Asian Journal of Economics, Business and Accounting

Volume 24, Issue 7, Page 447-462, 2024; Article no.AJEBA.118630
ISSN: 2456-639X

Institutional Quality, Monetary Policy and Banking System Stability in Nigeria

Orina Tobi Adewumi [a*] and Demehin James Adeniyi [b]

[a] University Bursar, Adekunle Ajasin University, Akungba-Akoko, Ondo State, Nigeria.
[b] Department of Finance, Adekunle Ajasin University, Akungba-Akoko, Ondo State, Nigeria.

Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

Article Information

DOI: https://doi.org/10.9734/ajeba/2024/v24i71422

Open Peer Review History:
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://www.sdiarticle5.com/review-history/118630

Original Research Article

Received: 15/04/2024
Accepted: 19/06/2024
Published: 10/07/2024

ABSTRACT

The study used a Generalized Method of Moments to examine the effect of six IQ indices (voice and accountability, rule of law, regulatory quality, government effectiveness, corruption control and political stability and absence of violence) and MP tools (monetary policy rate, loan-deposit ratio, lending rate, logarithm of broad money supply and banking system liquidity ratio) on the Z-Score, a proxy for banking system stability.

The study found that, among the six MP indices, only corruption control index has a positive and significant effect on bank stability (coefficient = 0.245124, p = 0.0042). Also, out of five MP variables, only the loan-deposit ratio has a significantly positive effect on bank stability (coefficient = 0.0070482, p = 0.0072). The effect of the other IQ and MP indicators are not significant enough for inference purposes.

We conclude that IQ affects banking system stability positively and significantly. We also found that

**Corresponding author: E-mail: toridam@yahoo.com;*

Cite as: *Adewumi, Orina Tobi, and Demehin James Adeniyi. 2024. "Institutional Quality, Monetary Policy and Banking System Stability in Nigeria". Asian Journal of Economics, Business and Accounting 24 (7):447-62. https://doi.org/10.9734/ajeba/2024/v24i71422.*

MP affects the stability of the banking system positively and significantly. We recommend, among others, that authorities should continue to pursue zero corruption in institutions and that banks should be mandated to improve on the existing anti-corruption measures. Also the Central Bank of Nigeria should continue to maintain the range of loan-deposit ratio that has existed for many years. There is the need to re-appraise other IQ and MP variables with no significant positive effect on banking system stability in Nigeria.

Keywords: Institutional quality; monetary policy; bank stability; GMM.

1. INTRODUCTION

Economies across the world, especially the developing and emerging ones, are characterized by their dynamic nature and susceptibility to external shocks. Hence, robust institutional frameworks, effective monetary policy, and a stable banking system are important for sustainable economic growth and development. However, in most of these countries, how institutional quality affect the other facets of the economy remains a critical concern, as evidenced by various governance indicators and international assessments.

From the early 2000s, regulatory authorities in African countries (especially the West) have implemented measures aimed at opening up the financial sector and adhering to international banking standards such as Basel I, II, and III. The goal was to improve the efficiency of and reduce instability in the banking system, make monetary policy more efficient and encourage institutions to positively impact the financial system and vice-versa [1]. These efforts have involved the adoption of the Basel Committee's recommended supervisory guidelines, particularly those outlined in Basel I. Furthermore, in a bid to fortify the resilience of the banking system, monetary authorities in Nigeria made the decision from 2004 to gradually elevate the minimum capital requirements for commercial banks and other financial institutions. This strategy aims to augment their ability to provide financing and ensure their financial soundness [2]. The incremental increases in capital levels represent a strategic shift from existing regulations based on Basel I towards a framework more in line with the principles of Basel II and III.

Nguyen, et al. [3] emphasized that the stability of banks significantly determines both the stability of the financial system as a whole and the broader economic development [4,5]. One factor that has largely contributed to the growing interest in the issues of IQ and bank stability in Nigeria is the 2008-2009 global financial crisis. Prior research underscores the necessity of scrutinizing macroeconomic factors contributing to banking system stability for policymakers to preempt potential financial crises [6]. However, extant literature primarily delves into macro-level elements and bank-specific characteristics, overlooking newer factors such as institutional dynamics cum monetary policy simultaneously.

As noted by Williamson [7], institutional factors are increasingly recognized as crucial determinants of bank stability. Enhancements in institutional quality can exert substantial influence on a bank's credit risk profile, consequently impacting its overall stability. Research suggests that improved institutional quality can mitigate asymmetric information and transaction costs, thereby enhancing resource allocation efficiency and diminishing risks associated with lending activities, ultimately fostering bank stability. Furthermore, it is essential to acknowledge that the behaviour of bank managers can vary depending on the prevailing economic conditions, IQ and the specific circumstances they face [8].

Research on the effects of IQ consistently agree that institutions play a crucial role in facilitating the efficient allocation of resources, thereby contributing to economic activities and ultimately fostering economic growth [9]. Beekman, et al. [10] observed that corruption, for instance, diminishes incentives for individuals to engage in voluntary contributions and investments. This invariably impairs economic sectors, including the financial system. Qu et al., [11] believed that it is reasonable to expect a co-movement between IQ and bank risk for several reasons. In the first place, an efficient institutional framework is crucial for mitigating issues related to information asymmetry and transaction costs [12], which directly influence credit activities because information asymmetry often serves as a significant barrier to effectively channeling funds from savers to borrowers [13]. Nguyen et al. [9] demonstrated that improved IQ leads to higher levels of credit in emerging economies from 2002 to 2013, owing to the reduction in the impact of IQ on asymmetric information and transaction costs. When there is low asymmetric

information and reduced transaction costs, there will also be a reduction in adverse selection and moral hazards. Deposit money banks (DMBs) become less inclined to extend loans to borrowers with poor creditworthiness, and borrowers are less likely to engage in risky projects.

