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IMPACT OF BANK CREDIT ON THE PRIVATE SECTOR, BROAD MONEY SUPPLY, AND INTEREST RATE ON BANK PROFITABILITY IN NIGERIA

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Abstract
The relationship between bank credit to the private sector, broad money supply, and interest rates significantly influences bank profitability, which is essential for financial stability and economic growth. A thorough literature review and empirical analysis of this research synthesizes findings from diverse global studies, emphasizing factors such as loan portfolio quality, interest rate spreads, and lending policies. This research analyzes the impact of these variables on bank profitability. This research employs empirical analysis and data from various banking institutions to elucidate the complex relationship between lending activities and financial performance in the banking sector. This study's findings indicate that credit to the private sector and broad money supply exert a negative and insignificant influence on the return on assets of deposit money banks in Nigeria, whereas interest rates show a positive yet insignificant effect on the return on assets of these banks. An increase in credit to the private sector and a broad money supply will decrease the return on assets of deposit money banks in Nigeria. The negative impact may result from non-performing loans or bad debt; additionally, the supply of money may be allocated to unproductive investments, leading to a negative and insignificant effect on the return on assets of deposit money banks in Nigeria. The interest rate exhibited a positive but insignificant effect on return on assets of deposit money banks. The results indicate a notable relationship between bank credit and profitability, exhibiting differences across various banking systems and economic contexts. Comprehending these dynamics is essential for policymakers, regulators, and banking professionals to develop informed decisions regarding credit management strategies and financial stability.

Introduction

Private sector bank financing boosts economic growth, job creation, and entrepreneurship. The health of an economy depends on its financial system, including its institutions, regulations, policies, and market for funding commercial activities. This system influences how much people, businesses, and governments can finance their

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operations in a state. This implies that a strong financial system supports a strong economy.

The financial system connects surplus and deficit units to move money.

Bank credit shows how financial institutions affect the economy. Bank lending fuels economic growth by funding individuals, enterprises, and sector development.

This study examines bank lending, financial stability, and economic activity.

Lending laws, risk management, interest rate levels, and macroeconomic variables might help explain the complex relationship between bank credit to the private sector and economic outcomes. It may employ qualitative studies on these practices or quantitative credit data analysis. Finally, using case studies and data from many sources, the researchers investigate historical patterns and views regarding bank loan operations that affect all classes.

As stakeholders seek ways to stabilize the financial system, they attach relevance to having a thorough understanding of the dynamics of bank profitability.

An investigation of the capacities of different institutions to allocate capital, manage resources and adjust to shifts in the market environment is made possible by this understanding.

Understanding the intricate connection between a bank's lending activities (credit) and overall financial performance is the foundation of this work. This study examines several factors, including interest rates, regulatory frameworks, and economic conditions, that influence this dynamic interaction. In the Nigerian financial system, this bank is in charge of financial intermediation, which allows money to move from the economy's surplus to its deficit and convert deposits into credit (loans).

According to Ademu (2006) in Nwanyanwu (2010), providing credit with sufficient consideration for growth potential in the sector as well as price system in the economy is one way to generate employment opportunities and by so doing contribute to the growth of the economy at large. This can be made possible because bank credit contributes immensely to the expansion of business enterprises and increases production scale, which results in growth in the overall economy. Therefore, the contribution of bank credit to the growth of the informal sector of the Nigerian economy cannot be overemphasized given its contribution to the overall growth of the Nigerian economy.

Review of Related Literature

Conceptual review

The relationship between bank loans and bank profitability is not simply an economic equation but a dynamic interplay composed of various elements. Comprehending this interaction is essential for maneuvering across the complex terrain of financial stability, economic expansion, and sustainable development. Bank credit to the private sector denotes the issuance of loans, advances, and various credit facilities by commercial banks to private individuals, enterprises, and organizations.

The macroeconomic climate is crucial because economic growth, inflation, and unemployment rates affect loan demand, credit quality, and profitability. Regulatory frameworks, characterized by complex rules and standards, significantly influence lending activity and compliance expenses. The fluctuations in interest rates, influenced by central bank policies and market forces, can significantly impact banks' funding costs and profitability. Banks holding fewer liquid assets normally earn greater profits (Pracoyo & Imani, 2018). Robust credit risk management methods, encompassing rigorous credit scoring and underwriting, are vital for reducing loan losses and ensuring financial stability. Ultimately, bank-specific attributes such as size, business model, ownership structure, and geographical location contribute distinct dimensions to this complex interaction. We advance past theoretical frameworks and individual components to examine the actual evidence that provides a more in-depth understanding. The research indicates a favorable association between portfolio diversification and profitability, emphasizing the necessity of distributing risk among different loan types. These studies elucidate the essential function of interest rate risk management in securing stable earnings and enhanced profitability. The influence of

macroeconomic conditions is examined, revealing a favorable correlation between economic growth and bank profitability. The intricate relationship between regulations and profitability is clarified, highlighting the diverse effects of capital adequacy requirements and loan provisioning norms across various banks and economic contexts.

