Bank Regulations and Private Sector Financial Deepening in Nigeria

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ABSTRACT

The study examines bank regulations and private sector financial deepening from 2001 to 2022. The study considers how capital adequacy, legal, liquidity, leverage requirements, and provisional policy affect credit to the private sector to Nigeria's GDP (CPS/GDP) ratio. Data are from the Central Bank of Nigeria (CBN) statistical database. The study employs unit root, Granger Causality, and the Autoregressive Distributed Lag (ARDL) framework at the 5% level. The unit root demonstrates that mixed integration (at level and first difference) necessitated the adoption of the ARDL Bound test, which revealed the presence of long-run effects. The ARDL long-run test indicates that capital adequacy and leverage requirements significantly decline CPS/GDP; liquidity requirement and provisional policy significantly promote financial CPS/GDP, and leverage requirement retard CPS/GDP but insignificantly. For Granger Causality, there is no causal movement from leverage and capital adequacy requirements to CPS/GDP and vice versa. Also, we notice one-way directional movement from CPS/GDP to legal requirements, liquidity requirements, and provisional policies. The study affirms that bank regulations significantly affect financial deepening in Nigeria. Thus, it recommends among others that CBN consider reducing capital adequacy, leverage, and liquidity requirements to allow banks to create more credits for the private sector for profitable investments.

Keywords: Bank regulations, private sector, financial deepening, policy, ratio

1.0   INTRODUCTION

The banking sector of a nation is the most vibrant and serves as a conduit pipe through which every other sector of the economy spins (Sunday & Chime, 2021) due to its transmission mechanism, which channels funds from the surplus to the economy's deficit economic units for productive uses. According to Nzotta (2014), banking is an important sector in the Nigerian economy. As a result, any difficulties encountered by this sector spread to other areas of the economy via the contagious effect. According to McKinnon (1973) and Shaw (1973), it is the trigger that

promotes economic growth. As a result, restrictions are required to sustain the rate of economic progress through the advancement of loans granted by this sector to the Nigerian economy (households, businesses, and government).

Bank regulations are simply the body of specific rules or agreed behaviour that constrains the activities of the banking industry to achieve a defined goal and/or act prudently, whether imposed by the government or an external agency or self-imposed by explicit or implied agreement within the banking industry (Llewellyn, 1986). The need for bank regulations stems from the unprecedented financial crisis of the 1930s in the United States, which resulted in a 40% reduction in the number of banks (Ravn, 2019; Patni & Darma, 2017), the 1927 Showa financial crisis in Japan (Shizume, 2018), the 1990s Norwegian, Asian, Venezuelan, and Swedish systemic bank crises (Ravn, 2019; Ristolainen, 2018; Berglund & Mäkinen, 2019). These have put the banking industry under considerable scrutiny for either allegedly causing or exacerbating the financial crises. It also requires the investigation of the causes of the systemic breakdown and the development of more effective methods to create a sound and stable banking system capable of averting future banking crises (Kahuthu, 2016). One of the k reasons for the global financial crisis was blatant contempt for bank regulations (Lucky & Nwosi, 2015; Bhattarai, 2020), which impacted the level of financial deepening and, as a result, called for control of banks globally.

Financial deepening has a significant impact on alleviating business financing constraints, improving capital and credit-raising services, and stimulating entrepreneurship in an economy (Beck, 2013; Cao-Alvira & Palacios-Chacon, 2021; Dutta & Meierrieks, 2021; Guiso et al., 2004; King & Levine, 1993). Most privately held businesses rely heavily on debt funding from financial institutions (Berger & Udell, 2006). Thus, whether upgrading the regulatory structure improves financial deepening in Nigeria is critical for policymakers seeking various policies to promote domestic credit. Bank regulations have garnered substantial attention in corporate finance in recent years as one of the main determinants of financial sector development, FDI, public-private partnerships, assistance inflows, financial inclusion, and economic growth. Few studies, however, looked at the impact of institutional determinants on Africa's financial deepening, and their conclusions have been mixed (Aluko & Ajayi, 2018; Aluko & Ibrahim, 2020; Fowowe, 2014; Kebede et al., 2021; Ntow-Gyamfi et al., 2019). Finally, Alder & Ramadan (2022); Igbinosa, Sunday & Babatunde (2017); Adeleke & Ibrahim (2022); Akinkunmi (2017); Isibor (2017) have conducted studies on bank regulations and performances.