Second, it has been reported that better IQ breeds more effective macroeconomic policies including banking regulations [9,14]. Consequently, bank managers exercise greater caution in extending credit to borrowers with better creditworthiness to ensure compliance with regulations. Third, according to Strobel et al., [15], better IQ is associated with reduced uncertainty in macroeconomic systems due to the implementation of more prudent macroeconomic policies, whereas high uncertainty is linked with increased risk in economic activities. For instance, empirical evidence suggests that governments in advanced countries, typically characterized by high IQ, often adopt counter-cyclical fiscal policies, whereas governments in developing countries tend to follow pro-cyclical fiscal policies [9]. Hence, better IQ is expected to correlate with lower macroeconomic uncertainty so that predictions become possible. Hence, it is reasonable to anticipate that higher IQ will mitigate instability by lowering credit risk and overall default risk within the banking system.

For many years, the Worldwide Governance Indicators (WGI) produced by the World Bank consistently rank Nigeria low in terms of rule of law, regulatory quality, government effectiveness, control of corruption, and political stability [16,17]. The country's governance challenges are reflected in widespread corruption, weak regulatory enforcement, judicial inefficiency, and political instability. According to the Transparency International, TI, (2022), corruption, in particular, poses a significant threat to institutional quality in Nigeria, permeating various sectors of the economy and public administration. The TI Corruption Perceptions Index (CPI) consistently ranks Nigeria among the most corrupt countries globally, undermining investor confidence, hindering economic growth, and exacerbating social inequalities.

Despite efforts to improve IQ through governance reforms, anti-corruption initiatives, and institutional capacity-building programmes, progress has been slow and uneven. The lack of political will, vested interests, and systemic constraints continue to impede meaningful institutional reforms, perpetuating governance challenges and undermining Nigeria's development aspirations. For example, in recent years, the CBN has implemented various monetary policy measures to address emerging challenges, including inflationary pressures, exchange rate volatility, and external imbalances [18]. These measures have included tightening liquidity conditions through OMO sales, adjusting reserve requirements to manage liquidity and credit expansion, intervening in the foreign exchange market to stabilize the naira, and providing targeted credit facilities to support priority sectors of the economy. However, persistent challenges remain, including high inflation rates, exchange rate depreciation, fiscal sustainability concerns, and structural constraints to growth. These series of policies, to date, are yet to address the outlined challenges.

The specific combined effect of IQ and monetary policy on Nigerian banking system stability has been a knotty issue [17]. However, the interwovenness and interdependency of these three sets of variables is obvious. Effective monetary policy depends largely on sound and efficient institutional framework which in turn determines the stability or otherwise of the banking system. Examining the effect of IQ and MP on the stability of the Nigeria banking system is the focus of this study.

2. LITERATURE REVIEW

2.1 Conceptual Issues

Institutional Quality, Monetary Policy and Banking System Stability in Nigeria.

Institutional quality refers to the effectiveness and efficiency of institutions in promoting economic and social development [16]. It encompasses various dimensions, including voice and accountability index, rule of law, regulatory quality, government effectiveness, control of corruption, and political stability. These dimensions collectively determine the quality of governance, the credibility of policy institutions, and the level of investor confidence in the economy.

According to Nguyen, et al. [3], the rule of law ensures that laws are transparent, predictable, and enforced impartially, providing a conducive environment for business operations and investment. Regulatory quality pertains to the

clarity, consistency, and enforcement of regulations, which influence market dynamics, competition, and consumer protection. Government effectiveness reflects the capacity of public institutions to deliver services, implement policies, and address societal needs efficiently. Control of corruption measures the extent to which public officials abuse their power for private gain, affecting transparency, accountability, and trust in government institutions. Political stability signifies the absence of political violence, instability, or regime changes, which underpin investor confidence, long-term planning, and economic resilience.

Nigeria's institutional makeup serves as the foundation upon which its economic policies and regulatory frameworks are built. Institutional quality, defined as the effectiveness and efficiency of institutions in promoting economic and social development, encompasses various dimensions, including the rule of law, regulatory quality, government effectiveness, control of corruption, and political stability. These dimensions collectively shape the country's governance structure, policy environment, and business climate, exerting significant influence on economic outcomes and financial stability [19].

The importance of IQ in Nigeria cannot be exaggerated. Historically, the country has grappled with governance challenges, corruption, and institutional weaknesses, which have hindered its economic progress and undermined investor confidence [20]. Weak institutions breed uncertainty, undermine the rule of law, and erode trust in the government's ability to enforce contracts and protect property rights (World Bank, 2020). As a result of this, [16] stated that businesses face higher transaction costs, investors shy away from long-term commitments, and economic growth becomes erratic and unsustainable.

The Central Bank of Nigeria, CBN, [21] defined monetary policy as a variety of monetary tools aimed at effectively managing the volume, access and cost of money in the economy in order to ensure that the overall goal of economic growth is achieved. Monetary policy plays a pivotal role in shaping the macroeconomic environment and influencing economic outcomes Barth, et al., [22]. The Bank serves as the primary monetary authority responsible for formulating and implementing monetary policy strategies aimed at achieving price stability, exchange rate stability, and sustainable economic growth. Through its control over interest rates, reserve requirements, and open market operations, the CBN seeks to manage inflation, stabilize the exchange rate, and promote financial intermediation [21]. The effectiveness of monetary policy, however, is contingent upon the credibility of the Central Bank, the transmission mechanism, and the broader institutional environment. Svensson [23] posited that weak institutional quality can undermine the credibility of monetary policy commitments, leading to expectations of higher inflation and exchange rate volatility. Moreover, institutional deficiencies may impede the transmission of monetary policy impulses to the real economy, limiting the effectiveness of policy interventions in achieving macroeconomic objectives [24].

A banking system is stable if it is not fragile. According to Kibritçioğlu [25], a stable banking system has a fragility index that is 0 or greater while a fragile baking system is less than zero.

According to Nguyen, et al, [3], “banking stability can be generalized as follows: The bank's effective operation and ability to respond well to internal and external influences, both now and in the future, especially the shocks of the economy, but still maintain the ability to pay for due debts, maintain normal operations."

