FINANCIAL SYSTEM STABILITY AND ECONOMIC GROWTH IN NIGERIA.

By

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ABSTRACT

The stability of the financial system is theoretically a condition precedent for sustained economic growth. Financial system instability on the other hand impedes economic growth and development. In this study, we examined how the stability of the Nigerian financial system has influenced the nation's economic growth from 1996 to 2022.

Previous studies have examined the effect of banking sector fragility index (BSFI) and the Z-Score on economic growth (RGDP), but our study includes the effect of average stock price volatility – SPVL (as a measure of stock market stability or otherwise). We used descriptive statistics, Pearson's correlations, Augmented Dickey Fuller (ADF) stationarity test, Autoregressive Distributed Lag (ARDL) Bound test and ARDL short run (SR) and long run (LR) models to analyze data obtained from secondary sources.

In the SR, we found that LOGRGDP (-1)) has a significant and positive (coefficient = 0.65, p = 0.0020), indicating economic growth momentum from the previous period to the present. D(BSFI) has a negative and borderline significant effect on LOGRGDP (coefficient = -0.008, p ≈ 0.0535), D(SPVL) has a negative but insignificant effect on LOGRGDP (coefficient = -0.000312, p ≈ 0.6305), D(Z-score) has an insignificant negative effect on LOGRGDP (coefficient = -0.000087, p = 0.9427) and inflation (INFL), a control variable has a weak and insignificant effect on LOGRDGP (coefficient = -0.000974, p = 0.0960). On the LR, the effect of BSFI on LOGRGDP was positive but insignificant (coefficient = 0.466890, p = 0.7010), SPVL was negative but insignificant (coefficient = -0.030943, p = 0.7592), ZSCORE was also negative but insignificant (coefficient = -0.008595, p = 0.9451) and INFL had a:positive but insignificant (coefficient = 0.022285; p = 0.8161) on growth.

We recommend that the Central Bank of Nigeria should implement stricter regulations and oversight to enhance bank resilience against economic shocks, introduce stress tests for banks and adopt a dual approach of monetary and fiscal policies. We also recommend that efforts should focus on improving transparency, attracting more companies to go public, and incentivizing investments in diverse sectors.

Keywords: *Financial system stability, economic growth, ARDL*

1. INTRODUCTION

Financial system stability plays a crucial role in fostering economic growth and development in any country. In Nigeria, a nation characterized by a rapidly evolving financial landscape amid persistent economic challenges, the stability of its financial system is of paramount importance. This paper explores the intricate relationship between financial system stability and economic growth in Nigeria, examining recent trends, challenges, and policy implications.

The stability of the financial system is vital for the growth and development of any economy, particularly in emerging markets like Nigeria. A well-functioning financial system promotes the efficient allocation

of resources, fosters investment, and stimulates economic growth by providing the infrastructure for financial transactions (Adeniyi & Igbatayo, 2021). However, Nigeria's financial system has been characterized by frequent instability, marked by banking sector crises, regulatory lapses, exchange rate volatility, and financial market shocks. These systemic issues continue to challenge the country's economic growth trajectory, thereby raising critical questions about the effectiveness of the Nigerian financial system in fostering sustainable development.

The core problem of this study lies in the persistent instability of Nigeria's financial system, which has hampered its ability to effectively drive economic growth. Over the past decades, Nigeria has experienced several financial crises, including the 2009 banking sector crisis, the recurrent depreciation of the naira, and the volatility of capital flows (Okoye & Nwaeze, 2022). These disruptions have affected the capacity of financial institutions to mobilize and allocate resources efficiently, leading to a weakened investment climate and slower economic growth. Although successive reforms have aimed at strengthening the financial system, its vulnerability to both domestic and external shocks persist, as evidenced by recent fluctuations in macroeconomic indicators and financial market performance (Ibe & Ndubuisi, 2020;).

To enhance financial system stability and promote sustainable economic growth, Oyelere and Afolabi (2021) advocated that policymakers in Nigeria must prioritize several key policy areas. Firstly, strengthening regulatory and supervisory frameworks to enhance risk management practices and ensure compliance with international standards. Secondly, investing in financial infrastructure and technology to improve efficiency and resilience against external shocks (Okezie & Uche, 2022). Thirdly, fostering institutional capacity building and enhancing transparency to bolster investor confidence and mitigate systemic risks (Adediran & Olufemi, 2023).

Recent studies have indicated that the Nigerian financial sector is still susceptible to external shocks, poor regulatory compliance, and institutional weaknesses (Okoye & Uche, 2022). These challenges are exacerbated by the country's reliance on oil revenues, which exposes the financial system to global oil price fluctuations and exchange rate pressures. Furthermore, the stability of the financial system is crucial in achieving several of Nigeria's broader economic objectives, such as poverty reduction, employment generation, and industrial diversification. As Nigeria strives to achieve the goals outlined in the National Development Plan (2021-2025) and align with the United Nations Sustainable Development Goals (SDGs), a robust and stable financial system is essential for mobilizing the necessary financial resources and channeling them into sectors that drive inclusive growth (Oluwaseun & Kolawole, 2021). This study is, therefore, justified in its exploration of how financial stability can serve as a catalyst for sustainable economic growth in Nigeria.