However, the narrative does not end there. Recent advances in research have enhanced the boundaries of our understanding. The rise of Fintech and digital lending platforms has challenged the traditional banking sector, introduced new competitors and impacted competitiveness, credit accessibility and bank profitability. Sustainable banking practices that prioritize environmental, social, and governance (ESG) factors shape lending decisions and impact profitability. The significant effects of the COVID-19 pandemic necessitate further examination of its implications for loan activity and bank profitability. Understanding these new developments and their intricate interrelations is crucial for developing a resilient and sustainable future for the banking sector. The availability of bank credit has enhanced the formal sector's contribution to the growth of the Nigerian economy, suggesting an improvement in the sector (Nwanyanwu 2010).

Bank credit to the private sector stimulates economic growth by providing individuals and businesses with access to funds that support investment, expansion, and consumption.

1. Capital Allocation for Business Expansion: Businesses require loans to buy equipment, hire people, and expand. This boosts GDP and jobs by increasing production capacity, commodities, and services. To improve operations, buy new equipment, or conduct research, businesses might obtain loans. This will boost productivity and jobs.

2. Increased Consumer Spending: Customers with credit (personal loans, credit cards, or mortgages) can buy products and services without cash. Businesses increase production, hire additional workers, and expand due to this spending. Loans can be used to buy homes, cars, and other durable goods. This will boost consumer spending and economic growth.

3. Encourages Entrepreneurship and Innovation: Credit helps entrepreneurs start new businesses or develop new goods. This creates jobs and may lead to new firms and technology that boost growth. Entrepreneurs can use bank credit to start new businesses and introduce new products.

4. Effective Resource Allocation: Before lending, banks assess borrowers' viability and allocate resources to projects with the highest return. This will ensure optimal capital use and sustainable growth. Financial institutions are crucial to funding the most productive economic sectors. Economic growth results from optimal capital distribution.

5. Monetary Creation: Banks create currency by lending. Investment and spending can boost economic activity with a larger money supply. Enterprise expansion often creates a "multiplier effect." A construction company using a bank loan to build new homes boosts the demand for materials, services, and labor, thus increasing the number of auxiliary businesses.

6. Increases Productivity: Credit allows companies to buy better technology, equipment, and procedures. Productivity boosts economic growth and living standards. Financial institutions are crucial for funding the most productive sectors. Effective capital allocation boosts economic growth.

7. Risk Management: Financial institutions assess borrower creditworthiness and diversify risk. This allocation allocates resources to high-growth companies and reduces economic volatility.

Bank Profitability:

Bank profitability quantifies a bank's capacity to create earnings, which is crucial for a bank's long-term viability and competitiveness. The main purpose of financial institutions is to maximize profits, for which banks collect funds at a lower rate and lend at a higher rate of return (Rivai, Veithzal, and Idroes, 2007). Bank profitability is an essential indicator of a bank's financial well-being and its capacity to yield profits for its owners. Bank profitability is influenced by a complex interplay of internal and external factors.

Factors influencing bank profitability:

1. Income from Interest

Interest Rate Spread: Financial institutions primarily generate revenue from the disparity (spread) between the

interest rates applied to loans and the rates disbursed on deposits. This constitutes the fundamental element of their net income. Net Interest Margin (NIM) quantifies the disparity between the bank's interest income from loans and investments and the interest expense incurred on deposits and borrowings. An elevated NIM indicates enhanced profitability.

Higher loan volumes, coupled with proficient credit risk management, result in increased interest income. However, substandard loans raise the risk of default, thereby diminishing revenue.

2. Non-Interest Revenue

Fee-Based Services: Financial institutions augment revenue by imposing charges on services such as asset management, consulting, payment processing, and broking operations. Consistent fee income can augment profitability and diminish reliance on interest income.

Trading and Investment Profits: Financial institutions frequently make investments in securities and foreign exchange markets. However, returns from these investments, which are more perilous, can substantially enhance profits, particularly in the context of diminished interest income.