The stability of the banking system is closely intertwined with both institutional quality and monetary policy [26]. As the primary intermediaries in the financial system, banks play a critical role in mobilizing savings, allocating credit, and facilitating investment. A stable and resilient banking sector is essential for financial intermediation, risk management, and the efficient allocation of resources in the economy [27]. However, weaknesses in institutional quality and monetary policy can pose significant challenges to banking system stability. For example, inadequate regulatory oversight, poor governance practices, and lax enforcement mechanisms can exacerbate systemic risks, leading to banking crises and financial instability [17]. Moreover, monetary policy actions, if not properly calibrated or coordinated, can inadvertently exacerbate vulnerabilities within the banking sector, amplifying the impact of external shocks and destabilizing the financial system.

2.1.1 Measures of banking system stability

How is the stability of a banking system measured. Several metrics have been advocated as indicators of the strength of a banking system. However, Sere-Ejembi, et al. [28] noted that the belief that some banks are safe and/or others inconsistent with a *boom-burst cycle*, hence the need for a steady shift to macro-prudential approach in banking stability analysis. According to them, this approach differs from the micro-prudential approach because the former advocates an all- inclusive angle to monitoring banking systems soundness by using macroeconomic data, market-based information, qualitative data and structural information.

Sere-Ejembi, et al. [28] tabulated a set of micro and macro-prudential measures of banking system stability and vulnerability for Nigeria (Table 1).

Sere-Ejembi et al. [28] broadly categorized the ways to measure a banking system health into three: its soundness, its vulnerability and its strength when compared with economic giants like the US, UK and China. The banking soundness metrics comprise of its capital adequacy, liquidity profitability and assets quality while the vulnerability index comprises of external sector, financial sector and the real sector of the domestic economy. The constituents and specific measures of each of these categories are as listed in Table 1. The authors' argument is that banking system stability should not be based solely on bank-level or monetary policies, rather it should recognize the potential effect of macro-economic variables and global events.

2.2 Theoretical and Empirical Literature

Institutional quality is often conceptualized as comprising various dimensions, including the rule of law, regulatory quality, government effectiveness, control of corruption, and political stability [16]. These dimensions shape the governance structure and policy environment, influencing economic outcomes and financial stability. On its part, monetary policy, on the other hand, is guided by theories such as the quantity theory of money and the Taylor rule, which emphasize the role of central banks in managing inflation, stabilizing the economy, and promoting growth [29,23]. Effective monetary policy transmission relies on mechanisms such as interest rates, reserve requirements, and open market operations to influence aggregate demand and inflation dynamics. The stability of the banking system is rooted in theories of financial intermediation, moral hazard, and systemic risk [26,24]. Banks serve as key intermediaries in mobilizing savings and allocating credit, while regulatory frameworks aim to mitigate risks and maintain stability through prudential supervision and crisis management mechanisms.

Previous research has examined the relationship between institutional quality and banking system stability, highlighting the role of governance, regulatory frameworks, and political stability [30,22]. Studies have found that strong institutions are associated with lower levels of non-performing loans, higher bank profitability, and greater financial resilience.

Ele and Michael [31] assessed the effect of corporate governance on the stability of Nigerian banking system using the OLS technique to analyze a dataset of Nigerian DMBs from 2001 to 2022. The authors found that while loan deposit and liquidity ratios have positive and significant effect on bank stability, loan loss provision and non-performing ratio have negative effect on bank stability.

A study by Nguyen et al. [3] on the effect of IQ on bank stability showed that the former had significant effect on the latter. Specifically, the authors used the GMM and threshold model approaches to analyze Asian countries bank-level data from 2010 to 2020 and found that IQ increases banks' stability and that countries with IQ greater than the threshold increased banks' stability.

Alley [32] studied the effect of the Banks and other Financial Institutions Act (2020) on the financial and prudential performance of Nigerian DMBs. Findings from the study showed that the BOFIA regulations had significant positive effect on these performances.

Sodokin, et al. [33] investigated the effect of prudential regulation on banking system risk using the panel data of 63 banks in the *West African Economic and Monetary Union* (WAMU) from 2006–2019. The authors found that stiff bank regulations promoted banks' stability as regulations on capital, monitoring and supervision reduced insolvency risk of the banks. Ashraf et al. [34] carried out a global analysis that assessed the link between regulations on

Table 1. Measures of banking system stability/vulnerability (Nigeria)

Category	Indicator	Code
1. Banking Soundness Index		
Capital Adequacy	Capital Adequacy Ratio	CAR
	Ratio of Non-Performing Loans net of Provisions to Capital	NPLP/C
Asset Quality	Ratio of Non-Performing Loans to Total Loans	NPL/TL
Liquidity	Ratio Liquid Assets to Total Assets	LA/TA
	Loans to Deposits Ratio	TL/D
Profitability	Return on Assets	ROA
	Interest Margin to Gross Income Ratio	NIM
	Non-Interest Expense to Gross Income	NIE/GI
2. Banking Vulnerability Index		
External Sector	Current Account Balance to GDP Ratio	CAB/GDP
	Ratio of Money Supply to Foreign Reserves	M2/FR
	Ratio of External Assets to Total Assets of DMBs	EA/TA
	Ratio of Foreign Currency Assets to Foreign Currency Liabilities of DMBs	FCA/FCL
Financial Sector	DMBs Domestic Credit to GDP	DC/GDP
Real Sector	Inflation	IF
	GDP Growth Rate	GDPR
3. Economic Climate Index		
	GDP Growth Rate of the US	GDPUS
	GDP Growth Rate of the UK	GDPUK
	GDP Growth Rate of China	GDPCH

Source: Sere-Ejembi, et al. [28]

capital and deposit insurance and bank risk between two distinct periods (crisis and normal periods). The authors found that strict regulations on capital significantly reduced the default possibility of the banks. However, Jiang et al. [35], in their study on the effects of capital cushions on China's banks' risk taking was in contrast with that of Ashraf et al. [34]. In fact, Jiang et al. [35] discovered that increasingly rising capital buffers can cause higher risk-taking behaviour among the banks that are in high-risk category.