Despite the extensive body of literature on financial system stability and economic growth, one important gap remains. In examining the effect of financial system stability on economic growth, existing research primarily emphasizes traditional indicators, particularly those related to the banking sector, such as capital adequacy ratios, non-performing loans, and profitability metrics (Beck, 2018; Ahmed & Olowokere, 2021). While these banking-specific indicators capture the soundness of financial institutions, they often overlook capital market dimensions, particularly stock price volatility. Stock price volatility reflects fluctuations in asset values and mirrors investor sentiment and risk perceptions, which are crucial to understanding broader financial stability. However, few studies have employed this metric as a direct measure of stability, creating a notable gap in the literature (Laeven & Valencia, 2020; Demirgüç-Kunt & Levine, 2018). This study, therefore, addresses the question of how financial system stability impact economic growth in Nigeria based on these gaps.

In the context of economic growth, stock price volatility can affect investment behaviour, business costs, and overall productivity. High levels of volatility often deter investment and impact corporate valuations, resulting in wider economic repercussions (Cecchetti & Kharroubi, 2019). Excluding stock price volatility could therefore limit our understanding of how interconnected capital markets and banking

sectors affect real economic outcomes. By omitting this variable, prior research may downplay the essential role that stock market stability plays in maintaining economic growth, particularly in economies with highly active capital markets. To address this gap, the present study incorporates stock price volatility, alongside traditional indicators such as the banking system fragility index and the Z- Score. By doing so, the study provides a more comprehensive view of financial system stability, covering both banking sector resilience and market-based stability factors. This inclusive approach is expected to offer a nuanced perspective on the relationship between financial stability and economic growth, acknowledging the interconnected nature of capital markets and banking systems (Beck, 2018; Laeven & Valencia, 2020; Obinna & Ayodeji, 2023). A more holistic understanding of financial stability, incorporating all these sectors, is necessary to capture the full dynamics of how instability affects economic growth.

1. LITERATURE REVIEW

Conceptual Issues

Financial System Stability

Financial system stability refers to the resilience of financial institutions and markets to internal and external shocks, ensuring the efficient functioning of financial intermediation, risk management, and the payment system (Acharya & Yorulmazer, 2021). A stable financial system supports economic growth by facilitating efficient resource allocation, enhancing investment, and promoting confidence in financial markets (Ojo & Akinbode, 2023). The importance of financial system stability cannot be overstated, as instability can lead to systemic crises with devastating consequences for economic activity, employment, and poverty levels (Claessens & Kodres, 2020).

In Nigeria, financial system stability has been a significant policy concern, particularly in the wake of the 2009 banking crisis that led to the collapse of several banks due to poor risk management and governance failures (Adeola & Adeoye, 2021). Efforts to enhance financial system stability include regulatory reforms such as the recapitalization of banks, the establishment of the Asset Management Corporation of Nigeria (AMCON), and the introduction of macroprudential policies aimed at mitigating systemic risks (Eke & Okoroafor, 2022). Despite these efforts, Nigeria's financial system remains vulnerable to macroeconomic shocks, such as oil price fluctuations, exchange rate volatility, and political instability, which often undermine its stability (Ibrahim & Saidu, 2022; Olawale & Ayodeji, 2023; Oyedele et al., 2020).

Banking System Fragility Index

The Banking System Fragility Index (BSFI) is a measure used to assess the vulnerability of a banking system to crises or systemic failures. It provides insights into the health and resilience of banking institutions, highlighting the risks that can trigger instability. Banking fragility can arise from several factors, including high levels of non-performing loans (NPLs), weak capitalization, inadequate liquidity, and exposure to macroeconomic shocks (Gorton & Ordoñez,2022). The BSFI aggregates various financial indicators into a composite index that measures the likelihood of banking distress. By examining key indicators such as profitability, leverage ratios, and asset quality, the BSFI aims to capture both the micro-prudential risks faced by individual banks and the macroprudential risks affecting the entire banking system (Nwankwo & Ekwe, 2022; Sanusi, 2020; Ibrahim & Adewale, 2022; Oke & Nwankwo, 2021).

The Z-Score

The Z-Score is a widely used financial stability indicator that measures the likelihood of insolvency in a

banking institution. It provides a statistical measure of a bank's distance from insolvency, with higher Z-Scores indicating greater stability and lower probabilities of default (Altman, 2021). The Z-Score combines three key financial metrics: profitability (return on assets), capitalization (equity-to-assets ratio), and the volatility of returns (standard deviation of return on assets). This composite score allows for a comparison of financial stability across banks and over time, serving as an early warning system for potential bank failures (Beck & Demirgüç-Kunt, 2020). In Nigeria, the Z-Score has been applied to evaluate the stability of banks in the context of macroeconomic fluctuations, regulatory changes, and sectoral exposures (Nwokoye & Ugwuanyi, 2021; Eze et al., 2021).

Stock Price Volatility

Stock price volatility, the degree to which stock prices fluctuate, is a critical indicator of financial system stability. This measure helps gauge market sentiment, investor confidence, and broader economic health (Olowoye & Yusuf, 2023). High volatility often indicates financial instability, while low volatility suggests a stable and resilient market environment. According to Eke (2023), various factors contribute to stock price volatility, including macroeconomic conditions, corporate performance, investor sentiment, and external shocks. According to research by Baker et al. (2020), the COVID-19 pandemic exemplified how unprecedented events can trigger sharp price fluctuations, highlighting the connection between external shocks and volatility. Similarly, shifts in monetary policy, changes in interest rates, and geopolitical tensions all significantly impact stock price movements (Xu et al., 2021). The behavioral finance perspective further suggests that investor sentiment and speculative trading can drive volatility beyond economic fundamentals (Chen & Qu, 2020).