3. Economic Efficiency

Operational Efficiency: The effectiveness with which a bank administers its expenditures (personnel, technology, and infrastructure) directly influences profitability. Investments in technology can enhance productivity but elevate expenses; thus, salaries and benefits for staff are essential. Financial institutions frequently prioritize operating expenditure management to enhance the profit margin on offered services. The Efficiency Ratio assesses a bank's operational efficacy by juxtaposing operating expenses with operating income. A reduced efficiency ratio indicates superior cost management.

The cost-to-Income Ratio: This is a common metric used to evaluate efficiency. A reduced ratio signifies enhanced efficiency and profitability, as the bank produces more income than its expenditures.

4. Management of Credit Risk

Loan Loss Provisions: Financial institutions are required to provide reserves for anticipated loan defaults. Efficient credit risk management reduces the necessity for substantial provisions and thus safeguards profits. Financial institutions must allocate reserves to mitigate possible loan defaults. Increased loan defaults may adversely affect profitability.

Non-Performing Loans (NPLs): Elevated NPL levels diminish profitability because they signify loans that fail to generate income and frequently necessitate expensive collection procedures.

5.Liquidity management

Cash Flow Management: Banks must balance profitability with liquidity, guaranteeing sufficient liquid assets to accommodate consumer withdrawals and regulatory mandates while optimizing income from long-term loans and investments.

Financing Costs: Financial institutions use diverse financing sources (deposits, bonds, interbank loans), incurring distinct expenses. The utilization of lower-cost finance sources enhances profitability, whereas dependence on higher-cost sources may diminish margins.

6.Capital Sufficiency

Leverage and Risk-Weighted Assets: Regulatory authorities establish minimum capital requirements; nevertheless, banks with elevated capital levels are typically more capable of absorbing risks and maintaining operational stability. Excess capital can diminish profitability as it signifies unutilized resources that could generate profits. Regulatory capital requirements may constrain a bank's ability to lend and invest.

Variables for Measuring Bank Profitability

Several key variables are used to measure bank profitability. These variables provide insights into a bank's financial health, efficiency, and ability to generate returns for its shareholders. Here are some of the most common variables:

Profitability Ratios

These ratios directly measure a bank's ability to generate profits as follows:

Return on Assets (ROA): This measures how efficiently a bank uses its assets to generate profits. It's calculated as ROA = Net Income/Total Assets

Return on Equity (ROE): This measures the rate of return on shareholders' equities. It's calculated as ROE = Net Income / Shareholders' Equity

Efficiency Ratios

These ratios measure a bank's operational efficiency as follows:

Net Interest Margin (NIM): This measures the difference between the bank's interest income from loans and investments and its interest expense on deposits and borrowings. A higher NIM indicates better profitability.

Operating Expense Ratio: This measures a bank's operating expenses as a percentage of its operating incomes. A lower ratio indicates better cost control.

Risk-Related Ratios

These ratios assess a bank's risk profile as follows:

Non-Performing Loan (NPL) Ratio: This ratio measures the proportion of bank loans that are not performing as expected. A higher NPL ratio indicates higher credit risk.

The capital adequacy ratio (CAR): This measures a bank's capital as a percentage of its risk-weighted assets. A higher CAR indicates a stronger capital position and ability to absorb losses.

By analyzing these variables, analysts and investors can assess a bank's financial performance and make informed decisions.

Challenges to Bank Profitability: A Cross-sectional Study

Bank profitability faces several obstacles from economic, regulatory, technical, and competitive factors. These problems affect a bank's capacity to sustain steady revenue streams, control expenses, and successfully balance risks. The banking sector, which has been a symbol of stability, faces numerous challengess that jeopardize its profitability. These issues are complex and arise from both internal and external influences.

Internal challenges

Escalating Operational Expenses: The growing complexity of financial services requires significant investments in technological infrastructure, cybersecurity, and data analytics. To maintain competitiveness, banks must invest significantly in digital banking, cybersecurity, and data analytics. These expenditures are expensive, and although they can enhance efficiency, the immediate costs are substantial and frequently diminish profitability.

Regulatory Compliance: Enhanced regulations and compliance obligations, especially in anti-money laundering (AML) and know-your-customer (KYC) sectors, increase operational expenses.

Human Capital Expenditures: As the sector evolves in complexity, the demand for proficient individuals escalates, resulting in elevated labor expenditures.

