust and reliable banking system. Reforms have been implemented in the banking industry in Nigeria. Through an application of the Ordinary Least Square (OLS) method, this study analyses the effect of changes to Nigeria's banking industry on GDP expansion between 1981 and 2021. The results demonstrate that the banking sector changes in Nigeria contributed significantly to the country's economic development for the better. After the banking industry was consolidated, the liquidity ratio was found to have a positive and statistically significant effect on economic growth, whereas before the reforms it had no effect at all. In addition, prior to the consolidation of the banking system, the cash reserve ratio had a negative and statistically negligible effect on economic expansion. Cash reserve ratio's effect on GDP growth was found to be positive and non-statistically significant following the change. A positive and statistically significant effect of monetary policy rate on economic growth was also shown in the years prior to the implementation of banking sector reforms. The reform had a considerable negative effect on economic growth as a result of the monetary policy rate. In order to maintain the effectiveness and efficiency of banks and the broader banking system, frequent reforms to the banking industry are necessary. To improve liquidity, and thus economic growth, the cash reserve ratio should be lowered.

Keywords: *Banks, Economic Growth, Monetary Policy, Reforms, Reserve Ratio*

1. Introduction

Nigeria, like any other country, should strive for economic growth as a macroeconomics goal. Simply put, a rising quality of life is guaranteed by the fact that a growing economy produces more and

better goods and services, more and better jobs, and greater incomes for everyone. Foreign direct investment (FDI) is a key driver of economic expansion (Ozili, Ademiju, & Rachid, 2022). Fostering economic growth through the financial sector requires reforming the banking system to increase efficiency (Nguyen, Le, Ho, Nguyen, & Vo, 2022).

Sanusi (2012) and Azumah, Owusu-Ansah, Amewu, and Ohemeng (2023) note that reforms in the banking sector are necessary to ensure the expansion of the capital base, the safety of the banking system, the mobilisation of savings, and the efficient performance of the banking industry in its role as an intermediary. Profitability and increased output in the banking industry are two outcomes that could result from reforms in this area. Therefore, it is possible to increase trust in the banking system. On this basis, nations like Nigeria are implementing changes to their banking systems.

The Nigerian banking system was characterized by small, periphery banks with high administrative expenses, a weak capital base (the average was less than N1.4 billion), and a strong reliance on government patronage before to the 2005 banking sector reforms. Numerous bank failures, extreme illiquidity, loss-making operations, and low-quality assets were also prevalent in the industry (Sanusi, 2012). According to Akani (2023), the "king" of reforms, the July 6, 2004 banking sector reform, mandated that all deposit money institutions in Nigeria have at least N25 billion in paid-up capital by the end of 2005. In 2009, the Asset Management Corporation of Nigeria (AMCON) Bill was passed into law by the national assembly (Hassan, 2023; Sanusi, 2012), and the Central Bank of Nigeria (CBN) injected N620 billion in liquidities into the banking system. By liberalizing the financial system, the government of Nigeria hopes to improve the efficiency with which resources are allocated, increase savings, broaden the country's capital base, and fuel investment and economic growth through interest rates set by the market. Increasing competition in the financial sector and implementing a framework for the management of inflation and economic growth are other important goals (Ezeocha, 2020; Ojong, Ekpuk, Ogar, & Emori, 2014).

As a result of increasing competition and safety in the banking system, expanding the capital base, and mobilising savings, reforms in the banking industry have been linked to higher economic growth. Increased access to finance for the private sector and other economic sectors will boost investment and economic growth by increasing resource allocation efficiency.

Over the years, Nigeria has taken many reform initiatives to bring its banking industry into conformity with international standards, making it more robust, dependable, and competitive. Bank mergers and acquisitions, as well as the establishment of prudential requirements in 1990, are examples of such events. Due to recapitalization policies in the banking sector, the number of deposit money banks has decreased from 66 in 1993 to 24 as of December 2007. The number of banks offering deposit money was 26 as of January 2023 (PENCOME, 2023).