Economic Growth

Economic growth refers to the increase in the production of goods and services in an economy over time, typically measured by the growth in gross domestic product (GDP) (Barro & Sala-i- Martin, 2021). Economic growth is a critical indicator of an economy's health, as it is closely linked to improvements in living standards, job creation, and poverty reduction. In developing economies like Nigeria, sustained economic growth is essential for addressing high unemployment rates, reducing poverty, and improving overall quality of life (Obadina & Nnadi, 2022).

Nigeria's economic growth has been highly volatile, largely driven by the performance of the oil sector, which accounts for a significant portion of government revenue and export earnings Adeola & Adeoye, 2021). This dependence on oil exposes the economy to external shocks, such as fluctuations in global oil prices, leading to periods of rapid economic growth followed by severe contractions. In recent years, efforts have been made to diversify Nigeria's economy by promoting sectors such as agriculture, manufacturing, and services, but these sectors have not yet achieved the scale necessary to drive consistent growth (Onakoya & Olawale, 2023).

Several factors contribute to economic growth, including investment in physical and human capital, technological advancement, and institutional quality (Ogundipe & Olokoyo, 2023). In Nigeria, weak institutional frameworks, corruption, and poor infrastructure have hindered economic growth despite abundant natural resources (Ademola & Eke, 2021). Additionally, macroeconomic instability, characterized by high inflation, exchange rate volatility, and fiscal deficits, has further constrained Nigeria’s economic growth prospects (Agbaje et al., 2023). Addressing these challenges is critical to achieving sustained economic growth that benefits all segments of the population.

Theoretical Literature

We discuss, in brief, some theories that are relevant to our study. These include the financial intermediation, endogenous growth, financial instability and the demand-following and the supply

leading theories.

Financial intermediation theory is central to understanding the role of financial systems in fostering economic growth and maintaining stability. The theory emphasizes the importance of financial intermediaries, such as banks, in reducing the costs associated with conducting financial transactions and mitigating information asymmetry between borrowers and lenders (Allen & Santomero, 2021).

Financial intermediaries pool resources from savers and allocate them to productive investments, thereby playing a critical role in resource allocation, risk management, and liquidity provision in an economy. The theory was bolstered by the works of Gurley and Shaw (1960); Allen, et al., (2020).

Diamond and Dybvig, (1983); Nnanna, (2022) and Ibrahim and Adewale (2022) among several others.

The endogenous growth theory focuses on the role of internal factors-such as human capital, innovation, and knowledge spillovers—in driving long-term economic growth (Mishkin, 2020). The theory challenges the exogenous growth models (such as the Solow-Swan model), which attribute long- run economic growth to external factors like technological progress. Endogenous growth theorists argue that economic growth is primarily driven by factors within the economy, such as investment in education, research and development (R&D), and financial system efficiency (Ogundipe & Ololoyo, 2023).

The endogenous growth theory emphasizes that a well-functioning financial system is vital for sustaining long-term economic growth. According to this theory, financial markets and institutions are instrumental in mobilizing savings, allocating capital efficiently, and promoting technological innovation, all of which are key drivers of growth (Aghion & Howitt, 1998; Levine, 2005; Romer, 1986)

The financial instability hypothesis was developed to explain the inherent instability of financial markets (Minsky, 1991; Oyedele et al., 2020). According to the theory, financial systems are prone to cycles of boom and bust due to speculative behavior, particularly during periods of economic expansion. In a stable financial environment, firms and households borrow conservatively. However, as economic conditions improve, they become more optimistic and take on increasingly risky financial positions, eventually leading to speculative bubbles. These bubbles are unsustainable and eventually burst, leading to financial crises and economic recessions (Keen, 2020; Borio, 2021; Nwokoye, 2021).

The demand-following hypothesis was proposed by Patrick (1966), positing that financial development is a consequence of economic growth rather than a cause. According to this hypothesis, as an economy grows, the demand for financial services increases, prompting the expansion of the financial system to meet the needs of businesses and households. In this sense, financial system development is seen as a response to increasing economic activity, and financial institutions are developed to support the growing complexity of the economy (Eke, 2023; Levine, 2005). In contrast the supply-leading hypothesis posits that financial development precedes and stimulates economic growth. According to this view, financial institutions and markets create the conditions necessary for growth by efficiently mobilizing savings, allocating capital, and providing mechanisms for risk management (Patrick, 1966; King & Levine, 1993).

Empirical Literature

Ozili (2024) empirically explored the relationship between financial stability and economic growth in Nigeria over the period from 1993 to 2017. The study reveals that a high Z-score, indicative of low insolvency risk, positively impacts economic growth. Additionally, a reduction in non-performing loans contributes to economic growth, while an increase in capital adequacy is associated with a negative

impact on economic growth. This nuanced insight into financial stability underlines the importance of reducing default risks for sustainable economic progress in Nigeria.