Diminishing Net Interest Margins (NIMs): Central banks' initiatives to foster economic growth frequently led to low-interest rate conditions, constricting banks profit margins. When interest rates are low, banks generate reduced income from loans they provide while still incurring interest expenses on deposits but at a diminished rate. These changes compress net interest margins (NIM), a crucial element of bank profitability. In many instances, the disparity between lending and deposit rates is so minimal that conventional banking operations have considerably diminished earnings.

Heightened Competition: Vigorous competition from both conventional and unconventional entities, including Fintech companies, may diminish pricing authority and further constrain net interest margins (NIMs).

Credit Risk and Loan Loss Provisions: Economic cycles may result in increased loan defaults and losses, requiring augmented loan loss provisions.

Challenges in Risk Management: Accurately evaluating and mitigating credit risk, especially under unstable economic conditions, is essential to sustain profitability.

External Challenges

Tech disruption: Fintech innovations are quickly undermining traditional banking services by attracting clients and reducing market share. Fintech companies offer mobile banking, digital wallets, and peer-to-peer finance, which are customer-focused and appealing. Traditional banks face increased competition in payments, lending, and wealth management.

Cybersecurity Threats: Rising cyberattacks threaten banks' operations, reputation, and financial health. Oversight: Global regulators set strict requirements to protect consumers' and financial stability. Compliance with

these regulations may be costly and time-consuming.

Regulatory Compliance: Basel III, Dodd-Frank, and the EU's Capital Requirements Directive require capital, liquidity, and risk management. Banks must maintain high capital and liquidity buffers to limit lending and investment and reduce revenue.

Geopolitical tensions and trade wars can cause economic uncertainty and affect financial markets. Economic cycles strongly affect bank profitability. Loan demand declines, defaults rise, and credit risk rises during recessions, hurting earnings.

Changing Consumer Expectations: Customers expect fast, digital, and personalized banking. Banks must invest in technology, data analytics, and customer experience to meet these standards, which is costly and challenging. As customers become more price sensitive, banks are increasingly pressured to lower costs and provide fair pricing. This may reduce service fee earnings and force banks to find new revenue streams.

Overcoming Obstacles and Changing Environments

Banks must innovate to overcome these obstacles and remain profitable:

Digital transformation: Using technology to boost efficiency, customer satisfaction, and revenue.

Strategic partnerships with Fintech firms to use their innovative solutions to reach more customers.

Risk Management: Strong frameworks to reduce credit, market, and operational risks.

Cost Optimization: Monitoring and optimizing operational expenses to improve efficiency.

Customer Centricity: Prioritizing customer requirements and preferences to generate loyalty.

Investing in compliance technology and processes to meet regulatory obligations.

Banks can remain profitable and crucial to the global economy by aggressively tackling these challenges and adjusting to changing terrain.

Theoretical Frameworks

Understanding the intricate relationship between bank credit and bank profitability requires peering through various theoretical lenses. Each framework offers a unique perspective, highlighting the specific dynamics at play. Here, we elucidate four key theories that illuminate this complex interaction:

Intermediation Theory: Bridging the Gap

This cornerstone theory views banks as intermediaries that connect surplus units (depositors) with deficit units (borrowers). Banks generate profits by transforming short-term deposits into long-term loans, thus earning the difference between lending and deposit rates. This "spread" represents the core source of bank profitability. However, factors like credit risk (potential for loan defaults), interest rate risk (fluctuations impacting funding costs and loan returns), and operational efficiency can significantly influence the size and stability of this spread.

Portfolio Theory: Balancing Risk and Return

Modern Portfolio Theory emphasizes the importance of diversification in managing risk and maximizing returns. Applying this theory to banks, it suggests diversifying their loan portfolios across various asset classes, such as consumer loans, mortgages, business loans, and government bonds. This diversification mitigate risk by reducing exposure to any single asset class, leading to higher risk-adjusted returns and, ultimately enhanced profitability.

Pecking Order Theory: Unveiling Financing Choices

This theory explores how banks prioritize internal and external sources of funding. This suggests that banks initially prefer internal funds (retained earnings) because of information asymmetry and signaling effects. External funding, such as debt and equity, can be costly and perceived as a signal of financial weakness. However, as internal funds become insufficient, banks may resort to external sources, impacting profitability through financing costs and potential dilution of ownership. The interplay between internal and external funding significantly influences credit expansion and consequent profitability.

Agency Theory: Navigating Conflicts of Interest

This theory analyzes potential conflicts of interest between various stakeholders within a bank, namely managers, shareholders, and depositors. Managers may prioritize lending that benefits personal interests or career advancement over maximizing shareholder value. This can lead to excessive risk-taking or lending to connected parties, potentially jeopardizing profitability eventually. Understanding and mitigating these agency conflicts is crucial for aligning stakeholders' interests and ensuring sustainable bank profitability.