Nguyen, et al. [17] examined the impact of IQ on the banking system risk and credit risk using a global sample and three subsamples: low and lower-middle-income economies, upper-middle-income economies and high-income economies. The authors used a Feasible Generalized Least Squares, Pooled and Robust Least Squares to analyze a panel data of 56 economies between 2002 and 2015 and found that IQ improvement reduced banking system risk. In well-capitalized and developed economies, IQ was found to be a less important determinant of banking system stability because the near-perfect system has worked in favour of the banking system for long. The authors also found that the effect was stronger in banking systems that were highly liquid.

Beck, et al [30] conducted a comprehensive cross-country analysis and found that strong IQ, as measured by indicators of governance, rule of law, and political stability, is positively associated with banking system stability. Countries with stronger institutions tend to have lower levels of non-performing loans, higher bank profitability, and greater financial resilience. Barth, et al [22] further examined the role of regulatory quality and supervisory effectiveness in promoting banking system stability. Their analysis revealed that countries with robust regulatory frameworks and effective supervisory mechanisms experience fewer banking crises and lower systemic risks. Moreover, improvements in regulatory quality are associated with greater depositor protection, increased access to credit, and enhanced financial intermediation.

In Nigeria, empirical studies have also explored the linkages between institutional quality and banking system stability. Ogunleye and Adegboye (2017) investigated the impact of IQ on bank performance and found that improvements in governance and regulatory quality enhance the soundness and profitability of Nigerian banks. Specifically, stronger institutions contribute to better risk management practices, higher asset quality, and increased investor confidence in the banking sector.

Similarly, Adegbaju, et al. (2018) examined the relationship between political stability and banking system stability in Nigeria. Their findings suggest that political stability positively influences bank liquidity, capital adequacy, and asset quality, highlighting the importance of macroeconomic stability in promoting financial sector resilience. Moreover, improvements in political stability contribute to enhanced depositor confidence, reduced capital flight, and increased foreign investment in the Nigerian banking industry.

Bernanke and Gertler [36] conducted a seminal study on the credit channel of monetary policy transmission and found that changes in the monetary policy stance affect bank lending behavior and credit availability. Accommodative monetary policy stimulates loan demand, lowers borrowing costs, and boosts economic activity, while restrictive policy measures dampen credit expansion and constrain investment. Mishkin [37] further explored the role of monetary policy in preventing financial crises in emerging market economies. His analysis highlighted the importance of credible central bank interventions, prudent liquidity management, and effective crisis prevention measures in maintaining banking system stability. Moreover, Mishkin emphasized the need for coordinated monetary and fiscal policy responses to mitigate systemic risks, enhance market confidence, and restore financial stability during periods of economic turbulence. In Nigeria, Adeniyi and Omole (2015) investigated the effectiveness of monetary policy in stabilizing the Nigerian banking sector and found that changes in the policy rate influence bank lending behaviour, deposit mobilization, and credit risk. However, the study also noted challenges related to the transmission mechanism, including structural rigidities, liquidity constraints, and information asymmetries, which may limit the efficacy of monetary policy interventions. Additionally, Ogunbiyi and Oladipo (2019) analyzed the spillover effects of monetary policy on banking system stability in Nigeria, considering factors such as interest rate pass-through, credit supply dynamics, and bank risk-taking behavior. Their findings suggest that monetary policy actions impact bank profitability, liquidity risk, and asset quality, with implications for financial stability and macroeconomic performance. Moreover, the study highlighted the importance of coordination between monetary policy and banking supervision to address emerging vulnerabilities and enhance systemic resilience in the face of external shocks.

Our study examines the effect of IQ and MP on bank stability. It differs from previous ones in that it includes several IQ and MP variables in single model in order to assess the effect of IQ and MP on the stability of the Nigerian banking system. The uniqueness of this study is that the effectiveness of MP also depends largely on effective IQ hence, the effect of the two on bank stability can be inclusive.

3. METHODOLOGY

3.1 Research Scope and Model

This study used published data extracted from the World Bank governance indicators databank (for institutional quality variables) and the Annual Statistical Bulletin of the Central Bank of Nigeria (2000 – 2022). The number of years covered was determined by availability of data for all the variables. We used six institutional quality (IQ) and five monetary policy (MP) variables in this study, including voice and accountability index, rule of law, government efficiency, political stability and absence of violence and corruption control index for IQ and broad money supply, monetary policy rate, loan-deposit ratio, lending rate and liquidity ratio for MP variables. The Z-Score is used as proxy for banking system stability.

The relationship between institutional quality, monetary policy and banking system stability in Nigeria is expressed in functional form as:

$$STAB = f(IQ, MP) \quad (i)$$

Where:

$$IQ = VACT; RULW; REGQ; GOVE, CORR. POLS \quad (ii)$$

$$MP = MPOR, LDER, LNDR, LIQR, LOGMS \quad (iii)$$

and,

$$STAB = Z\text{-}SCORE \quad (iv)$$

The model for this study is therefore stated in econometric form as follows:

$$Z\text{-}SCORE = \alpha + \beta_1 VACT + \beta_2 RULW + \beta_3 REGQ + \beta_4 GOVE + \beta_5 CORR + \beta_6 POLS + \beta_7 MPOR + \beta_8 LDER + \beta_9 LNDR + \beta_{10} LOGMS + \beta_{11} LIQR + \varepsilon \quad (v)$$

IQ = Institutional quality
MP = Monetary policy

STAB = Banking system stability
Z-Score = A metric for bank stability
VACT = Voice and accountability index
RULW = Rule of law
REGQ = Regulatory quality
GOVE = Government effectiveness
CORR = Corruption control
POLS = Political stability
MPOR = Monetary policy rate
LDER = Loan-deposit ratio
LNDR = Lending rate
LOGMS = Logarithm of broad money supply (M2)
LIQR = Liquidity ratio

We examined the statistical properties and the correlations of the variables. Expectedly, MP variables are susceptible to multicollinearity since they most probably co-move in high degree. Hence, we opted for a Generalized Method of Moments (GMM) model, a technique which addresses the violations of normal characteristics of Time Series data [38].