Bayar et al. (2021) analyzed banking stability's dynamic and causal effects on economic growth in post-transition EU countries (1998–2016). Their causality analysis indicates a bidirectional causality between banking stability indicators and economic growth, hinting at a reciprocal relationship within transitioning economies.

Njang et al. (2020) analyzed the influence of financial system stability on economic growth in Nigeria from 1986 to 2016, employing the Granger causality test, Johansen co-integration test, and Vector Error Correction Model (VECM). The Granger causality test indicates a one-way causality from financial stability to economic growth, while the Johansen co-integration test confirms a long-term association. However, VECM results show a negative relationship, emphasizing a complex, potentially adverse interaction between financial stability and growth in Nigeria.

In their study, Ehigiamusoe and Samsurijan (2020) examined factors moderating the impact of financial development on economic growth. They identify that financial and economic development, alongside institutional and macroeconomic stability, serve as significant moderators of the finance-growth nexus, underscoring the importance of strong institutional frameworks for economic growth enhancement.

Stewart et al., (2021) investigated bank stability's direct effects on economic growth and how regulatory capital and institutional quality affect this relationship across 100 countries (1995–2015).

Using the generalized method of moments (GMM), they find no evidence for a trade-off induced by regulatory capital between stability and growth, suggesting that regulatory efforts may not compromise growth in pursuit of stability.

Ijaz et al., (2020) explored how banking competition and stability impact economic growth in a study of 38 European countries (2001–2017). Using fixed-effect panel regression and system GMM, they find that bank stability significantly enhances economic growth, while lower competition supports stability and growth, highlighting a potential trade-off between stability and competitive market dynamics.

Carlson et al., (2019) focused on the implications of low entry barriers in banking, discovering that such conditions stimulate credit extension, resulting in a credit boom that subsequently bolsters economic activity. However, their findings also show that heightened competition may provoke financial instability, suggesting a dual effect of banking competition on economic performance.

Sotiropoulou et al., (2019) investigated financial stability's impact on growth in 28 EU countries from 2004 to 2014, revealing that while stock market size positively affects growth, market liquidity and financial instability have adverse effects, underlining the need for balanced financial sector development.

Alsamara et al., (2019) examined the relationship between financial stability and economic growth in Qatar from 1980 to 2013 using a VECM with structural breaks. They find that real GDP growth exerts a long-term negative impact on loan provisions and a moderate short-term positive impact, suggesting that economic growth may reduce loan defaults, thus reinforcing stability.

Younsi and Nafla (2019) assessed the link between financial stability, monetary policy, and economic growth across 40 developed and developing countries (1993–2015). Their panel regression analysis

reveals that financial crises, along with bank liquidity issues and non-performing loans, undermine both financial stability and economic growth, illustrating the destabilizing potential of financial imbalances.

Tosunoglu (2018) examined Turkey's financial stability and economic growth nexus from 2002 to 2017, identifying that capital adequacy, asset quality, and liquidity are integral components of financial stability that drive growth. The findings suggest that a sound financial system is essential for economic resilience and sustained growth.

Research by Batuo et al., (2018) evaluated the interplay between financial instability, liberalization, development, and economic growth across 41 African nations from 1985 to 2010. Findings indicate that while financial development and liberalization enhance financial instability, economic growth counterbalances this instability. These results suggest a complex relationship in which economic growth acts as a stabilizing force amidst financial sector liberalization.

Jayakumar et al., (2018) examine the impact of banking competition and stability on economic growth in a 32-country European panel from 1996 to 2014. They conclude that both banking competition and stability significantly drive long-term economic growth. This highlights the role of a competitive yet stable banking environment in fostering economic resilience within Europe.

Prochniak and Wasiak (2017) analyzed the effects of financial stability on growth within 28 EU and 34 OECD countries (1993–2013), finding a nonlinear relationship. They observe that an oversized financial sector may not necessarily spur growth and can, in fact, hinder GDP dynamics, emphasizing the potential downsides of an excessively large financial system on economic performance.

Creel et al., (2015) assessed the impact of financial instability on economic growth in the EU between 1998 and 2011, finding a negative effect, which underscores the risks associated with financial instability within the economic landscape of the EU.

1. METHODOLOGY

All the data used in the study were sourced from secondary sources, specifically the Annual Statistical Bulletins of the Central Bank of Nigeria (CBN) and the World Financial Development Indicators (WFDI), a publication of the World Bank. We formulated the research model based on the identified gap in literature as expressed in a functional relationship as:

ECOGRO = f(FSSTAB)..... (i)

Where ECOGRO = Economic Growth and FSSTAB = Financial System Stability
ECOGRO is proxy by Real Gross Domestic Product (RGDP) and FSSTAB is a vector of SPVL, BSFI and ZSCORE so that our econometric model for this study is:
$LOGRGDP = \alpha + \upsilon_1 SPVL + \upsilon_2 BSFI + \upsilon_3 ZSCORE + \upsilon_4 INFL + \varepsilon$.....(ii)

Where LOGRGDP = Logarithm of RGDP
SPVL = Stock price volatility is the average of the 360-day volatility of the national stock market index, a measure of stock market stability (Bloomberg)
BSFI = Banking Sector Fragility Index
ZSCORE = Z-Score
INFL = Inflation (Control variable)
α = Regression intercept
υ_1.....υ_4 = Coefficients of respective explanatory variables
ε = Error term.