However, these studies focused on bank-firm performance. It differs from prior studies in that it employs capital adequacy, legal, liquidity, leverage requirements, and provisional policy as measures of bank regulations on financial deepening in Nigeria. Furthermore, the ratio of loans to the private sector to GDP is used in this study to measure financial deepening. It is because a well-regulated banking industry instills more confidence in clients, resulting in the mobilization of deposits that are channeled to the private sector of the economy for profitable uses and, as a result, economic progression. Thus, this study examines bank regulations and private sector financial deepening in Nigeria from 1986 to 2021.

2.0   Theoretical Review

The two main theoretical pillars of this work are the public-interest and normative-financial-regulations frameworks. The public interest framework provides a solid basis and framework for analysing the effects of prudential regulations on the bottom lines of Nigeria's banks. According to the public interest theory, government regulations can fix market failures because markets are inherently unstable and biased towards serving special interests rather than the public good (Shleifer, 2005). Due to the exploitation of customer deposits, an insatiable appetite for profit, intense competition, and even the possibility of insider abuse, the banking industry is fraught with peril. Adeusi *et al*. (2014) list a number of issues that revolve on depositors' money. Depositors' money must be kept secure at all costs. To safeguard depositors and guarantee a stable financial system essential to the economy's growth, a regulatory body is required to establish regulations and control the operations of banks in the public interest.

According to Wittman's (1977) normative theory of regulation, authorities should provide banks with the appropriate incentives to boost their business performance, gather information to reduce the costs of information asymmetry, and promote healthy competition whenever possible. To further improve economic efficiency, it is suggested that financial regulators build regulatory systems that are in line with openness, predictability, legitimacy, and credibility of such a regulatory process, and give a sustainable pricing structure. The banking industry, capital markets, and non-bank financial institutions are all part of the broader financial sector. Financial sectors across all industries strive to improve corporations' access to capital, their ability to mitigate risk, and their ability to hold and invest in assets. Financial system, systemic crisis, strengthened market processes, and instilled

ethical norms are all areas where reforms aim to proactively respond (Omankhanlen, 2012). According to Wittman (1977), a cost-benefit examination of the regulatory tools used by monetary authorities is ensured by the normative theory of regulation. Systemic crisis, globalization, technological breakthroughs, and the global financial crisis have all contributed to the emergence of reforms/regulations aimed at improving the world's various financial systems.

The banking industry in Nigeria has been at the forefront of improvements to the country's financial sector. Bank recapitalization, the end of universal banking, the rise of electronic banking, the implementation of a cashless policy, the introduction of a unique bank identification number (BVN), and the separation of the dual roles of bank Managing Directors and Chief Executive Officers (Igbinosa *et al.*, 2017) are examples of reforms. There was an effort to increase efficiency, increase the banks' capital base, and maximise the wealth of the banks' owners. According to Shittu (2012), banks in Nigeria are adopting global best practices in corporate governance and risk management as a result of the aforementioned reforms.

Igbinosa *et al.* (2017) confirm using the ECM method, that banking regulation substantially influences the financial performance of banks. In a similar vein, Alder and Ramadan (2022) establish that the capital adequacy, liquidity, legal reserve, provisions policy, and leverage restrictions greatly affect a bank's performance. Akinkumi (2017) posits that internal banking regulations have a substantial effect on bank performance in Nigeria. Isibor (2017) concludes that regulatory and supervisory measures had a significant impact on bank profitability in Nigeria from 1985 to 2015. Adeleke and Ibrahim (2022) analyse the effect of prudential regulation on the profitability of Nigerian banks between 2011 and 2020. Capital adequacy and liquidity have a positive effect on EPS using the fixed effect model, whereas leverage and asset quality have an insignificant effect.