3.2 Measurement of Variables

The research variables are measured as outlined in Table 2.

Table 2. Measurement of Variables

S/N	Variable	Type	Estimation	Source
1	Z-SCORE	Dependent	"Z-score compares the buffer of a country's banking system (capitalization and returns) with the volatility of those returns. It is estimated as (ROA+(equity/assets))/sd(ROA) where sd(ROA) = standard deviation of ROA. ROA, equity, and assets are country-level aggregate figures, calculated from underlying bank-by-bank unconsolidated data from Bankscope". The higher the Z-Score, the lower the risk faced by the banking system.	Bankscope and Orbis Bank Focus, Bureau van Dijk (BvD)
2	IQ Variables: VACT; RULW; REGQ; GOVE, CORR, POLS	Independent	"The six aggregate indicators are based on over 30 underlying data sources reporting the perceptions of governance of a large number of survey respondents and expert assessments worldwide".	World Bank (www.govindicators.org)
3	MPOR	Independent	Monetary policy rate is prescribed by the Central Bank of Nigeria, CBN, yearly	Central Bank of Nigeria
4	LDER	Independent	The loan-deposit ratio is as prescribed by the CBN yearly	Central Bank of Nigeria
5	LNDR	Independent	Annual weighted average (aggregate) of lending rate	CBN Statistical Bulletin (yearly)
6	LOGMS	Independent	Broad money supply is the sum of narrow money plus near money assets in the banking system for each year	CBN Statistical Bulletin (yearly)
7	LIQR	Independent	Actual annual liquidity ratio of the banking system as reported by the CBN	CBN Statistical Bulletin (yearly)

Sources: World Bank www.govindicators.org. CBN

4. RESULTS AND DISCUSSION

4.1 Data Characteristics

4.1.1 Descriptive statistics

Table 3 contains the statistical properties of the research variables.

The mean of Z-SCORE, CORR, GOVE, POLS, REGQ, RULW, VACT, MPOR, LDER, LNDR, LIQR and LOGMS are respectively 14.3913, 18.1308, 25.3972, 9.81 5, 27.8432, 22.014, 35.194, 64.644, 55.4358, 16.992, 13.287 and 3.99561. Given the direction of their skewness, while Z-SCORE, POLS, VACT, MPOR, LDER and LNDR skew positively to the right, CORR, GOVE, REGQ, RULW, LIQR and LOGMS are skewed negatively to the left of the mean. Furthermore, Z-SCORE, CORR, LDER and LNDR are leptokurtic because their kurtoses are greater than 3. GOVE, REGQ, RULW, VACT, MPOR and LOGMS are platykurtic with kurtoses less than 3. POLS and LIQR are mesokurtic with kurtoses approximately 3. Among the research variables, only LDER (p < 0.05) is not normally distributed while others are (p > 0.05) as shown by their Jarque-Bera statistics and probabilities

4.1.2 Pearson's correlations coefficients

Table 4 shows the correlation coefficients between the dependent variables.

The correlation between CORR, GOVE, REGQ and LDER with Z-SCORE is positive although low while POLS, RULW, VACT, LIQR, LNDR, MPOR and LOGMS have negative correlation with Z-SCORE. However, only the coefficients of VACT and MPOR could be said to be considerable (-0.6195 and 0.4802) as shown on Table 4.

4.2 Effect of Institutional Quality and Monetary Policy on Banking System Stability

The upper part of Table 5 contains the GMM results for the effect of IQ on Z-SCORE, while the lower part contains those of the effect of MP on Z-SCORE.

From Table 5, CORR has a significantly positive effect on the Z-SCORE (with coefficient 0.245124 and probability 0.0042). A unit increase in the corruption control index led to an significant increase of about 0.245124 in banking system stability. GOVE, RULW, REGQ and POLS all have positive effect also, but the effect is insignificant as shown by their probabilities (p>0.05). The effect of VACT is negative but insignificant.

Furthermore, in terms of monetary policy variables, only LDER has significant positive effect on Z-SCORE (with coeff. = 0.070482, p = 0.0072<0.05 level of significance(LOS)). LOGMS and LNDR have positive but insignificant effect whereas the effect of MPOR and LIQR is negative but not significant. The R^2 (coefficient of determination) is 0.628319, implying that about 63% of the changes in Z-SCORE is explained by the IQ and MP variables. The J-Statistic of 0.00000 imply that no incidence of serial correlation exists in the errors.

4.3 Discussion

The outcomes of our analysis reveal that while a variable each (corruption control and loan deposit ratio) of institutional quality and monetary policy have significant positive effect on the stability of Nigerian banking system between 2000 and 2022, all the other variables have no significant effect on it. These partly align with Alley [32], who discovered that IQ in terms of regulatory quality significantly improved the financial and prudential performance of the Nigerian DMBs during 1983 to 2020.

For IQ, corruption control index (CORR) positively affects the stability of the banks. The higher the CCI, the less corrupt the corruption in a country. Also, since the higher the Z-Score, the less risky a banking system becomes, that CORR positively affects the Z-Score implies that over the years, the efforts of government institutions at curbing corruption have led to improved stability in the Nigerian banking system. As the CORR increases, investors perceive it as a sign of strong governance and regulatory frameworks. This boosts their confidence in saving more with the banks, hence a rising Z-Score. Also, improved corruption control often corresponds with effective regulatory oversight of the banking sector. Strong anti-corruption measures ensure that regulators can enforce compliance with prudential regulations and risk management practices. This leads to a healthier banking environment, reflected in higher Z scores due to reduced risk of bank failures and systemic crises. The findings here agree with Nguyen, et al. [17] and Nguyen, et al., [3].