According to Boyd and Graham (1986), the Z-Score is estimated as:

$$Z = \frac{(ROA + E/A)}{\delta ROA}$$

where:
Z = Z-score
ROA = Average Return on Assets of the banking system
E/A = Equity-to-Assets ratio (a measure of leverage)
δROA = Standard deviation of ROA (a measure of risk volatility)

According to Kayode and Oluwole (2023), The BSFI is constructed using the Kibritcioglu formula as:

$$BSFI_t = \frac{\left[\frac{PSC_t - \mu PSC}{\delta PSC} + \frac{DPO_t - \mu DPO}{\delta DPO} + \frac{TFL_t - \mu TFL}{\delta TFL}\right]}{3} \quad \text{(iv)}$$

Where:
BSFI = Banking Fragility index
PSC = Total private sector credit (domestic)
DPO = Banking system deposit (aggregate)
TFL = Foreign liabilities (aggregate)
t = time
μ = mean
δ = standard deviation

Since the banking system fragility depends on changes over time, the estimations of variables in equation iv should be subjected to time variations between the previous and present years. as follows:

$$PSC_t = \frac{(PSC_t - PSC_{t-1})}{PSC_{t-1}} \quad \text{(v)}$$

$$DPO_t = \frac{(DPO_t - DPO_{t-1})}{DPO_{t-1}} \quad \text{(vi)}$$

$$TFL_t = \frac{(TFL_t - TFL_{t-1})}{TFL_{t-1}} \quad \text{(vii)}$$

Where t and t-1 are present and previous years respectively.

Analytical Techniques

The Autoregressive Distributed Lag (ARDL) model was employed to estimate the short run (SR) and long run (LR) effects of financial system stability indices on Nigeria's economic growth. The mixed order of stationarity of the research variables supports the use of the ARDL technique which is adjudged to be highly reliable and produces relatively unbiased estimates, particularly in situations where the number of observations is small. Generally, the higher the BSFI and INFL, the lower the level of economic growth is expected. However, increasing ZSCORE, the more the economy will grow and the effect of rising SPVL on economic growth can be positive or negative. The SR ARDL model for this study is expressed as:

$$LOGRGDP_t = \alpha_{01} + \triangle^{p}_{i=l}\Theta_1 SPVL_{t-1} + \triangle^{p}_{i=l} BSFI_{2t-1} + \triangle^{p}_{i=l}\Theta_3 ZSCO_{t-1} + \triangle^{p}_{i=l}\Theta_4 INFL_{t-1} + \varepsilon_t$$

..... (viii).

Secondly, the ARDL SR (Error Correction) model is expressed:

$$LOGRGDP_t = \alpha_0 + \triangle^p \lambda_1\beta SPVL_{t-1} + \triangle^p_{i=1} \lambda_2\beta BSFI_{t-1} + \triangle^p_{i=1} \lambda_3\beta ZCSO_{t-1} + \triangle^p_{i=1} \lambda_4\beta INFL_{t-1} + \triangle ECT_{it}(-1) + \varepsilon_t \ldots\ldots\ldots (ix)$$

Where β = SR dynamics convergence coefficient.
△ = operator for differencing
ECT (-1) = speed of adjustment to equilibrium on the long run.

4. DATA ANALYSIS AND DISCUSSIONS

Pre-estimation Diagnoses

We examined the statistical properties, correlations, stationarity and long run relationship of the research variables. This is the focus of this section.

Descriptive Statistics

Table 1 presents the extract from the descriptive statistics of the variables in our model.

Table 1: Extract of Descriptive Statistics

	LOGRGDP	BSFI	SPVL	ZSCORE	INFL
Mean	4.660120	-0.149141	15.28654	14.14684	13.27595
Median	4.718314	-0.420479	14.83000	13.75415	11.99078
Skewness	-0.453711	0.730146	0.580564	0.184156	1.209772
Kurtosis	1.638616	2.284760	3.075483	3.299333	4.322444
Jarque-Bera	2.899845	2.864358	1.466741	0.244026	8.236643
Probability	0.234588	0.238788	0.480287	0.885137	0.016272

Source: Author (2024).

From Table 1, LOGRGDP has a mean value of N4.66 trillion, indicating an average growth level in the real GDP over the period studied. Its median is N4.72 trillion, close to the mean, suggesting a fairly symmetrical distribution. The coefficient of skewness is -0.45, showing slight negative skewness, indicating a few lower values pulling the mean slightly below the median. Its kurtosis: 1.64, less than 3, suggesting a distribution that is flatter than normal with lighter tails (platykurtic) while its Jarque-Bera statistics of 2.90 with a p-value of 0.23, indicate absence of statistically significant deviation from normality.

For BSFI, the mean value is -0.15 which suggests a high average fragility, as positive values would indicate low fragility. The median of -0.42, somewhat lower than the mean, which indicates variability with instances of higher fragility. The skewness: 0.73, shows a moderate positive skewness, suggesting that there are more instances of higher fragility, but a few extreme values increase the average. Its kurtosis is 2.28, slightly below 3, indicating a distribution with lighter tails than normal (platykurtic). The Jarque-Bera of 2.86 with a p-value of 0.24, suggesting a reasonably normal distribution for the data.