Nonetheless, the banking system is still characterized by capital deficiency, leading to mergers and acquisitions among banks in the system, notwithstanding reforms in the banking sector over the years. People don't trust banks, and consequently, they don't save much. The sector's banking institutions remain unstable, and failure signs persist. The banking industry still has liquidity issues despite the government's best efforts. Nigeria's financial system is weaker than that of South Africa and Yugoslavia, two comparable countries. Because of this, it's important to look into how changes in the banking industry have affected Nigeria's GDP.

Despite the fact that many studies have examined how changes in the banking industry affect economic expansion, more evidence is needed. However, most of the studies relied on descriptive methods that are not part of the econometrics canon. Most studies also failed to compare economic growth rates before and after banking sector reform, a crucial step in determining whether or not the latter had a major impact on the former. In light of this context, the study set out to (i) analyse how major banking sector reforms in 2005 affected GDP growth in Nigeria, and (ii) discover whether there was a discernible change in GDP growth performance before and after the reforms.

2. Theoretical Literature

2.1 The Solow Growth Theory

Long-term economic growth can be explained by fundamental characteristics including a country's saving rate, population growth rate, and rate of technological progress, all of which Solow's economic growth model takes into account. How the rate of economic growth in a country changes over time, and whether or not it will stabilize, speed up, or stop; and whether or not economic forces exist that will allow poorer countries to eventually catch up to the richest countries in terms of living standards. This paradigm argues that independent technical change and the accumulation of capital are necessary conditions for economic expansion. Solow explains that a technical coefficient increases the likelihood that the capital-labor ratio will converge on a new equilibrium point over time. Capital and production as a whole would expand more slowly than the labour force if the actual capital-labor ratio is high, and vice versa if it is low (Jhingan, 2004; Abel & Bernanke, 1995).

Considering the stock of capital to be K(t) and the savings rate to be sY(t). If the stock of capital is increasing at a pace dk/dt, then that rate represents net investment. The production function generates technical potential by transforming inputs like capital and labour into outputs like goods and services.

$$Y = F(K, L) \qquad (2.1)$$

Where,

K = capital stock and

L = labour-force.

Solow argues that the production function exhibits constant returns to scale, so that a 100% increase in inputs would result in a 100% increase in output. However, if we hold all other factors constant, such labour, and increase the amount of capital by 100%, the resulting production will be less than 100%. The concept of marginal decreasing returns describes this phenomenon. Both productivity and the capital-to-labor ratio improve when workers save more than they need to. Productivity and the capital-to-labor ratio are stable when saving rates per worker equal capital adequacy. Productivity and the capital-to-labor ratio both decline when individual savings fall short of what is needed to replace capital expenditures.

One of the most surprising findings of the Solow model is that in the long run, economies stabilize when productivity growth is absent. The economy has reached a steady state when output per worker, consumption per worker, and capital stock per worker are all stable. Since there will be full employment of both labour and capital once the actual return to factors is adjusted. The current rate of output can be calculated using the production function shown in equation (2.1). To calculate how much of the net output will be saved and invested, we need to look at the propensity to save. This allows us to calculate the current period's capital accumulation. Long-term economic growth is easily calculated as the sum of two variables: the expansion of the working-age population and the acceleration of exogenously determined technological advancement. It is important to keep in mind that the savings rate has no bearing on the long-term growth rate but does alter the level of GDP. Since increased capital accumulation raises both labour productivity and GDP, a rise in savings rates is only temporary. However, in the long run, growth will level out at the sum of the rates of change in the labour force and technological advancement.

In other words, if growth rates vary across countries, it's because they're all in different places along the path to equilibrium. As a result, the gap between rich and poor countries' per capita incomes should narrow over time if affluent countries expand more slowly than poor ones. Jhingan (2004) and Abel and Bernanke (1995) find that the steady-state capital-labor ratio is positively associated to the saving rate and negatively related to the population growth rate.