Institutional and financial developments have been the subject of a growing body of empirical literature evaluating their effects on economic growth (Appiah *et al.,* 2020; Kutan *et al.,* 2017). Levine (2005) reveals that high-quality institutions and advanced financial markets strongly affect economic expansion. Using a Gaussian mixture model with data from WGI (1996-2004) and ICRG (1984-2004), Law and Azman-Saini (2012) investigated the impact of institutions on financial development in 63 countries from the emerging and developing world. They looked at developments in the stock market and the banking industry as indicators. Their research shows that the institutional index has a substantial impact on financial

growth, especially in the banking industry. Using a fixed effects (FE) model with ICRG data, Cherif and Dreger (2016) investigated the institutional drivers of financial development in 15 MENA countries between 1990 and 2007. The study affirms that institutional drives impact on the financial development. Using the generalised method of moments (GMM) on WGI data, Le et al. (2016) found that the institutional quality and governance index promoted financial development in 26 Asian and Pacific nations between 1995 and 2011. According to Gani and Rasul (2020), the rule of law, regulatory quality, and the robustness of legal systems all had a significant and favourable impact on bank loans in 46 developing countries between 2004 and 2017. Using 2SLS regression on data from WGI (1996-2016) and ICRG (1984-2017), Khan *et al.* (2020) investigated the impact of institutional determinants on financial development in 15 developing countries. The study shows that financial growth is favourably affected by political stability, government efficiency, and the rule of law, but negatively affected by citizen participation and government accountability.

Using the GMM, Aluko and Ajayi (2018) analysed the many factors that influenced the growth of the banking industry in 25 SSA nations between 1997 and 2014. The authors observed that credit to the private sector, a proxy for banking sector depth, increased as institutional quality increased, using the arithmetic mean of six WGIs as an index. Similarly, using GMM, PCSE, and FE models, Ntow-Gyamfi *et al.* (2019) found that regulatory quality interacted favourably with financial development to boost inclusive growth in 48 African nations between 1990 and 2016. Aluko and Ibrahim (2020) used threshold analysis to determine how the institutional features of the World Growth Index (WGI) affected the influence of financial development on economic growth in 28 SSA countries between 1996 and 2015. Their research shows that, regardless of a country's institutional strength, financial development has a major, beneficial effect on economic expansion. Using fixed effects and generalised method of moments (GMM) analysis, Kebede *et al.* (2021) investigated the impact of foreign banks and institutional quality on financial inclusion in 17 African nations between 2004 and 2018. Employing the principal component analysis, the study demonstrates that partnership between international banks and strong institutions helps expand access to banking services across Africa.

3.0   METHOD

This study employs an ex-post facto research design. Its usage is justified by the fact that the study used statistical data from already-completed events (from the Central Bank of Nigeria, for example), negating any potential for data manipulation on the part of the researcher. This study used statistics from the Central Bank of Nigeria (CBN) statistical bulletin from 2001 to 2022 for a thorough examination. The data is therefore secondary in nature. The study made use of the unit root, descriptive statistics, ARDL framework, and Granger causality to analyse the data gathered. The study examines bank regulations (capital adequacy, legal, liquidity, leverage requirements, as well as provisional policy) in accordance with the studies of Alder and Ramadan (2022), Igbinosa et al. (2017), and Isibor (2017) in order to do this examination succinctly. So, the following is a description of the model employed in this study:

$$CPS/GDP = f(CAR, LIR, LER, PRP, LEVR) \qquad 3.1$$

The mathematical form of the model is stated below;

$$CPS/GDP_t = \beta_0 + \beta_1 CAR_t + \beta_2 LIR_t + \beta_3 LER_t + \beta_4 PRP_t + \beta_5 LEVR_t \qquad 3.2$$

Therefore, the econometric form of this model is stated below:

$$CPS/GDP_t = \beta_0 + \beta_1 CAR_t + \beta_2 LIR_t + \beta_3 LER_t + \beta_4 PRP_t + \beta_5 LEVR_t + \varepsilon_t \qquad 3.3$$

$\beta_1, \beta_2, \beta_3, \beta_4,$ and $\beta_5 < 0$

Where, CPS/GDP = Ratio of credit to private sector to gross domestic product, CAR = Capital adequacy requirement (Capital base/risk weighted assets), LIR = Liquidity requirement (Liquid assets/Total assets), LER = Legal requirement (Balance with CBN/Banks deposits), PRP = Provisional policy (Total provisions/Capital base), LEVR = Leverage requirement (Total equity/Total assets), β_0 = Intercept, $\beta_1, \beta_2, \beta_3, \beta_4,$ and β_5 = Constant parameters, ε_t = Error term

The ARDL long run model specification is presented below

$$\Delta Y_t = \beta_0 + \beta_1 \Delta Y_{t-i} + \beta_2 \Delta X_{t-i} + U_t \qquad 3.4$$