SPVL has a mean of 15.29, showing the average level of volatility in stock prices during the period. Its median of 14.83 is close to the mean, suggesting a fairly balanced distribution with no extreme outliers. SPVL has a skewness of 0.58, indicating a mild positive skew, suggesting that while most values are around the mean, some higher values lead to an upward skew. Its kurtosis is 3.08, close to the normal value of 3, indicating a typical distribution shape with balanced tails (mesokurtic). The Jarque-Bera of

1.47 with a p-value of 0.48 shows no significant deviation from normality.

The ZSCORE has a mean of 14.15, which points to generally stable financial conditions given that higher Z-scores indicate a greater distance from insolvency. The median of 13.75 is close to the mean, suggesting a consistent level of stability across the period. Its skewness of 0.18 indicates very slight positive skewness, which implies a nearly symmetrical distribution while its kurtosis 3.30, slightly above 3, suggesting a slightly peaked distribution with balanced tail behaviour. The Jarque-Bera of 0.24 with a p-value of 0.88 strongly suggest normality.

Finally, INFL has a mean of 13.28%, reflecting the average inflation rate in Nigeria over the study period. Its median is 11.99 which is slightly below the mean, hinting at a few high-inflation instances pulling the mean up. The skewness of 1.21 shows moderate positive skewness, suggesting some instances of very high inflation. The kurtosis of 4.32, above 3, indicates a leptokurtic distribution, which suggests the presence of outliers or extreme values. Its Jarque-Bera statistics is 8.24 with a p- value of 0.016, indicating a significant departure from normality, likely due to high inflationary spikes.

Correlations among Research Variables

The coefficients of correlation between two or more variables show their degree of co-movement in the same or opposite directions. Table 2 reveals these degrees between the variables.

Table 2: Correlation Coefficients

	LOGRGDP	BSFI	SPVL	ZSCORE	INFL
LOGRGDP	1				
BSFI	-0.53352453	1			
SPVL	0.52104077	-0.31368235	1		
ZSCORE	0.394798174	-0.13317151	0.605504305	1	
INFL	-0.07260273	-0.04072965	-0.05140971	-0.39788244	1

Source: *Author (2024).*

BSFI has a negative correlation with LOGRGDP (-0.53) indicating that increased banking sector fragility is associated with lower economic growth while SPVL has a positive correlation with LOGRGDP (0.52), which suggests that higher stock price volatility might correspond with economic growth fluctuations. LOGRGDP has a positive correlation with ZSCORE (0.39) which may suggest stability (higher Z-scores) is beneficial for growth, albeit moderately. With INFL LOGRGDP has a weak negative correlation (-0.07260273), implying that inflation has a limited and mostly inverse relationship with growth.

The remaining coefficients show the degree of correlations among the explanatory variables themselves. None of the coefficients among these variables is extremely high or low, suggesting the absence of multicollinearity among the explanatory variables.

Stationarity Test Results

The test of stationarity helps to confirm whether and when the research variables become stationary (free of unit root). The condition of stationarity is essential for time series suitability for analysis. Table 3 summarizes the results of the Augmented Dickey Fuller unit root test.

Table 3: Stationarity Tests Results

Variable	At Level (5%)		At 1ST DIFF (5%)		Stationarity Order
	ADF Stat	Prob	ADF Stat	Prob	
LOGRGDP	-2.044898	0.2671	-3.534138	0.0198	I(I)
BSFI	-2.593335	0.1071	-3.931250	0.0073	I(I)
SPVL	-2.788832	0.0761	-3.065689	0.0443	I(I)
ZSCORE	-3.599067	0.0130	-	-	I(0)
INFL	-5.765656	0.0001	-	-	I(0)

Source: *Author (2024).*

While LOGRGDP, BSFI and SPVL are stationary at first difference [I(I)], ZSCORE and INFL are stationary at level [I (0)]. This provides the premise for testing for long-run relationship between LOGRGDP and the explanatory variables.

ARDL Bound Long run Relationship Test

The ARDL Bound test was used to ascertain the existence of long relationship between LOGRGDP and the independent variables. Table 4 summarizes the results of the test.

Table 4: ARDL Bound Test Result

Null Hypothesis = No Co-integration		
Test Statistic	Value	k
F-statistic	5.211635	4
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Source: *Author (2024).*

The F-statistic of 5.21 exceeds the critical value bounds at the 5% significance level (2.86 < F-stat < 4.01), indicating that a long-run relationship among the variables exists.