The premise of diminishing returns to capital underpins the Solow model and leads to conditional convergence in the short run. According to the model, economies tend to move closer to their steady states over time, and the rate of convergence has a negative relationship to how far away

it is from the steady state. Therefore, once steady-state causes are accounted for, a lower initial value of real income per worker tends to create larger increase in GDP per worker. Therefore, according to the Solow model, the factors that determine the eventual steady state and the rate at which worker incomes develop are the starting point and the starting point's level of income, respectively (Barro & Sala-I Martin, 2004).

2.2 Harrod-Domar

The Harrod-Domar model was created by Evsey Domar in 1946 and Sir Roy Harrod in 1939. Investment was seen as the engine that drove the Harrod-Domar economy forward. The role of investment is divided into two. First, it creates demand and capacity which are relevant in the growth process. The model focused on aggregate investment, savings and capital output. According to this model, savings is not only a fraction of income but also a given proportion of income. This is presented in equation (2.2)

$S = s\,Y$ (2.2)

Where:

S = Net savings

S = Proportion of national income, and

Y = National income

Net Investment (I) is defined as the change in the capital stock, **k** and represented as in equation 2.3:

$I = \Delta k$ (2.3)

but, total capital stock, **k,** relates to output Y, as expressed by the capital-output ratio:

$k\backslash y = c,$ or $\Delta k = c\Delta Y$ (2.4)

Finally, because net national savings, S, must equal net investment, I, we can write as:

$S = I$ (2.5)

Economic growth is advocated for emerging nations on the condition that governments promote saving and back technological advances that lower the capital production ratio. The Harrod-Domar model has influenced public policy because it provides a theoretical basis for economic expansion.

One of the problems with this paradigm is that economic growth requires the continuous investment of both capital and labour in order to maintain itself. Another issue is that, particularly for developing nations, estimating the capital output ratio is challenging. Last but not least, the importance of capital to economic expansion is a contentious topic right now (Ohale & Onyema, 2002).

The theoretical foundation of the investigation is the AK model. The AK model, or Harrod-Domar growth model, has a more proper name. A linear production function is assumed, with output equal to the product of the capital stock, k, and a constant, denoted by the letter A (Todaro and Smith, 2011).

2.3 Empirical Literature

Financial performance of quoted deposit money banks (DMBs) in Nigeria was studied by Waleru (2023), who looked into the effect of banking sector reforms (BSR). The research included panel data from 13 publicly-traded deposit money institutions from 2010 to 2019. The Hausman test was used to compare the best-fitting option among random effects, fixed effects, and pooled estimates. This study found a positive and statistically significant effect of credit allocation on ROE for DMBs, a negative and statistically significant relationship between ROE and deposit mobilisation and the capital adequacy ratio, and a positive but statistically insignificant effect of asset quality on ROE. With regards to deposit mobilisation and credit distribution, the report suggested that the Central Bank of Nigeria increase the minimum capitalization of banks and its monitoring function on DMBs.

The effects of financial sector reforms on GDP expansion in Ghana were studied by Antwi-Bosiako (2022). The research used quantitative methods, including those that were quasi-experimental. The outcome demonstrated that changes made to the financial sector had a substantial impact on Ghana's GDP growth. To help Ghana's economy thrive, the research suggested revamping the financial sector to prioritize quality over quantity.

Folake and Johnson (2021) used the Autoregressive Distributed Lag (ARDL) and Ordinary Least Square (OLS) to analyse the progression of reforms in Nigeria's banking sector and its relationship to GDP growth from 1980 to 2016. Those findings demonstrated the importance of a change in Nigeria's financial sector to the country's GDP growth. As the study found, improvements in the financial sector are necessary for both economic growth and the smooth functioning of market intermediaries, which the regulatory body and policymaker should actively push.

The effects of banking sector reforms on economic growth in Nigeria were studied by Bawa, Chiebonam, and Abdulsalami (2021) to prepare the country for international competition between 1981 and 2020. In order to confirm the existence of long-run correlation between the variables, the Augmented Dickey-Fuller (ADF) and cointegration test were used. A downward drift in private sector loan distribution from 1981 to 2006 was followed by a sustained upward trend from 2007 to 2020, as shown by the results. For effective policymaking and continuity, the study suggests a time lapse between reform phases.