The structures of ECM;

$$\Delta Y_t = \beta_1 + \sum_{i=1}^{p} \beta_2 \Delta Y_{t-i} + \sum_{i=1}^{q} \beta_3 \Delta X_{t-i} + \alpha ECT_{t-i} + e_t \qquad 3.5$$

The Granger Causality model is given as;

$$Y_t = \alpha + \sum_{k=1}^{k} \beta_k Y_{t-1} + \sum_{k=1}^{i} \delta_k X_{t-1} + \epsilon_t \dots \qquad 3.6$$

$$X_t = \alpha + \sum_{k=1}^{k} \beta_k X_{t-1} + \sum_{k=1}^{k} \delta_k Y_{t-1} + \epsilon_t \qquad 3.7$$

4.0   RESULTS AND DISCUSSION

Table 1: Descriptive Statistics Outcome

	CPS/GDP	CAR	LER	LEVR	LIR	PRP
Mean	8.779972	0.433269	0.179798	1.062113	3.371486	0.157177
Median	9.005777	0.445473	0.208377	0.182794	0.567116	0.122079
Maximum	10.19410	0.549251	0.332473	18.21430	58.73641	0.419395
Minimum	6.679806	0.251214	0.024075	0.127963	0.427385	0.000000
Std. Dev.	1.108223	0.074418	0.095112	3.930471	12.68720	0.126139
Skewness	-0.633539	-0.418122	-0.179876	4.247057	4.246868	0.695089
Kurtosis	2.078493	2.898873	1.782597	19.04207	19.04105	2.453470
Jarque-Bera	2.147828	0.620839	1.410056	288.3108	288.2763	1.952378
Probability	0.341669	0.733139	0.494095	0.000000	0.000000	0.376744

Source: E-view Output

Table 1 shows the mean value of CPS/GDP, CAR, LER, LEVR, LIR, and PRP are 8.779972, 0.433269, 0.179798, 1.062113, 3.371486, and 0.157177 respectively. Their highest and smallest values are 10.19410 and 6.679806, 0.549251 and 0.251214, 0.332473 and 0.024075, 18.21430 and 0.127963, 58.73641 and 0.427385, and 0.419395 and 0.000 respectively, and their amount of variability from the mean are 1.108223, 0.074418, 0.095112, 3.930471, 12.68720, and 0.126139 respectively. Kurtosis explains the distribution's peak. CPS/GDP, LER, and PRP are platykurtic as their values are below 3; CAR is mesokurtic because its value approximates 3; and LEVR and LIR are leptokurtic as their values are above 3. The asymmetry of a distribution reflects its skewness. CPS/GDP, CAR and LER are negative (i.e., skewed left); while LEVR, LIR, and PRP are positive (i.e., skewed right). The p-val from Jarque-Bera stat. was used to demonstrate the normality of the distribution. For the distribution to be normally distributed, its p-val must lie above 5% threshold. As observed, the p-val for CPS/GDP, CAR, LER, and PRP were over 5% (0.341669, 0.733139, 0.494095, and 0.376744, respectively), demonstrating their normality; however, LEVR and LIR are not as their p-val are below 3 (0.000000 and 0.000000).

Table 2: Unit Root Test

Variables	ADF T-Stat @ Level	T-Crit. @ level	P-val. @ level	ADF T-Stat @ 1st Dif.	T-Crit. @1st Dif.	P-val. @1st Dif.	Integration Order
CPS/GDP	-2.129005	-3.040391	0.2365	-3.383071	-3.040391	0.0258	I(1)
CAR	-2.845766	-3.020686	0.0698	-8.053441	-3.029970	0.0000	I(1)
LIR	-8.454518	-3.052169	0.0000	-	-	-	I(0)
LER	-0.862972	-3.020686	0.7784	-4.093919	-3.029970	0.0058	I(1)
PRP	-1.988382	-3.020686	0.2980	-4.585442	-3.040391	0.0023	I(1)
LEVR	2.185697	-3.029970	0.9998	-5.133174	-3.040391	0.0016	I(1)

Source: E-views Output

Table 2 shows that five variables (CPS/GDP, CAR, LER, PRP, and LEVR) are stationary at first difference at the 5% level, while the remaining one (LIR) is stationary at first level. At the 5% level, the ADF test statistics had more negative than critical values and their associated p-values were less than 5%, which is the acceptable and rejected zone. The ARDL Bound test is used to see if there is any co-integration among the variables, as recommended by Pesaran, Shin, and Smith (2001).