Effect of Financial Stability, Fragility and Inflation on Economic Growth

The ARDL were used to estimate the SR (ECM) and LR models' estimates, and the results are presented in Table 5

Table 5: ARDL Models' Results

	Method = ARDL. Dependent Variable = LOGRGDP						
Variable	Short-run Effect			Variable	Long-run Effect		
	Coeff.	Prob.	Decision		Coeff.	Prob.	Decision
D(LOGRGDP(-1))	0.651937	0.0020	Significant	BSFI	0.466890	0.7010	Insignificant
D(BSFI)	-0.008030	0.0535	Insignificant	SPVL	-0.030943	0.7592	Insignificant
D(SPVL)	-0.000312	0.6305	Insignificant	ZSCORE	-0.008595	0.9451	Insignificant
D(ZSCORE)	-0.000087	0.9427	Insignificant	INFL	0.022285	0.8161	Insignificant

D(INFL)	-0.000974	0.0960	Insignificant	C	5.824417	0.1008	
CointEq(-1)	-0.010081	0.5926	Insignificant				
R-squared	0.736056						
Adjusted R-squared	0.595286						
DW Stat	2.099030						
F-Stat	5.228788						
Prob (F-Stat)	0.002936						

Source: *Author (2024).*

In the SR, D (LOGRGDP (-1)) has a significant and positive (coefficient = 0.65, p = 0.0020), indicating economic growth momentum from the previous period to the present. This does not, however, imply that the momentum is caused by financial system stability. But D(BSFI) has a negative and borderline significant effect on LOGRGDP (coefficient = -0.008, p ≈ 0.0535), which suggests that banking sector fragility negatively impacts short-term growth with negligible significance. The D(SPVL) has a negative but insignificant effect on LOGRGDP (coefficient = -0.000312, p ≈ 0.6305), implying stock price volatility impaired growth but the effect is limited. Also, the effect of D(Z-score) is insignificant (p ≈ -0.000087, p = 0.9427), suggesting that efforts to attaining financial system stability could also impair economic growth in the short run, though the impairment may be limited and insignificant. Finally, D(INFL) also has a weak and insignificant effect on growth ((coefficient = -0.000974, p = 0.0960), indicating that inflation has a marginally negative short-term impact on growth.

On the LR, the effect of BSFI on LOGRGDP was positive but insignificant, suggesting that although the former impaired the latter, it did not have a long-lasting impact on it (coefficient = 0.466890, p = 0.7010). The effect of SPVL was negative but insignificant (coefficient = -0.030943, p ≈ 0.7592), showing limited long-term influence from stock volatility. The effect of ZSCORE was also negative but insignificant (coefficient = -0.008595, p ≈ 0.9451), indicating that financial stability does not translate into significant long-term growth benefits. On its part, INFL had a positive but insignificant (coefficient = 0.022285; p ≈ 0.8161) on growth, suggesting that inflation does not have a meaningful long-term impact on growth.

The error correction term is insignificant (-0.010081) with its p ≈ 0.5926) indicates that deviations from the long-term equilibrium are corrected slowly, if at all. The R-squared of 0.736056 implies that despite the insignificant effects, the financial system stability variables and inflation explains as much as 74% of variations in RGDP is explained by the independent variables.

Discussion of Findings

The findings from the analysis of financial stability indicators on Nigeria's economic growth reveal important insights into the dynamics of short-term and long-term relationships between economic growth, banking sector fragility, stock market volatility, financial stability, and inflation. These insights highlight several reasons that could explain the nature and significance of these relationships, especially in the context of Nigeria's unique economic environment and its financial sector challenges. We discuss some of these insights on a SR and LR basis.

Effect of Financial System Stability on Nigeria's Economic Growth in the SR

In the SR, previous economic growth was found to be positively correlated with current economic growth, reflecting a natural momentum effect. This result suggests that Nigeria's economic growth is somewhat self-sustaining on a short-term basis, as prior growth periods fuel ongoing expansion. This momentum effect may be attributed to positive feedback in the economic system, where past growth encourages further investment, consumer confidence, and production. However, other short-term variables, such as banking sector fragility (BSFI) and inflation, demonstrate varying degrees of influence on growth.

Banking sector fragility, which had a borderline significant negative effect on growth in the short term, underscores the susceptibility of Nigeria's economy to financial sector instability. This fragility may be linked to underlying issues such as limited access to capital, non-performing loans, and systemic weaknesses within Nigerian banks. In the SR, fragility could discourage investment and reduce lending activities, as instability often leads banks to adopt more conservative lending practices. These practices restrict credit flows to businesses and individuals, reducing economic activity and growth. Therefore, negative impact of banking fragility on short-term growth could reflect the banking sector's limited resilience to shocks, a characteristic observed in many developing economies where regulatory frameworks and capital adequacy are often less robust.

Stock price volatility did not show a significant short-term impact on economic growth, which may indicate that Nigeria's stock market is less integrated into the broader economy. Unlike in more advanced economies where stock market trends are tightly coupled with economic performance, the Nigerian stock market remains relatively underdeveloped and may have limited influence on real economic activities. Many businesses in Nigeria are privately held or operate in the informal sector, which reduces the direct economic impact of stock market fluctuations. This relative detachment could explain why stock volatility lacks an immediate influence on economic growth.

Financial stability, as measured by the Z-score, did not demonstrate a significant short-term impact on growth either, although it showed a positive association. This finding may suggest that while a stable financial environment is conducive to growth, the short-term effects of stability measures are not easily captured. Financial stability tends to yield more visible benefits over extended periods rather than in immediate economic gains. Stability provides a foundation for sustainable growth by ensuring that institutions and markets operate smoothly, but the benefits of this foundation may only become evident in the longer term.