In order to determine how changes in Nigeria's banking industry affected the country's GDP growth from 1975 to 2018, Maurice (2020) used ordinary least square multiple regression analysis. Restructuring the country's financial system had a statistically significant negative impact on Nigeria's GDP growth. There should be adequate time between reform periods to allow for proper preparation, according to the study's recommendation.

From 1970 to 2014, Jude (2019) investigated how changes in Nigeria's banking industry affected the country's GDP growth. ARDL was used as a methodology for this investigation. Pool data was collected from 1970 to 2014, and the pre-bank-reform (1970-1985) and post-reform (1986-2014) periods were analyzed separately. The reforms in the banking industry had a substantial, and detrimental, effect on Nigeria's economic growth. The report suggested that the government implement strict regulatory measures to manage the banking industry, while the Central Bank of Nigeria maintained its policy of banking sector reforms to provide the private sector with ample credit.

Nigeria's economic growth from 1970 to 2015 was analyzed by Okoi, Ocheni, and Orok (2019), who looked at the impact of banking sector reforms on the country's GDP. The research was conducted using an ex post facto and desk research approach, and the Autoregressive Distributive Lag (ARDL) test was used to analyse the data. According to the results, modifying Nigeria's banking system can significantly boost the country's GDP. Financial intermediaries were urged to implement the study's recommendations to improve the reasonableness and efficiency of deposit and lending rate policy.

This article by Akinwale (2018) analyses the connection between changes in Nigeria's banking industry and the country's expanding economy. Years 1986-2016 were included in the analysis. The analysis revealed a countervailing relationship between changes in the financial sector and GDP expansion. According to the research, the Central Bank of Nigeria and the country's deposit money banks should adopt consistent policies in Nigeria.

To determine what factors contribute to economic growth in Nigeria, researchers Manasseh, Ogbuabor, Anumudu, Abada, Okolie, and Okoro (2018) looked at the country's stock market, financial sector, and economy. Vector autoregressive was used to make estimates for a time series that was measured every three months, beginning in 1981Q1 and ending in 2010Q4. These reforms in the financial sector led to growth in the stock market, as the results demonstrated.

Gidigbi1 (2017) looked into how banking changes in Nigeria affected bank efficiency and the country's GDP growth. The study looked at data from 1981 through 2015 using an ANOVA model applied to a Stepwise Regression. Reforms in the banking sector were shown to significantly contribute to economic expansion, especially between 1999 and 2004. When it comes to bank

profitability, reforms in the banking industry implemented after 1993 have been largely detrimental. According to the research, Nigeria's central bank should put proposed reforms to the test before a crisis hits.

Ishioro (2017) evaluated the effects of banking sector reforms on GDP expansion in Nigeria. To estimate time series data from 1970 to 2013, this study used autoregressive distributed lags (ARDL). Based on the data, it was concluded that bank lending to the private sector had a negative and statistically negligible impact on Nigeria's GDP growth. Regardless of who is in charge of the country at any one time, the report suggests that the duration of reforms to the financial sector be made crystal clear and strictly adhered to.

The authors of this study, Offiong, Owui, and Ibor (2016), analyzed the results of financial sector reforms on the Nigerian economy between 1987 and 2014. The Ordinary Least Squares (OLS) approach of regression analysis was used for this investigation. Nigeria's GDP growth was found to be significantly affected by interest rates, the ratio of private sector credit to GDP, and financial reforms. In order to encourage people to save more money for investment purposes, the study suggested they be offered a competitive interest rate on their savings.

Oghenemagoma (2016) analyzed how changes in Nigeria's banking system impacted the country's GDP. Of the 22 banks in Asaba, Delta State, 15 were included in the study, which spans the years 2000-2015. The study's findings demonstrated that the total asset, shareholders' equity, profitability, and retained earnings have a little impact on Nigeria's economic growth.

The effects of banking sector reform on Nigeria's economic growth from 1986 to 2012 were studied by Eta and Anabori in 2015. Time series panel data estimates were calculated using a linear regression model in this research. Deposit money bank credit claims were found to be positively associated with economic growth in Nigeria. The research concluded that Nigerian bank management might benefit from training and education in credit investigation and management.