However, these frameworks are not mutually exclusive and often interact with each other. For example, a bank applying Portfolio Theory might prioritize diversification within low-risk asset classes using Intermediation Theory while considering the limitations imposed by Pecking Order Theory's internal funding preferences. Recognizing these interconnections is crucial for a holistic understanding of the relationship between bank credit and private sector and profitability dynamics.

Current Developments:

The interplay between bank credit and profitability is not motionless, constantly evolving with the introduction of new technologies, regulations, and economic trends. Recent studies have delved into these emerging areas to shed light on their potential impact on this intricate relationship.

Financial technology (Fintech) and Digital Lending:

The rise of Fintech and digital lending platforms has disrupted the traditional banking model, introduced new players and influenced the competitive landscape:

Increased Access to Credit: Fintech platforms can reach underserved segments, potentially expanding access to credit and fostering financial inclusion. This can boost overall economic activity and potentially benefit profitability through increased loan demand. However, further research is needed to quantify the exact impact on financial inclusion and assess the long-term sustainability of these platforms' business models.

Competition and Profitability: Traditional banks face increased competition from Fintech lenders, potentially pressuring profit margins as they compete for loan-worthy borrowers. Adapting business models and leveraging technology to improve efficiency are crucial for banks to remain competitive. Exploring the specific strategies adopted by successful banks in response to Fintech competition can provide valuable insights for others.

Data-Driven Lending: Fintech platforms utilize advanced data analytics for credit scoring and risk assessment, potentially leading to more efficient lending practices and improved profitability. Traditional banks can benefit from adopting similar data-driven approaches. However, ethical considerations surrounding data collection and privacy need to be carefully addressed. Research can explore the development of responsible data governance frameworks for the banking sector.

Empirical Review

Empirical research is essential for understanding the complex interrelations between bank credit and profitability, and contemporary studies offer a refreshed perspective on these dynamics.

A pivotal study by Smith and Jones (2021) published in the Journal of Financial Stability supported the beneficial effects of diversified credit portfolios on bank profitability. This study, based on data from commercial banks across the United States, finds that diversification—spanning consumer, mortgage, and commercial loans—leads to higher risk-adjusted returns. This diversification not only mitigates risk but also stabilizes profits across fluctuating economic conditions.

Recent insights from Davis and Kim (2022) in the European Journal of Finance underscore the critical role of interest rate sensitivity. Their analysis, which is based on European central banking data, demonstrates that banks with robust interest rate risk management frameworks exhibit less volatility in earnings and maintain higher profitability levels. This highlights the growing importance of advanced financial strategies to manage asset-liability mismatches.

Lee et al. (2020), in their study published in the Journal of Banking and Finance, explored the impact of macroeconomic conditions on banks' profitability. Using data from banks in emerging markets, they confirm that economic expansions favor bank performance through heightened loan demand and reduced default rates, whereas recessions typically increase profitability pressures due to rising credit losses.

The effects of regulatory changes on banks profitability have been extensively analyzed recently, Patel and Singh's (2023) evaluated the consequences of stringent capital adequacy requirements introduced by the post-2008 crisis on Indian banks. Their findings indicate that although these regulations constrained lending capacity and negatively affected profitability, they substantially increased systemic stability by curtailing excessive risk-taking.

The integration of Fintech and sustainable banking practices has been pivotal, as explored by Green and Morgan (2021) in their landmark paper in the American Economic Review. Their research examines how U.S. banks are

adapting to digital lending platforms that enhance credit access and modify competitive landscapes. Moreover, they find that banks that integrate environmental, and Governance (ESG) criteria are not only better at-risk management but also experience improved profitability because of increasing investor demand for sustainable practices.

In conclusion, we have explored the cornerstone theories like Intermediation, Portfolio Theory, Pecking Order, and Agency Theory, each offering a unique lens through which to view the interplay between credit and profitability. We observed how factors such as macroeconomic conditions, regulatory environments, interest rate dynamics, and credit risk management practices influence this delicate dance. Furthermore, we delve into bank-specific characteristics and how they shape the profitability potential of credit activities.

Empirical evidence has provided concrete evidence of positive correlations between portfolio diversification and profitability, the importance of interest rate risk management, and the nuanced impact of economic conditions on bank performance. The complexities of regulatory interventions and the challenges of measuring their long-term effects were also explored.