Finally, inflation exhibited a weakly significant negative impact on growth in the short term, hinting at the disruptive nature of price instability on economic activities. High inflation often erodes purchasing power and dampens consumer and business spending. In Nigeria, inflation is a recurring challenge due to structural factors, including currency fluctuations, reliance on imported goods, and supply chain constraints. The short-run adverse effect of inflation suggests that even moderate price instability can hinder economic growth by creating uncertainty, reducing disposable income, and leading to higher interest rates, which further curtail spending and investment.

Effect of Financial System Stability on Nigeria's Economic Growth in the LR

In the long-term analysis, none of the variables showed significant impacts on economic growth. This lack of long-term significance, particularly for banking sector fragility and inflation, suggests that short-term disturbances in the banking sector or price level changes do not exert a sustained influence on Nigeria's economic growth trajectory. One possible reason is that, over time, economic agents may adapt to the existing financial and economic environment, even if it includes fragility and inflation. Long-term growth drivers, such as government policies, infrastructure development, and human capital investments, could overshadow the effects of short-term financial instabilities.

The lack of significance for stock price volatility in the long term may further support the notion that Nigeria's stock market has limited economic integration. Since a substantial part of the Nigerian economy operates outside of the formal financial markets, long-term growth may be more influenced by structural factors and less sensitive to stock market fluctuations. Additionally, the limited diversity and depth of the stock market may reduce its role in capital formation compared to other financial channels like direct foreign investment and government spending.

Similarly, the Z-Score's lack of long-term impact indicates that while financial stability contributes to a favourable environment for growth, its role as a standalone growth determinant is limited. Long-term economic expansion requires consistent and strategic investments in infrastructure, education, and policy reforms, factors that extend beyond the scope of financial stability alone. Although stability supports growth indirectly, it does not act as a direct driver, which aligns with the empirical finding of its insignificance in the long run.

Inflation's insignificance in the long run might reflect Nigeria's adaptive economy, where inflation, though disruptive, has become a manageable aspect of the business and investment landscape. High inflation has been a persistent feature of Nigeria's economy, with businesses and consumers potentially adapting strategies to cope with rising prices. Additionally, in the long term, economic growth may be propelled by structural transformations, such as diversification efforts in agriculture and industry, which reduce reliance on inflation-sensitive imports.

Cointegration and Equilibrium Correction

The analysis found that deviations from the long-term equilibrium are corrected slowly, if at all. This slow adjustment suggests a degree of rigidity in Nigeria's economic structure, where changes in one part of the financial system do not promptly realign with overall economic growth. This rigidity might stem from factors like insufficient institutional quality, policy inertia, or a lag in structural reforms. Moreover, economic adjustments are often gradual in developing countries, where external factors-such as global oil prices, exchange rate volatility, and trade policies—have a large and often unpredictable impact on growth.

5. SUMMARY AND CONCLUSION

The study examined the influence of financial system stability on Nigeria's economic growth, using variables such as banking sector fragility (BSFI), stock price volatility (SPVL), financial stability (Z-score), and inflation (INFL). Analysis reveals that, in the short run, previous economic growth has a positive impact on current growth, suggesting growth momentum. However, banking sector fragility shows a negative effect, indicating that instability within banks can hinder economic performance by limiting access to credit. Inflation also weakly suppresses growth, reflecting the adverse effects of price instability on consumer spending and business investments. Conversely, stock price volatility and financial stability do not significantly impact short-term growth, likely due to Nigeria's less integrated stock market and the longer-term nature of financial stability benefits.

In the long run, none of the financial stability indicators have a statistically significant effect on economic growth. This suggests that while banking sector fragility and inflation affect growth in the immediate term, they do not have a sustained impact. The findings imply that economic agents and businesses may adapt to Nigeria's financial landscape over time, reducing the long-term influence of financial volatility and inflation. Moreover, structural factors, such as government policy and infrastructure development, may play a more critical role in shaping long-term growth.

The study concludes that Nigeria's economic growth is sensitive to short-term fluctuations in banking stability and inflation but is not significantly affected by these factors in the long term. This suggests that while immediate financial stability is beneficial, sustainable growth in Nigeria is more dependent on structural reforms and investments in infrastructure, human capital, and policy stability.

Based on these findings, we recommend that the Central Bank of Nigeria (CBN) should implement stricter regulations and oversight to enhance bank resilience against economic shocks. This can include raising capital adequacy requirements, improving risk management practices, and enforcing compliance

with loan quality standards. Additionally, introducing stress tests for banks will help identify vulnerabilities and allow for corrective actions before systemic risks escalate. Enhancing these regulations can reduce banking sector fragility, ensure consistent credit flows, and support short-term economic stability.

Furthermore, **t**o stabilize inflation, the CBN and government authorities should adopt a dual approach of monetary and fiscal policies. The CBN can adjust interest rates to curb inflation, while the government could reduce inflationary pressures by addressing supply-side issues. For instance, reducing import dependency by investing in domestic agriculture and manufacturing will help insulate the economy from imported inflation. Subsidies on essential goods and energy can help stabilize prices and mitigate inflation's impact on consumer purchasing power, which directly supports growth.

We also suggest that **t**o increase the stock market's role in economic growth, efforts should focus on improving transparency, attracting more companies to go public, and incentivizing investments in diverse sectors. Regulatory bodies like the Nigerian Stock Exchange (NSE) and Securities and Exchange Commission (SEC) could introduce incentives for small and medium enterprises (SMEs) to list on the exchange, diversifying the market.

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