Mbaeri, Adioha, and Nnamdi (2015) looked into how changes in the banking industry affected Nigeria's GDP expansion. This study employed regression analysis to find a connection between Bank reform and GDP growth from 2000 to 2010. A strong favorable effect of banking sector reform on economic growth in Nigeria was found. According to the findings, tighter regulation of private-sector lending is a necessary condition for successful policy implementation.

Eriemo (2014) used Ordinary Least Squares (OLS) to analyse the impact of banking sector reforms on the Nigerian economy between 1980 and 2012. The data demonstrated a positive correlation between a minimal capital basis and economic expansion. The research called for, among other things, an increase in the financial sector's bare minimum capital base and the maintenance of an expansionary monetary policy.

From 2000 to 2011, Bernard and Michael (2014) used an Ordinary Least Square (OLS) regression model to analyse how changes in Nigeria's banking system impacted bank performance and economic growth. The findings demonstrated that capitalization levels in banks had a negligible bearing on their profitability and asset quality.

Akpansung & Gidigbi (2014) used ordinary least squares and analytical estimating approaches to look at how the reforms affected sectoral loan allocations and economic growth in Nigeria between 2003 and 2011. Credit allocation and economic growth were found to benefit greatly from banking sector reform. Sustainable economic growth was identified as a top priority, and the study suggested that the CBN keep up its banking sector reform, as well as build and promote the economy's human capacity in light of emerging opportunities and challenges, and work in concert with other institutions and policies to achieve this goal.

The effect of banking sector changes on Nigeria's economic expansion was studied by Omankhanlen (2012). The years 1980-2008 were analyzed, and the ordinary least squares technique was applied. The findings demonstrated that enhanced financial intermediation boosted investment, productivity, and economic expansion. The study's authors stressed the importance of maintaining political and economic stability for the financial system to function smoothly.

Using Ordinary Least Square (OLS) methods, Rehman (2011) analyzed the results of financial

changes on Pakistan's economic growth from 1973 to 2008. The findings demonstrated that financial reform significantly contributes to economic expansion. According to the findings, the government ought to do away with the cap on interest rates.

Olajide, Obafemi, and Jegede (2011) looked into how financial reforms affected the efficiency of Nigerian banks. The researchers used Ordinary Least Squares (OLS) methods to analyse data from 1995–2004. Analysis of the effects of changes in government policy, industry structure, and individual bank characteristics on the net interest margin and profitability of Nigerian banks revealed varied findings.

3. Model Specification

This model is specified to capture objectives one and two of the study. The functional form is specified as:

$GROWTH = f(LR, CRR, MPR, \text{Di})$ . . . (3.1)

where:

$GROWTH$ = real GDP growth, a measure of economic growth

LR = liquidity ratio

CRR = Cash reserve ratio

MPR = Monetary policy rate

Di is a dummy variable standing in for banking sector consolidation reforms (D = 0 for time periods before to the 2005 reform and D = 1 for times periods following the 2005 reform). with multiplying the dummy variable with the banking sector (independent) variables, we are able to capture the economic growth performance both before and after the big banking sector reform in 2005. This is how the econometric model reads:

$$GROWTH = \varphi_0 + \varphi_1 LR + \varphi_2 CRR + \varphi_3 MPR + \lambda_1 D_i + \lambda_2 LR * D_i + \lambda_3 CRR * D_i + \lambda_4 MPR * D_i + u_1 \quad (3.2)$$

Where: all variables remain as previously defined

λ_2 = coefficient for the financial services industry. Reforms in the banking industry are analysed in terms of their effect on GDP expansion.

φ_1, φ_2 & φ_3 = shared values for the LR, CRR, and MPR slope coefficients. They show how the banking sector's reform in 2005 influenced economic growth.

$\lambda_2, 3$ & λ_4 = LR, CRR, and MPR differential slope coefficients. They show how the 2005 banking sector reform affected GDP growth.

u_1 = random error term.