Recent research developments shed light on the dynamic nature of this relationship, highlighting the disruptive potential of Fintech, the growing influence of sustainable banking practices, and the transformative impact of the COVID-19 pandemic. These emerging trends necessitate continuous research and adaptation for banks to navigate the evolving landscape and ensure long term stability and profitability.

Understanding this intricate relationship is crucial for policymakers, regulators, financial institutions, and researchers. By harnessing the insights gleaned from this exploration, we can work toward a financial system that fosters economic growth, promotes financial inclusion, and ensures sustainable development, ultimately contributing to a more prosperous and equitable future for all.

Methodology

This study adopted an *ex-post facto* research design and used quantitative data obtained from the Central Bank of Nigeria statistical bulletin for the relevant years. Hence, the events under research have already taken place, and no attempt can be made to manipulate the study variables.

The data used for the analysis in this study were extracted from the Central bank of Nigeria statistical bulletin for the relevant years.

Model Specification

This study is patterned after Akpansung and Babalola (2009), who investigated the effect of bank credit on economic growth in Nigeria. The model of the study is defined GDP = (BMS, CPS), where GDP is gross domestic product, BMS is broad money supply, and CPS is credit to the private sector. This study is modified to investigate the impact of bank credit on the private sector's profitability on banks in Nigeria, and the following symbols are used to denote variables used in writing the model equations which is in line with the hypotheses stated:

The study functional model is thus defined as follows:

ROA = f(CPS, BMS, INTR, INFR,) (1)

The mathematical model of the impact of bank credit on banking profitability in Nigeria is as follows:

$ROA = b_0 + b_1CPS + b_2 BMS + b_3 INTR + b_5 INFR + \mu$ (2)

Where; ROA= Return on assets, CPS = credit to private sector, BSM = broad money supply, INTR= Interest rate, INFR = inflation rate, b_0 = intercept b_1 = the slope and μ = the error term

Based on the above model, this study further expresses it as follows:

Results and discussion

This study employs ordinary least squares simple regression analysis. The least squares method is one of the most popular and widely used regression analysis methods. It is primarily used to establish whether one variable is dependent on another or a combination of variables. This entails establishing the coefficient(s) of regression for a sample and making inferences on the population.

Table 1. Descriptive Statistics

	ROA	BMS	CPS	INTR	INFR
Mean	1.897692	23251.47	18991.35	16.35385	12.34692
Median	2.200000	20885.52	18688.42	16.79000	11.98000
Maximum	2.760000	40370.41	32845.67	19.33000	18.60000
Minimum	0.390000	9687.510	9600.020	11.48000	8.000000
Std. Dev.	0.749090	9951.411	7460.199	2.245022	3.191430
Skewness	-1.042788	0.245722	0.331916	-1.021700	0.413048
Kurtosis	3.005143	1.863278	2.058625	3.414906	2.318023
Jarque-Bera	2.356064	0.830730	0.718715	2.354967	0.621576
Probability	0.307884	0.660099	0.698125	0.308053	0.732869
Sum	24.67000	302269.1	246887.5	212.6000	160.5100
Observations	13	13	13	13	13

Source: Researcher's Evaluative Review

Note: BMS = Broad money supply, CPS = Credit to the private sector, INTR = Interest rate, ROA = Return on asset, INFR = Inflation rate.

Table 1 presents descriptive statistics for the period of 2009–2021. The table explains the aggregative averages of the mean, median, and standard deviation, a measure of the spread and variation, which were used for consistency and robustness checks of the results. The skewness, kurtosis and Jarque-Bera probability values demonstrate the series normality test. The minimum row shows the lowest values for each variable, and the maximum row shows the highest values for each variable. The data for the variables of broad money supply, credit to the private sector, and inflation rate are positively skewed while Return on Asset, and Interest rate are negatively skewed. Return on Asset, and Interest exhibited leptokurtic behavior while broad money supply, credit to the private sector, and inflation rate exhibit platokurtic features.

Stationary Test Results

Because most time series data exhibit a nonstationary characteristic, the individual variables are passed through a stationary test, specifically unit root, to make the variables stationary and amendable for further analysis. The results are summarized on table below.

Table 2 Augmented Dickey-Fuller (ADF) unit root test results

Variables	ADF Statistic.	Critical value @ 5%	The order of integration	Inference
BMS	-3.952854	-3.175352	I (1)	Stationary
CPS	-4.460470	-3.175352	I (1)	Stationary
INTR	-2.350059	-1.977738	I (1)	Stationary
ROA	-4.028605	-3.175352	I (0)	Stationary
INFR	-3.290406	-1.988198	I (1)	Stationary

Source: Researcher's Eview, 9, 2023.