Table 3. Descriptive statistics

	Z_SCORE	CORR	GOVE	POLS	REGQ	RULW	VACT	LDER	LIQR	LNDR	MPOR	LOGMS
Mean	14.3913	18.1308	25.3972	9.815	27.8432	22.014	35.194	64.644	55.4358	16.992	13.287	3.99561
Median	13.82881	18.55022	26.47769	8.391	28.8095	23.738	34.632	62.3125	50.6875	16.858	14.000	4.16178
Maximum	20.08895	31.06796	33.82353	19.57	37.4407	29.523	45.771	96.8170	104.202	24.770	18.000	4.71400
Minimum	11.12711	6.349206	16.66667	5.210	16.9154	11.440	27.403	37.5594	37.7155	11.483	9.5000	2.94372
Std. Dev.	2.198688	5.229842	4.904549	4.000	5.52416	5.9496	4.9078	14.8508	16.0507	2.9937	2.1813	0.53840
Skewness	0.953770	-0.150356	-0.212046	1.104	-0.32290	-0.5324	0.4136	0.22085	1.53105	0.5795	-0.0092	-0.50596
Kurtosis	3.780121	4.225476	2.104456	3.272	2.43276	2.0433	2.2926	2.82344	5.38720	3.9944	2.7741	1.94087
Jarque-Bera	3.539413	1.326850	0.818212	4.131	0.61569	1.7077	0.9873	0.18857	12.5627	1.9436	0.0428	1.78811
Prob	0.170383	0.515084	0.664244	0.126	0.73502	0.4257	0.6103	0.91002	0.00187	0.3783	0.9788	0.40899
Sum	287.8260	362.6169	507.9455	196.3	556.865	440.28	703.88	1292.89	1108.71	339.84	265.75	79.9123
Sum Sq. Dev.	91.85039	519.6737	457.0374	304.0	579.811	672.50	457.65	4190.41	4894.89	170.29	90.409	5.50770
Observations	20	20	20	20	20	20	20	20	20	20	20	20

Source: Author's Computation (2024)

Table 4. Correlations coefficients

	Z_SCORE	CORR	GOVE	POLS	REGQ	RULW	VACT	LDER	LIQR	LNDR	MPOR	LOGMS
Z-SCO	1											
CORR	0.2054	1										
GOVE	0.1160	-0.164	1									
POLS	-0.3382	-0.391	0.599	1								
REGQ	0.1849	0.343	-0.214	-0.475407	1							
RULW	-0.1329	0.688		-0.372797	0.2120	1.						
VACT	-0.6195	-0.1535	-0.240	0.371014	-0.1814	0.368	1					
LDER	0.3024	0.3618	0.066	0.037336	-0.4455	0.182	-0.0128	1				
LIQR	-0.1706	0.0271	-0.235	0.084179	-0.1949	0.419	0.2389	0.0087	1			
LNDR	-0.127	-0.669	0.372	0.629459	-0.2462	-0.653	0.3229	-0.0163	-0.1608	1		
MPOR	-0.4802	-0.6632	-0.232	0.346319	-0.2805	-0.207	0.3794	-0.3202	0.0742	0.2777	1	
LOGMS	-0.0388	0.4309	-0.716	-0.731921	0.2771	0.687	-4.86	-0.1450	0.1685	-0.8159	-0.0114	1

Source: Author's Computation (2024)

Table 5. GMM results

Method: Generalized Method of Moments				
Dependent Variable = Z-SCORE				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Effect of Institutional Quality Variables				
CORR	0.245124	0.350521	0.699312	0.0042*
GOVE	0.039962	0.206645	0.193382	0.8515
RULW	0.247271	0.369055	0.670011	0.5217
REGQ	0.120267	0.208565	0.576643	0.5800
POLS	0.102127	0.432731	0.236006	0.8194
VACT	-0.448095	0.259276	-1.728259	0.1222
Effect of Monetary Policy Variables				
LOGMS	1.845942	2.849165	0.647889	0.5352
LNDR	0.452445	0.424905	1.064815	0.3180
MPOR	-0.317013	0.521010	-0.608459	0.5598
LDER	0.070482	0.056456	1.248443	0.0072*
LIQR	-0.012340	0.057911	-0.213081	0.8366
C	9.072773	27.23015	0.333188	0.7476
R-squared	0.628319	J-Statistic		0.000000
Adjusted R^2	0.417258			
Durbin-Watson	2.401849			

Source: Author's (2024)
**Significant*

Furthermore, when there is effective corruption control, banks tend to implement more stringent and effective risk management practices. Without the anomalies caused by bribery or favoritism, banks can accurately and sincerely assess and mitigate risks, resulting in lower probabilities of default and higher Z scores indicating financial soundness and stability. In addition, strong anti-corruption measures promote transparency, allowing stakeholders to make informed decisions and boosting Z scores through more accurate risk assessment. Corruption control measures reduce moral hazard within the banking sector by holding stakeholders accountable for their actions. When banks operate in an environment free from corrupt influences, they are less inclined to engage in risky behaviours or rely on implicit government guarantees. This mitigates moral hazard, resulting in higher Z scores reflecting improved financial stability and reduced systemic risk [3].

For MP, the loan deposit ratio has a positive and significant effect on the Z-Score. This ratio signifies the proportion of loans a bank extends relative to its deposits, and it plays a crucial role in determining the stability of the banking system. This result agrees with the findings of Sodokin et al., [33] and Ashraf et al. [34]. Our result implies that Nigerian banks, to a large extent, are utilizing their deposits more efficiently by extending loans. This diversification of assets most probably reduced the concentration risk inherent in the bank system's portfolio during the study years, thereby enhancing its stability.

Again, loans are a primary source of income for banks through interest payments. A higher loan deposit ratio indicates that banks are actively engaging in lending activities, leading to increased revenue streams and profitability. This improved financial performance contributes to the bank's overall stability. Added to this is that a balanced loan deposit ratio suggests that banks are effectively managing their loan portfolios in terms of credit quality, maintaining a healthy ratio with fewer non-performing loans, reducing the risk of loan defaults and enhancing their financial stability. Also, while a high loan deposit ratio reflects active lending, it also necessitates efficient liquidity management. Banks with a balanced ratio are better equipped to meet withdrawal demands from depositors while still having sufficient funds to extend loans. With the swings that characterize the Nigerian economy, effective liquidity management is crucial for ensuring financial stability during periods of economic uncertainty.