3.1 Descriptive Statistics of the Variables

The characteristics of the variables were examined by computing their means, standard deviations, highest and lowest values, skewness, and kurtosis, and the findings are shown in Table 4.1.

Table 4.1: The median, mode, minimum, maximum, skewness, and kurtosis of the variables are shown in Table 4.1

Variables	Obs.	Mean	Standard Deviation	Minimum value	Maximum value	Probability (Skewness)	Probability (Kurtosis)
GROWTH	41	3.0173	5.3849	-13.13	15.33	0.0281	0.0385
LR	41	48.9559	13.3632	29.1	104.2024	0.0001	0.0003
CRR	41	9.5463	7.6289	1	27.5	0.0097	0.7592
MPR	41	12.9132	3.8413	6	26	0.0280	0.0262

Source: Author's Computation

Mean values for economic growth rate, liquidity ratio, cash reserve ratio, and monetary policy rate are all near to their corresponding standard deviation values. This suggests that there is little variation in the values of the variables from their respective means. In each case, the minimum value of the variable is less than the mean value, while the maximum value is greater than the mean. This demonstrates that the values of the variables have a wide range within which to fluctuate around the means.

Each of the four variables (GDP growth, liquidity, cash reserves, and the policy rate) has a Skewness with a probability that is statistically significant. Because of this, we cannot accept, at the 5% significance level, the null hypothesis that the data values of the variables follow a normal distribution. That's an indication that the variables don't follow a normal distribution. When it comes to Kurtosis, however, these three variables hold statistical sway: economic growth rate, liquidity ratio, and monetary policy rate. The kurtosis of a normal distribution cannot be explained by chance, hence the null hypothesis is rejected at the 5% significance level. However, the Kurtosis value for the cash reserve ratio is so little that it is not meaningful. Thus, at the 5% significance level, the null hypothesis is accepted. Because of this, the cash reserve ratio follows a normal distribution, albeit with some tails.

3.2 Unit Root Test

Moreover, the variables were examined with the Augmented Dickey-Fuller and Phillips-Perron tests for unit root. Table 4.2 shows the final result.

Table 4.2: Augmented Dickey-Fuller and Philips–Perron unit root test results

Variable	Augmented Dickey-Fuller Result		Philips–Perron Result		Lag order	~I(d)
	Level	1st Difference	Level	1st Difference		
GROWTH	-2.679	-5.318*	-3.486	-10.638*	1	I(1)
LR	-3.162	-5.483*	-3.391	-6.980*	1	I(1)
CRR	-1.643	-4.260*	-1.381	-6.341*	1	I(1)
MPR	-2.747	-6.603*	-3.257	-8.237*	1	I(1)
Di	-2.101	-4.304*	-2.133	-6.171*	1	I(1)
Where * indicates a 5% level of significance and the rejection of the null hypothesis that the unit root is present. Akaike's information criterion and Final Prediction Error (FPE) were used to determine the best lag times to use. The critical values at the level and the first difference, at 5% ADF and 5% Philips-Perron, respectively, are -3.544 and -3.548. Both the Augmented Dickey-Fuller and the Philips-Perron unit root test models that are estimated account for the trend.						

Source: Author's Computation

At this level, both the Augmented Dickey-Fuller and Philips-Perron test statistics fall short of the essential levels. Statistically speaking, this is not a significant finding. Given these results, we accept the null hypothesis that each variable has a unit root at the 5% significance level. This indicates that there is no level at which any of the variables are steady. This means that each variable is differenced once. After the first dissimilarity, all test statistics became significant, meaning that they exceeded the crucial value. Therefore, the presence of a unit root cannot be assumed to be true. This indicates that the order of integration for these variables is I(1).

3.3 Results showing the Relationship between Banking Sector Performance and Economic Growth

The first goal is to analyse how changes in the banking industry have affected GDP growth, and the second goal is to find out if the economy has grown noticeably faster or slower since the major

banking sector reform in 2005. The outcomes for the first two goals are shown and discussed here. Nonetheless, the cointegration finding is given and explored first. Johansen's test for cointegration was performed, and the results are displayed in Table 4.3.