Fig 1: ARDL Lag Length
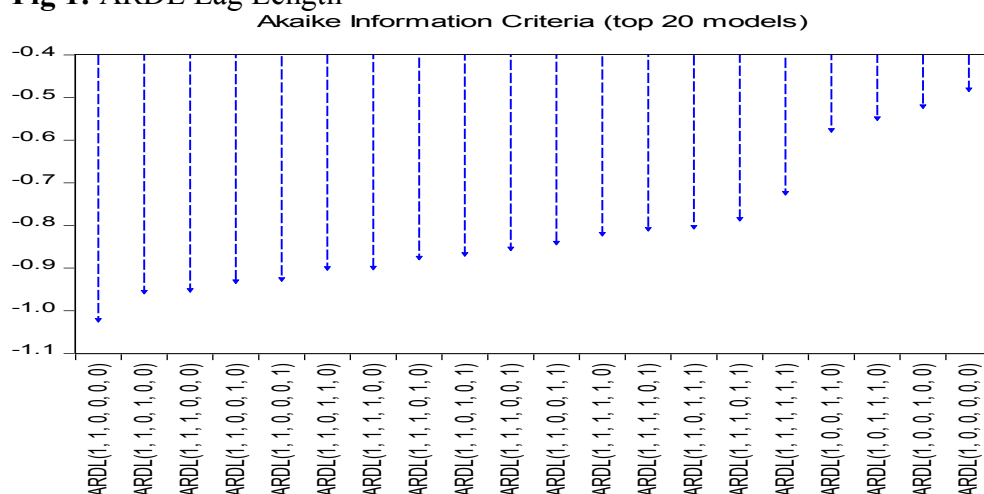
Source: E-views Output

The choice of the optimal lag length is based on the highest absolute value. Fig 1 shows that the optimal model for the study is 1,1,0,0,0,0 which corresponds to 1 lag of CPS/GDP and CAR, 0 lag of LIR, LER, PRP, and LEVR each.

Table 3: ARDL Bound Co-integration Test

ARDL Long Run Form and Bounds Test
Dependent Variable: D(LNCPS/GDP)

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	4.308110	10%	2.26	3.35
k	5	5%	2.62	3.79
		2.5%	2.96	4.18
		1%	3.41	4.68

t-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-4.251358	10%	-2.57	-3.86
		5%	-2.86	-4.19
		2.5%	-3.13	-4.46
		1%	-3.43	-4.79

Source: E-views Output

The F-statistic value at the 5% level is 4.308110, which is more than the I(0) and I(1) bound values of 2.62 and 3.79, respectively. At the 5% level, the T-statistic has a value of 4.251358, which is greater in absolute terms than the I(0) and I(1) values of -2.86 and -4.19, respectively. Thus, the alternate hypothesis of a co-integrating connection between the variables is accepted for both the F-statistic and the T-statistic, whereas the null hypothesis is rejected.

4.3   ARDL Short Run Test

Dependent Variable: CPS/GDP
Method: ARDL
Selected Model: ARDL(1, 1, 0, 0, 0, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
CPS/GDP(-1)	1.150872	0.064067	17.96364	0.0000
CAR	0.755923	1.109535	0.681297	0.5086
CAR(-1)	1.953725	0.595214	3.282389	0.0066
LER	-0.088144	0.561751	-0.156909	0.8779
LEVR	1.394881	2.074994	0.672234	0.5142
LIR	-0.435583	0.642209	-0.678257	0.5105
PRP	-1.321902	0.379557	-3.482752	0.0045
C	-2.091055	0.906293	-2.307262	0.0397

R-squared	0.990499	Mean dependent var	8.884980
Adjusted R-squared	0.984957	S.D. dependent var	1.024231
S.E. of regression	0.125624	Akaike info criterion	-1.021874
Sum squared resid	0.189376	Schwarz criterion	-0.623581
Log likelihood	18.21874	Hannan-Quinn criter.	-0.944123
F-statistic	178.7150	Durbin-Watson stat	1.739691
Prob(F-statistic)	0.000000		