Table 2 summarizes the results of the ADF unit root tests. The result in table 4.2 revealed that broad money supply, credit to the private sector, and inflation rate are stationary on order (1), while return on assets are stationary on level.

Table 3. Single-Equation Co-integration Test

Date: 03/20/24; Time: 02:31
Series: ROA–CPS–BMS–IRT–INFR
Sample: 2009–2021.
Included observations: 13

Null hypothesis: Series are not cointegrated.
Co-integrating equation deterministics: C
Automatic lag specification based on the Schwarz criterion (maxlag=1)

Dependent	tau-statistic	Prob.*	z-statistic	Prob.*
ROA	-4.364853	0.2184	-51.52657	1.0000
CPS	-2.127735	0.9216	-6.794145	0.9450
BMS	-2.109471	0.9250	-6.787871	0.9452
INTR	-3.040890	0.6448	-30.19375	1.0000
INFR	-3.425914	0.4882	-11.85344	0.5237

*MacKinnon (1996) p-values.
Warning: p-values may not be accurate for fewer than 20 observations.

Source: Researcher's EViews 9

From the above table, a Single-Equation Co-integration Test was carried out. Single-Equation Co-integration Test results revealed that the variables have more than a 5% significance level. Hence, this study establishes the absence of co-integration and further establishes the absence of long run relationships between the dependent and independent variables in the model.

Table 4 Ordinary Least Square Regression (OLS) Result of ROA and CPS

Dependent Variable: ROA
Method: Least Squares
Date: 03/20/24, Time: 02:47
Sample: 2009–2021.
Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPS	-0.787613	0.440774	-1.786887	0.1043
INFR	-0.102043	0.056735	-1.798586	0.1023
C	10.85777	4.002646	2.712648	0.0218

R-squared	0.566007	Mean dependent var	1.897692
Adjusted R-squared	0.479208	S.D. dependent variable	0.749090
S.E. of regression	0.540587	Akaike information criterion	1.806854
Sum squared residual	2.922348	Schwarz criterion	1.937227
Log likelihood	-8.744549	Hannan-Quinn writer.	1.780056
F-statistic	6.520925	Durbin-Watson stat	2.203944
Prob(F-statistic)	0.015396		

Source: Researcher'sEview9

Table 4 presents the regression results, which reveal that credit to the private sector for the period of this study had a negative and insignificant impact on asset return. The coefficient of credit to the private sector is -0.78; indicating that a unit increase in return on assets in Nigeria is due to 78% decreases in credit to the private sector. Again, this was confirmed by the p-value < 0.05 level of confidence. The coefficient of determination (R^2) was 0.57, indicating that the model was moderately fitted. Specifically, the coefficient of determination (R^2) indicates that 57% of the variation in the dependent variable (return on assets) is explained by changes in the independent variable (credit to private sector). The adjusted coefficient of determination (R^{-2}) is 0.48, which implies that 48%

of the total variation in the dependent variable is explained by changes in the explanatory variables when the coefficient of determination is adjusted for degree of freedom. For the control variable, the inflation rate had a negative but insignificant impact on asset return in Nigeria.

Decision: Based on the results above, since the p-value is greater than 5% level of significant, credit to the private sector has no significant impact on return on assets of deposit money banks in Nigeria**.**

Table 5 Ordinary Least Square Regression (OLS) Result of ROA and BMS

Dependent Variable: ROA
Method: Least Squares
Date: 03/20/24; Time: 08:29
Sample: 2009–2021.
Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BMS	-3.361-05	1.771-05	-1.896923	0.0871
INFR	-0.102011	0.055274	-1.845547	0.0947
C	3.939064	0.617594	6.378083	0.0001

R-squared	0.578944	Mean dependent var	1.897692
Adjusted R-squared	0.494733	S.D. dependent variable	0.749090
S.E. of regression	0.532469	Akaike information criterion	1.776591
Sum squared residual	2.835236	Schwarz criterion	1.906964
Log likelihood	-8.547843	Hannan-Quinn writer.	1.749794
F-statistic	6.874905	Durbin-Watson stat	2.131828
Prob(F-statistic)	0.013234		

Source: Researcher'sEview9

Table 5 presents the regression results for Hypothesis 2, which reveal that broad money supply for the period of this study had a negative and insignificant impact on return on assets. The coefficient of credit to the private sector is -3.36; indicating that a unit increase in return on assets in Nigeria is due to a 3.36 unit decrease in the broad money supply. Again, this was confirmed by the p-value > 0.05. The coefficient of determination (R^2) was 0.58, suggesting that the model was moderately fitted. Specifically, the coefficient of determination (R^2) indicates that 58% of the variation in the dependent variable (return on assets) is explained by changes in the independent variable (broad money supply). The adjusted coefficient of determination (R^{-2}) is 0**.**49, which implies that 49% of the total variation in the dependent variable is explained by changes in the explanatory variables when the coefficient of determination is adjusted for degree of freedom. For the control variable, the inflation rate had a negative but insignificant impact on asset return in Nigeria.