Table 4.3: Result of Johansen test for cointegration

Maximum Rank	Eigenvalue	Trace Statistics	5% critical value
0	-	149.9988	141.20
1	0.6688	106.9008*	109.99
2	0.6267	68.4675	82.49
3	0.5059	40.9667	59.46
4	0.4110	20.3201	39.89
5	0.2564	8.7633	24.31
6	0.1517	2.3465	12.53
7	0.0583	0.0000	3.84
8	0.0000		

Source: Author's computation

When comparing the trace statistics to their respective 5 percent critical values, it was discovered that one of the trace statistics is larger than its 5 percent critical value. As a result, just a single cointegrating equation exists. Given the presence of a cointegrating equation, we reject the null hypothesis at the 5% significance level. There, the first and second goals' variables in the corresponding equation are cointegrated. A long-term connection exists between the variables.

Table 4.4: Empirical estimates of the impact of banking sector performance on economic growth

GROWTH	coefficients	Robust Standard Errors	t-statistics	P-value
LR	0.1764	0.0468	3.77	0.000
CRR	-0.2975	0.2913	-1.02	0.315
MPR	0.8143	0.2207	3.69	0.001
Di	24.3961	8.7430	2.79	0.009
LR*Di	0.1913	0.0491	3.89	0.000
CRR*Di	0.0442	0.3367	0.13	0.896
MPR*Di	-0.8402	0.2668	-3.15	0.009
Constant	-15.6155	5.8626	-2.66	0.012
R^2				0.7114
Adjusted R-squared				0.5865
F-statistics, F(7, 33)				3.30 (p = 0.0091)
Durbin-Watson statistics d-statistic (8, 41)				1.5055
Breusch-Godfrey LM Chi-square Statistics				2.272 (p = 0.1317)

Source: Author's computation

Reforms in the banking sector have a t-value of 2.79 and a coefficient of 24.3961. When using the 2-t rule of thumb, a t-value of 5% is considered statistically significant. Therefore, at the 5% significance level, we reject the null hypothesis that the banking sector changes will have no effect on economic growth. The reforms in the banking industry have had a substantial and beneficial effect on economic expansion. Reforms in the banking industry have the potential to significantly boost economic growth by 24.40 percentage points.

Before the reforms in the banking sector, the liquidity ratio contributed to economic expansion.

A rise in the liquidity ratio has been shown to boost economic growth by 0.18 percentage points. In this case, t = 3.77. That's an absolute value greater than 2, by the way. Using the 2-t rule of thumb, it is evident that the effect of liquidity ratio on economic growth was statistically significant prior to the substantial reform in the banking industry. Therefore, at the 5% level of significance, we reject the null hypothesis that the liquidity ratio has no substantial impact on economic growth before the reforms. 0.000 is a lower bound on probability than 0.05. The results indicate that there is little risk in rejecting the null hypothesis. The liquidity ratio also contributes to economic expansion after the consolidation reform. When the liquidity ratio is increased, economic growth rises by 0.19 percentage points. The t-statistic is 3.89. This indicates that the liquidity ratio does, in fact, have an effect on GDP growth. The liquidity ratio's impact on economic growth is thus rejected at the 5% level after the banking sector consolidation reform eras, contradicting the null hypothesis. It has a 0.000% chance of happening. Under 0.05, in other words. As a result, rejecting the null hypothesis would be a harmless mistake. When looking at the effects of the reforms before and after consolidation, it was discovered that the effects were greater after the reforms were implemented.

Prior to the banking sector consolidation changes, an increase in the cash reserve ratio resulted in a 0.29 percentage point loss in economic growth. T-value is -1.02. Since the t-value is not statistically significant at the 5% level, we accept the null hypothesis that the cash reserve ratio has no effect on GDP growth. Our p-value is 0.315. Under 5%, it becomes negligible. This evidences a 5 percent significance level for accepting the null hypothesis prior to the consolidation reform. Therefore, prior to the banking sector restructuring programme, the cash reserve ratio had a negative and statistically negligible effect on GDP growth. However, after the consolidation reform, the cash reserve ratio has a positive and statistically negligible effect on economic growth. The growth rate of the economy increases marginally in response to a rise in the cash reserve ratio.