Source: E-view Output

Table 3 shows that previous period CPS/GDP is positive (1.150872) and substantial to the current period CPS/GDP (0.0000). This connotes that CPS/GDP is autoregressive; hence, previous period CPS/GDP is a good predictor of the current period CPS/GDP. Thus, 1.150872 units rise in current period CPS/GDP is associated with increase in the previous period CPS/GDP by one unit. CAR and its lagged values are positive (0.755923 and 1.953725) with insignificant and significant (0.5086 and 0.0066) relationship with CPS/GDP respectively. This implies that a unit rise in the current and previous CAR will cause CPS/GDP to rise by 0.755923 and 1.953725 units respectively. LER and LIR are negative (-0.088144 and -0.435583) and insignificant (0.8779 and 0.5105) to CPS/GDP respectively. This implies that a unit rise in LER and LIR will cause CPS/GDP to decline by 0.088144 and 0.435583 units respectively. Though PRP is negative (-1.321902), it is consequential (0.0045) to CPS/GDP. This connotes that rise in CPS/GDP by 1.321902 units is link to decline in PRP by one unit. LEVR is positive (1.394881) but inconsequential (0.5142) to CPS/GDP. This means that increase in CPS/GDP by 1.394881 units is associated to rise in LEVR by one unit.

The adjusted R-squ demonstrates that 98.5% variations in CPS/GDP are explained by CAR, LIR, LER, PRP, and LEVR; while the remaining 1.5% are explained by factors not included here. On the whole, the model is of good fit (i.e., the F-stat. of 178.7150). Equally, it is free from autocorrelation because the D-W of 1.739691 is close to 2.

Table 4: ARDL Long-run Form

Regressors	Coefficient	Standard Error	T-statistics	P-value
CAR	-17.95993	7.496763	-2.395692	0.0338
LER	-10.50453	2.476813	-4.241148	0.0514
LEVR	-104.4967	22.26963	-4.692341	0.0425
LIR	28.87960	5.836529	4.948078	0.0385
PRP	11.97688	1.399351	8.558881	0.0134
C	-6.413614	6.968430	-0.920381	0.3647
R-squared 0.990499 Adjusted R-squared 0.984957		F-statistic Prob(F-statistic)	178.7150 0.000000	D-W Stat. 1.739691

Source: E-view 10.0 Output

The ARDL long-run form result of table 4 shows that CAR and LEVR are negative (-17.95993 and -104.4967) and significant (0.0338 and 0.0425) to CPS/GDP. This

implies that a unit rise in CAR and LEVR will cause CPS/GDP to decline by 17.95993 and 104.4967 units respectively. LER is negative (-10.50453) and inconsequential (0.0514) to CPS/GDP. This connotes that rise in CPS/GDP by 10.50453 units is link to decline in LER by one unit. LIR and PRP are positive (28.87960 and 11.97688) and consequential (0.0385 and 0.0134) to CPS/GDP. This means that increase in CPS/GDP by 28.87960 and 11.97688 units are associated to rise in LIR and PRP by one unit respectively. The adjusted R-squ demonstrates that 98.5% variations in CPS/GDP are explained by CAR, LIR, LER, PRP, and LEVR; while the remaining 1.5% are explained by factors not included here. On the whole, the model is of good fit (i.e., the F-stat. of 178.7150). Equally, it is free from autocorrelation because the D-W of 1.739691 is close to 2.

Table 5: ARDL ECM

ARDL Error Correction Regression
Dependent Variable: D(CPS/GDP)

ECM Regression				
Case 3: Unrestricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.091055	0.375317	-5.571433	0.0001
D(CAR)	0.755923	0.304219	2.484804	0.0287
CointEq(-1)*	-0.150872	0.024932	-6.051358	0.0001

Source: E-view 10.0 Output

Table 5 shows that any short-run inconsistency is resolved at a rate of -0.150872 adjustments to equilibrium over the long run. As a result, 15.0872% of the previous year's disequilibrium is corrected in the current year. Furthermore, at the 5% level, the p-value of 0.0000 suggests that it is statistically significant.

Table 6: Granger Causality Test

Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
CAR does not Granger Cause CPS/GDP	18	0.43289	0.7337
CPS/GDP does not Granger Cause CAR		0.38846	0.7636

LER does not Granger Cause CPS/GDP	18	3.47259	0.0543
CPS/GDP does not Granger Cause LER		5.22092	0.0175
LEVR does not Granger Cause CPS/GDP	18	0.28731	0.8336
CPS/GDP does not Granger Cause LEVR		0.16073	0.9205
LIR does not Granger Cause CPS/GDP	18	0.13554	0.9368
CPS/GDP does not Granger Cause LIR		13.4692	0.0005
PRP does not Granger Cause CPS/GDP	18	0.55228	0.6571
CPS/GDP does not Granger Cause PRP		4.84221	0.0219

Source: E-view Output

At the 5% level, there is no causal movement flowing from LEVR and CAR to CPS/GDP and vice versa. This connotes that the capital adequacy and leverage requirements do not affect the proportion of funds lend out by banks to firms and vice versa in Nigeria. There is the presence of one-way directional movement from CPS/GDP to LER, LIR, and PRP. This means that credit to private influences legal and liquidity requirements as well as provisional requirement.