Despite the foregoing, we are not oblivious of the other IQ and MP variables that failed to affect the Z-Score significantly and positively in Nigeria. It is possible that some IQ indices focus on aspects of governance and regulation that are not directly related to the banking sector. While these indices may capture broader institutional strengths or weaknesses within a country, they might not specifically address factors that influence banking system stability, hence, their impact on the Z score may be minimal. Another possibility is the effect of time lags. IQ indices often reflect long-term trends and structural characteristics of a country's governance framework. Changes in IQ may take time to manifest in the banking sector, especially if regulatory reforms or governance improvements are gradual or unevenly implemented. Consequently, the immediate impact of changes in IQ on banking system stability may not be readily apparent.

IQ indices may indirectly influence banking system stability through their impact on broader, and this may not be readily reflected in immediate and direct analysis. For example, improvements in governance and rule of law can foster economic growth, which in turn may benefit the banking sector by increasing loan demand and reducing credit risk. However, as noted by Sodokin et al., [33], the causal relationship between IQ and banking system stability may be complex and mediated by other factors, leading to a muted effect on the Z-score.

From the MP perspective, some monetary policy variables did not also impact bank stability significantly during the period. The effect of lending rate, monetary policy rate, liquidity rate and broad money supply failed to significantly affect banking system stability. The reasons for this are not farfetched. First, MP actions may not always directly impact banking system stability through traditional transmission channels. While changes in interest rates, for example, can influence banks' lending and borrowing activities, the effectiveness of these policies in promoting stability depends on various factors such as the structure of the financial system, the behaviour of market participants, and the prevailing economic conditions. In some cases, monetary policy measures may be offset by other factors, leading to a limited effect on banks' stability [39-41].

Second, MP operates with time lags, meaning that the full impact of policy changes on the banking system may not be immediate. It can take time for adjustments in interest rates or liquidity provision to affect banks' balance sheets, loan portfolios, and overall stability. As a result, the short-term effect of MP on banks' stability may be less pronounced, particularly if other factors are concurrently influencing banking system dynamics.. Also, policies such as changes in interest rates or quantitative easing can affect asset prices and market valuations, which may indirectly influence banking system stability [42,43].

According to Ogunbiyi and Oladipo (2019), in addition to traditional monetary policy tools, policymakers may deploy macroprudential measures to safeguard banking system stability. These measures, such as capital requirements, loan-to-value ratios, and stress testing frameworks, specifically target systemic risks within the financial system. While monetary policy variables may influence overall economic conditions, their impact on banking system stability may be overshadowed by the effectiveness of macroprudential policies in addressing specific vulnerabilities and enhancing resilience.

5. CONCLUSION AND RECOMMEN-DATIONS

We found that only one variable each from IQ and MP (corruption control and loan-deposit ratio) significantly and positively affect banking system stability in Nigeria during the study period. The effects of all the other variables are insignificant. These findings have policy implications and call for attention in the light of the several policies and programmes churned out by the Nigerian authorities yearly to improve IQ, MP and the stability of the banking system. The findings reveal that majority of institutional programmes and policies as well as monetary policy efforts by the CBN are far from having a stabilizing effect on the banking system even when the system is a major focus of these policies and programmes.

We therefore recommend that since corruption control led to improvement in banking system stability in the country, authorities should continue the pursuit of zero corruption in the country in general and in the banking system. Banks should be mandated to improve on the existing anti-corruption measures. Secondly, the Central Bank of Nigeria should continue to maintain the range of loan-deposit ratio that has existed for many years. Also, other IQ and MP with insignificant positive or negative effect on banking system stability should be re-appraised in order to arrive at policies and programmes that will spur stability of the banking system. This may involve the strengthening of IQ through governance reforms that are tailored towards addressing corruption, improving regulatory enforcement, enabling efficiency in the judiciary, curbing violence and enhancing political stability. The Nigerian government needs to focus on enhancing transparency, accountability, and rule of law to build investor confidence and foster sustainable development.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Kuessi R, Nantob NY, Aguey S, Couchoro MK. Competition and banking efficiency in the WAEMU: The role of multinationals and institutions. International Economics. 2023;175:45–62.
Available:https://doi.org/10.1016/j.inteco.2023.06.001
2. Sy A. Financial integration in the West African Monetary Union. Journal of Financial Transformation. 2007;19:91–103.
Available:https://EconPapers.repec.org/RePEc:ris:jofitr:0873
3. Nguyen DH, Van-Son BL, Huy DT. Analyzing effects of institutional quality on banking stability: Evidence from ASEAN countries, International Journal of Professional Business Review. 2023;8(4): 01-22.
4. Baum CF, Caglayan M, Xu B. The impact of uncertainty on financial institutions: A cross-country study. International Journal of Finance and Economics. 2021;26(3): 3719-3739.
Available:https://doi.org/10.1002/ijfe.1983