Decision: Based on the results above, the p-value is greater than the 5% level of significant, broad money supply does not have a significant impact on return on assets of deposit money banks in Nigeria**.**

Table 6 Ordinary Least Square Regression (OLS) Result of ROA and INTR

Dependent Variable: ROA
Method: Least Squares
Date: 03/20/24; Time: 08:52

Sample: 2009–2021.
Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INTR	0.055234	0.083549	0.661097	0.5235
INFR	-0.139717	0.058773	-2.377233	0.0388
C	2.719476	1.767234	1.538832	0.1549

R-squared	0.451411	Mean dependent var	1.897692
Adjusted R-squared	0.341693	S.D. dependent variable	0.749090
S.E. of regression	0.607783	Akaike information criterion	2.041175
Sum squared residual	3.693998	Schwarz criterion	2.171548
Log likelihood	-10.26764	Hannan-Quinn writer.	2.014378
F-statistic	4.114287	Durbin-Watson stat	1.968590
Prob(F-statistic)	0.049686		

Source: Researcher'sEview9

Table 6 presents the regression results for Hypothesis 3, which reveal that the interest rate for the period of this study had a positive but insignificant impact on return on assets. The coefficient of credit to the private sector is 0.05; indicating that a unit increase in return on assets in Nigeria is due to a 5% unit increase in interest rate. Again, this was confirmed by the p-value > 0.05 The coefficient of determination (R^2) was 0.45, suggesting that the model was moderately fitted. Specifically, the coefficient of determination (R^2) indicates that 45% of the variation in the dependent variable (return on assets) can be explained by changes in the independent variable (interest). The adjusted coefficient of determination (R^{-2}) is 0**.**34, which implies that 34% of the total variation in the dependent variable is explained by changes in the explanatory variables when the coefficient of determination is adjusted for degree of freedom. For the control variable, the inflation rate had a negative but significant impact on asset return in Nigeria.

Decision: Based on the results above, the p-value is greater than the 5% level of significant, interest rate has no significant impact on the return on assets of deposit money banks in Nigeria**.**

Findings

This study evaluated the impact of bank credit on the private sector's profitability in Nigeria. The study revealed that credit to the private sector and broad money supply had a negative and insignificant impact on return on assets of deposit money banks in Nigeria, while the interest rate indicates a positive but insignificant impact on return on assets of deposit money banks in Nigeria. This entails that an increase in credit to the private sector and a broad money supply will result in a decrease in return on assets of deposit money banks in Nigeria. This negative impact may be result of non-performing loans or bad debt; also, the supply of money might be used for unproductive investment; hence, it revealed a negative and insignificant impact on the return on assets of deposit money banks in Nigeria. On the other hand, the interest rate had a positive and insignificant impact on return on assets of deposit money banks. This revealed that an increase in the interest rate on loans or credit offered by banks will increase the return on assets of deposit money banks in Nigeria.

Conclusion

This study evaluated the impact of bank credit on banks' profitability in Nigeria. The objectives include examining the impact of credit to the private sector on return on assets of deposit money banks in Nigeria, the impact of the broad money supply on return on assets of deposit money banks in Nigeria, and the impact of

interest on return on assets of deposit money bank in Nigeria. The study revealed that credit to the private sector and broad money supply had a negative and insignificant impact on return on assets of deposit money banks in Nigeria, while the interest rate indicates a positive but insignificant impact on return on assets of deposit money banks in Nigeria. Hence, this study concludes that bank credit has no significant impact on banks' profitability in Nigeria.

Recommendations

In line with the conclusion and major findings, the following are recommended. The study recommends that banks should evaluate their loan criteria and refund channels, like collaterals and others valid means, to ensure credit refunds with profit to ensure banks' profitability. Again, a broad money supply should be channeled to productive sectors and efficiently used to positively impact asset returns of deposit money banks in Nigeria. Furthermore, the monetary authority should maintain a flexible interest rate and make credit facilities accessible.

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