4.1.2 Residual Test
Table 7: Autocorrelation Test
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.880545	Prob. F(2,10)	0.2026
Obs*R-squared	5.466267	Prob. Chi-Square(2)	0.0650

Source: E-views Output

The residual autocorrelation test has p-value of 0.2026, which is above 5%. As a result, the null hypothesis that there is no autocorrelation in the residual is accepted.

Table 8: Heteroskedasticity Test
Heteroskedasticity Test: ARCH

F-statistic	0.067580	Prob. F(1,17)	0.7980
Obs*R-squared	0.075231	Prob. Chi-Square(1)	0.7839

Source: E-views Output

The joint p-value of the heteroscedasticity statistics is 0.7980 and it is above 5%. As a result, the null hypothesis that the residual is homoscedastic is accepted.
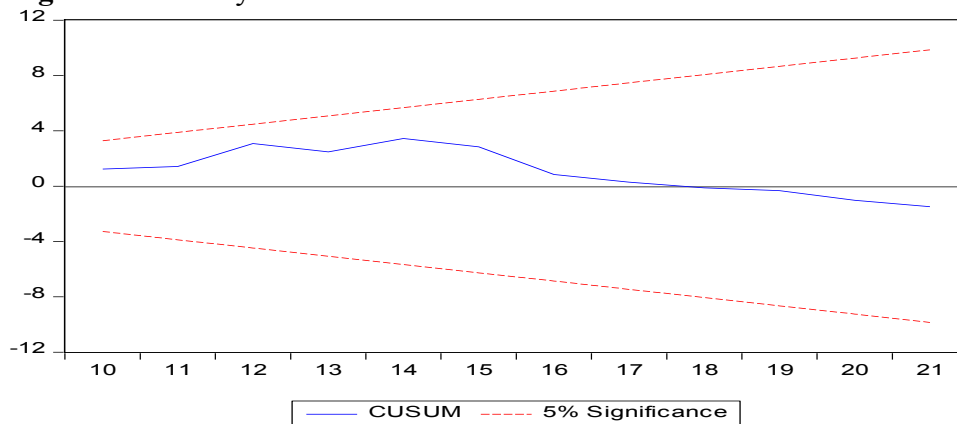
Figure 2: Histogram Normality Test
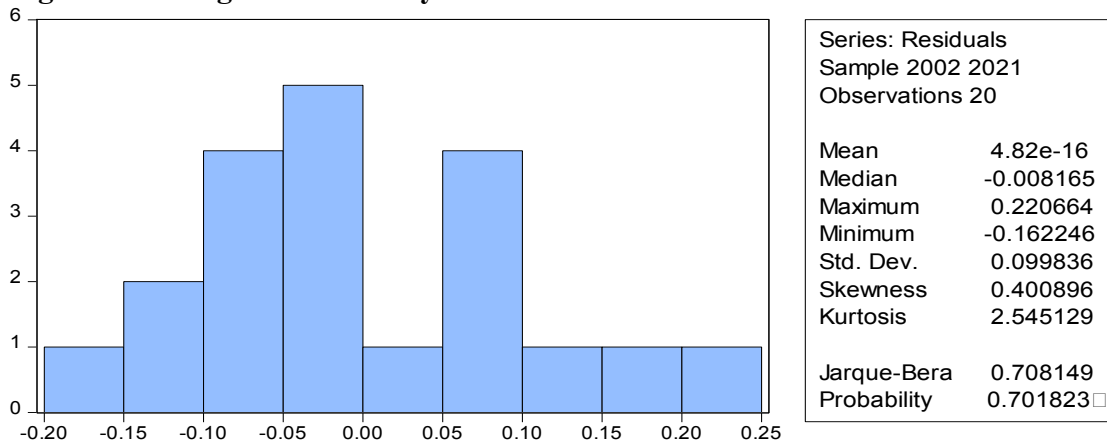
Source: E-views Output

The p-value of the Jarque-Bera statistics is 0.701823, which is above 5% and is bell-shaped. As a result, the null hypothesis that the residual is normally distributed is accepted.