5. Davies R, Richardson P, Katinaite V, Manning MJ. Evolution of the UK banking system. Bank of England Quarterly Bulletin, Q4; 2010.
6. Beltratti A, Stulz RM. The credit crisis around the globe: Why did some banks perform better? Journal of Financial Economics. 2012;105(1):1-17.
7. Williamson OE. The new institutional economics: Taking stock, looking ahead. Journal of Economic Literature. 2000; 38(3):595-613.
8. Yulianto A, Wijaya AP. Disposition effect: Does investor confidence matter? Examining service from securities brokerages. International Journal of Professional Business Review. 2023;8(2): e03184.
   Available:https://doi.org/10.26668/businessreview/2023.v8i2.1384
9. Nguyen C, Schinckus C, Su TD, Chong F. Institutions, inward foreign direct investment, trade openness and credit level in emerging market economies, Review of Development Finance. 2018 ;8(2):75-88.
10. Beekman G, Bulte E, Nillesen E. Corruption, investments and contributions to public goods: Experimental evidence from rural Liberia. Journal of Public Economics. 2014;115:37-47.
11. Qu W, Wongchoti U, Wu F, Chen Y. Does information asymmetry lead to higher debt financing? Evidence from China during the NTS reform period, Journal of Asian Business and Economic Studies. 2018; 25(1):109-121.
12. Ho TS, Michaely R. Information quality and market efficiency. The Journal of Financial and Quantitative Analysis. 1988;23(1):53-70.
13. Miller S. Information and default in consumer credit markets: Evidence from a natural experiment. Journal of Financial Intermediation. 2015;24(1):45-70.
14. Su DT, Nguyen CP, Schinckus C. Impact of foreign direct investment, trade openness and economic institutions on growth in emerging countries: The case of Vietnam. Journal of International Studies. 2019;12(3):14-22.
15. Strobel J, Salyer KD, Lee GS. Uncertainty, agency costs and investment behavior in the euro area and in the USA, Journal of Asian Business and Economic Studies. 2018;25(1):122-143.
16. Kaufmann D, Kraay A, Mastruzzi M. The worldwide governance indicators: Methodology and analytical issues. World Bank Policy Research Working Paper No. 5430; 2010.
   Available:http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1682130
17. Nguyen PC, Schinckus C, Su TD, Ling CH. Institutional quality and risk in the banking system, Journal of Economics, Finance and Administrative Science. 2021;26(51): 22-40.
   Available:https://doi.org/10.1108/JEFAS-01-2020-0012
18. Central Bank of Nigeria. Monetary Policy Framework; 2020.
   Available:www.cbn.org/monetary-policy-framework/
19. Economic Commission for Africa. Nigeria Economic Report 2019; 2019.
   Available:www.eca.org/nigeria-economic-report-2019/.
20. North DC. Institutions. Journal of Economic Perspectives. 1991;5(1):97-112.
21. Central Bank of Nigeria. Financial Stability Report; 2020.
   Available:www.cbn.org/financial-stability-report/
22. Barth JR, Caprio G Jr, Levine R. Bank regulation and supervision: What works best? Journal of Financial Intermediation. 2004;13(2):205-248.
23. Svensson LE. What is wrong with Taylor rules? Using judgment in monetary policy through targeting rules. Journal of Economic Literature. 2003;41(2):426-477.
24. Kaminsky GL, Reinhart CM. The twin crises: The causes of banking and balance-of-payments problems. American Economic Review. 1999;89(3):473-500.
25. Kibritcioglu A. Monitoring banking sector fragility, Arab Banking Review. 2003;5(2): 51-66.
26. Demirgüç-Kunt A, Detragiache E. The determinants of banking crises: Evidence from developing and developed countries. International Monetary Fund Staff Papers. 1998;45(1):81-109.
27. African Development Bank. African Economic Outlook 2018: Nigeria. African Development Bank; 2018.
   Available:www.adb.org/African-economic-outlook-2018-Nigeria/
28. Sere-Ejembi A, Udom IS, Salihu A, Atoi NV, Yaaba BN. Developing banking system stability index for Nigeria. CBN

Journal of Applied Statistics. 2014;5(1):49-77.
29. Friedman M. The role of monetary policy. American Economic Review. 1968;58(1):1-17.
30. Beck T, Demirgüç-Kunt A, Levine R. Bank supervision and corporate finance. Review of Banking and Finance. 2003;7(4):575-592.
31. Ele L, Michael EI. Corporate governance and banking system stability in Nigeria, International Journal of Banking and Finance Research. 2024;10(2):111-129.
32. Alley I. BOFIA 2020 and financial stability in Nigeria: Implications for stakeholders in the African largest economy, Journal of Banking Regulation. 2023;24(2):184-205 Available:www.doi.org/10.1057/s41261-022-00192-6
33. Sodokin K, Egbeleo E, Kuessi R, Couchoro MK, Agbodji AE. Regulation, institutional quality, and stability of the banking system in West African Economic and Monetary Union, Cogent Economics and Finance. 2023;11(2). Available:https://www.doi.org/10.1080/23322039.2023.2256127
34. Ashraf B, Zheng C, Jiang C, Qian N. Capital regulation, deposit insurance and bank risk: International evidence from normal and crisis periods. Research in International Business and Finance. 2020;52:101188. Available:https://doi.org/10.1016/j.ribaf.2020.101188
35. Jiang H, Zhang J, Sun C. How does capital buffer affect bank risk-taking? New evidence from China using quantile regression. China Economic Review. 2020; 60:101300. Available:https://doi.org/10.1016/J.CHIECO.2019.04.008
36. Bernanke B, Gertler M. Inside the black box: The credit channel of monetary policy transmission. Journal of Economic Perspectives. 1995;9(4):27-48.
37. Mishkin FS. Financial policies and the prevention of financial crises in emerging market countries. NBER Working Paper, (7102); 1999.
38. Pugh G. The GMM estimation of dynamic panel models: An intuitive explanation of the principles, Staffordshire University Business School, Staffordshire; 2018.
39. Demirgüç-Kunt A, Detragiache E. Financial liberalization and financial fragility. World Bank Policy Research Working Paper No. 1911; 1998.
40. Koskei, Loice. Determinants of banks' financial stability in Kenya commercial banks. Asian Journal of Economics, Business and Accounting. 2020;18(2):48-57. Available:https://doi.org/10.9734/ajeba/2020/v18i230281
41. Chen, Kailin. Strengthen financial risk prevention and control capabilities and improve the quality and efficiency of financial supervision. South Asian Journal of Social Studies and Economics. 2024; 21(5):144-46. Available:https://doi.org/10.9734/sajsse/2024/v21i5822
42. Barnea E, Landskroner Y, Sokoler M. Monetary policy and financial stability in a banking economy: Transmission mechanism and policy tradeoffs. Journal of Financial Stability. 2015;18:78-90.
43. De Graeve F, Kick T, Koetter M. Monetary policy and financial (in) stability: An integrated micro–macro approach. Journal of Financial Stability. 2008;4(3):205-31.

Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle5.com/review-history/118630