Prior to the consolidation reform, the monetary policy rate coefficient was 0.8143 and the t-value was 3.69. For the pre-reform period, the null hypothesis that the monetary policy rate has no statistically significant effect on economic growth is rejected at the 5% level, as the t-value is greater than 2. A p-value of 0.001 0.05 is statistically significant, suggesting that the alternative hypothesis should be accepted. Specifically, before the reform, an increase in the monetary policy rate resulted in a notable boost in economic growth. After the reform, however, the monetary policy rate coefficient turns out to be negative and statistically significant. For pre-reform periods, we consequently reject the null hypothesis that the monetary policy rate has no effect on economic growth. For time periods after banking sector reforms, an increase in the monetary policy rate significantly reduces economic growth.

An R2 score of 0.7114 indicates that 71.4% of the variation in the dependent variable can be attributed to variations in the independent variables. This indicates that the model's independent variables account for around 71.14 percent of the variation in GDP. Probability values lower than 0.05 suggest statistical significance for the F-statistic. This means the model's independent variables have a considerable effect on GDP expansion as a whole. Roughly speaking, the Durbin-Watson test statistic is 2. Therefore, we accept the no-autocorrelation null hypothesis. This indicates that autocorrelation does not exist. Accepting the null hypothesis of no serial connection is supported by the negligible Breusch-Godfrey LM chi2 values.

3.4 Multicollinearity Test

The Variance Inflation Factor (VIF) test ensures that the variables are not too highly correlated with one another. Table 4.5 displays the results.

Table 4.5: Multicollinearity test estimates using the Variance Inflation Factor (VIF)

Variable	VIF	1/VIF
Di	6.77	0.147710
MPR*Di	5.67	0.176366

Variable	VIF	1/VIF
LR*Di	5.29	0.189035
CRR*Di	1.85	0.540540
CRR	4.55	0.219780
LR	3.45	0.290126
MPR	1.39	0.719431
Mean VIF	4.14	

There is a decrease in VIF values below 10. Multicollinearity is assumed to be absent if the VIF is less than 10, and to be present if the VIF is larger than 10. The null hypothesis of no multicollinearity is accepted as long as the VIF values of the variables are less than 10. That is, there is no issue with multicollinearity among the model's independent variables.

3.5 Heteroskedasticity Test

For this purpose, we employ the Breusch-Pagan / Cook-Weisberg test for heteroskedasticity. Table 4.6 shows the final result.

Table 4.6: Estimates of Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity Ho: Constant variance
chi2(1) = 3.63 Prob > chi2 = 0.0567

Source: Computed by the author

This is not significant because the p-value is higher than.05. Because of this, we accept the null hypothesis that the variances of the independent variables are equal at the 5% significance level. The absence of heteroskedasticity in the variables. That is, they are always different from one another.

4. Conclusion and Recommendations

Reforms in the Nigerian banking industry and their effect on GDP expansion have been studied. Observations were made. Our research led us to the conclusion that reforms in the banking sector are beneficial to the financial industry as a whole and have a notable and favourable effect on economic expansion. Further, the liquidity of the financial system is crucial to the expansion of the economy both before and after the changes. After the changes, liquidity has improved and is now contributing more to economic growth than it was before the reforms were implemented. Before the changes, economic growth was stunted because the cash reserve ratio was too high and banks had insufficient funds to give out. When looking at time periods after the change, the improvement is marginal at best. The monetary policy rate was more successful before the modifications than it has been since. In post-reform eras, the monetary policy rate is excessively high, which discourages investment and has a major, detrimental effect on economic expansion.

We therefore recommends thus;

i. Banks and the financial system as a whole can benefit from periodic improvements to the banking industry
ii. The cash reserve ratio should be decreased to ease liquidity and stimulate economic growth. This should, however, be done carefully because of the already high inflation in the country.
iii. Policymakers in the banking industry should make use of highly qualified individuals efficient and effective policymaking.

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