Figure 3: Stability Test

Source: E-views Output

The blue is within the two red lines as shown in Figure 4.3. Thus, we can say that there is relatively stable.

In Nigeria, capital adequacy requirement substantially reduces credit to private sector. This means that increase in capital adequacy requirement, the lower the credit to private sector. This is attributed to the fact that as the requirement becomes higher, much funds will not be left in the hands of banks to use to create credit for private sector; consequently, retards economic growth. This is similar with Igbinosa *et al*. (2017), Alder and Ramadan (2022), Akinkumi (2017), Isibor (2017), and Adeleke and Ibrahim (2022) that regulation significantly affects the performance of banks.

Legal requirement reduces credit to private sector; however, it is inconsequential. This implies that as the legal requirement rises, more funds will not be available for the banks to create credit to private sector. This is because as more amount of funds are held with the CBN as a cushion effect against financial crises, the lower the banks will be able to create credit to private sector. This is associated to the reduction in the deposit base of banks occasioned by the increase in the legal requirement. The insignificant impact is associated with the ease at which banks can be able to borrow/draw from the CBN against their existing balance. Additionally, Kebede *et al.* (2021) opine that bank regulations helped to expand bank services across Africa.

Leverage requirement substantially reduces credit to private sector in Nigeria. This implies that the higher the leverage requirement, the lower the credit to private sector. This is because as total exposure of the bank increases in relation to the capital base, the total risk of the bank also increases and this may cause the bank to reduce it lending in order to reduce its exposure. Consequently, the ability of the bank to create credit to private sector will also reduce.

Liquidity requirement significantly promotes credit to private sector. This implies that as the liquidity requirement for banks increase, more funds are channeled to the private sector in form of loans and advances for productive investments. This is attributed to the fact that as the liquidity requirement increases, the public interest on the market failures of banks are relatively fixed making them relatively stable and impartial towards serving public good (Shleifer, 2005). This in tendon raises the public confidence of such banks; thus, leads to mobilization of more deposits from members of the public.

Provisions policy is positive and significant to credit to private sector in Nigeria. This implies that more provisions were made in relation to the capital base

of the banks as measure to counter financial crises that may arise; consequently, leading to more credit being allocated to the private sector. This is because the public sees the banks as stronger in relation to their capital base and as such boost their confidence. This runs in sync with Alder and Ramadan (2022) that regulation significantly affects the performance of banks.

5.0   CONCLUSION AND RECOMMENDATIONS

This study examines the bank regulations and private sector financial deepening in Nigeria from 2001 to 2022. The variables considered in the analysis are provisional policy capital adequacy, leverage, liquidity, and legal requirements as well as ratio of credit to private sector to GDP. The study adopts the use of descriptive analysis, Granger Causality, unit root, and ARDL framework. The study reveals strong support for liquidity requirement and provisional policy as main determining factors promoting financial deepening in Nigeria. This is attributed to the fact that as the liquidity requirement increases, the public interest on the market failures of banks are relatively fixed making them relatively stable and impartial towards serving public good (Shleifer, 2005), thus, in support of the public interest theory.

Strong support for capital adequacy, leverage, and liquidity requirements are detrimental factors of bank regulations affecting financial deepening in Nigeria. This is in line with Igbinosa et al. (2017), Alder and Ramadan (2022), Akinkumi (2017), Isibor (2017), and Adeleke and Ibrahim (2022). This is attributed to the fact that as the requirement becomes higher, much funds will not be left in the hands of banks to use and create credit for private sector; consequently, retards economic growth. Additionally, this is because as more amount of funds are held with the CBN as a cushion effect against financial crises, the lower the banks will be able to create credit to private sector. This is associated to the reduction in the deposit base of banks occasioned by the increase in the legal requirement.

Central Bank of Nigeria should consider reducing the capital adequacy, leverage, and liquidity requirements on banks so as to allow banks to create more credits to private sector for profitable investments. Also, the liquidity requirement and provisional policy of banks should be review upwards in order to boost public confidence on the bank so as to allow for ease of mobilization of deposit and hereafter allocational efficiency to private sector.

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