



# Analysis of the Impact of Bank-Specific Characteristics, Industry Structure and Macroeconomic Factors on the Profitability of Listed Deposit Money Banks in Nigeria

Lateef Olabisi Adedeji<sup>1</sup> and Khadijat Adedeji-Olona<sup>2</sup>

<sup>1</sup>Department of Banking and Finance, Faculty of Financial Studies, Osun State Polytechnic, Iree, Osun State Nigeria.

<sup>2</sup>Department of Broadcasting, Faculty of Communication and Media Studies, Lagos State University.

Date of Submission: 08-04-2025

Date of Acceptance: 17-04-2025

## Abstract

This study analyzed the impact of the bank-specific, industry related and macroeconomic factors on the profitability of listed deposit money banks in Nigeria between 2006 and 2024. The study employed panel data and multiple regression models (Random-Effect, Fixed Effect and Pooled Ordinary Least Square Models) and Pairwise granger-causality test to examine the impact and causality links between bank profitability determinants and profitability. The dependent variable in this study was net interest margin (NIM), while the independent variables were management efficiency (ME), capital strength (CAPS), market share (MKS), banking sector development (BSD), and interest rate spread (INTS). The findings of the study showed that all the bank-specific, industry related, and macroeconomic variables significantly impacted the profitability of deposit money banks in Nigeria. Specifically, the efficient operating expense management, capital strength, interest rate spread and market share significantly and positively impact the profitability of Nigerian deposit money banks. However, the development in the Nigerian banking sector significantly and negatively affects profitability, potentially increasing costs and resulting in lower long-term profitability. The study also found a bidirectional, positive causal relationship between capital strength, market share, banking sector development interest rate spread, and net interest margin, but no causality link between management efficiency and profitability. The recommendations therefore, emphasize prudent management practices and financial theory conformity for Nigerian deposit money banks to improve profitability, stability, and sustainability, ultimately benefiting the economy.

**Keywords:** Profitability, management efficiency, capital strength, market share, banking sector

development, industry structure and macroeconomic.

## I. Introduction

The banking system's efficiency and resilience are crucial for economic growth, creating capital, providing financial services, and fostering investment (Oke&Onwere, 2023; Ayodeji, Vusani & Ntungufhadzeni, 2022). According to Al-Harbi (2019), the financial sector plays a crucial role in assigning capital to initiatives that foster economic growth and lessen income inequality in developing nations including Nigeria. Nigerian banks also showed tenacity and adaptation in the face of a variety of difficulties, which aided in the nation's economic growth and the expansion of its financial industry. The banking industry in Nigeria has faced numerous reforms and high operating environment volatility, necessitating periodic assessment of factors influencing profitability. This is crucial for achieving economic growth and sustainability, as profitability significantly impacts bank stability and performance. Therefore, for banks to improve its performance, the operators must aware and understand those bank-specific, industry-related and macroeconomic factors, that affect the entire industries. However, literature on this topic primarily focuses on the effects of one of these factors hence, there is the need for comprehensive research for more understanding and effective financial management of bank.

Profitability is essential to the banks' ability to stay in business, particularly in the face of erratic political or economic conditions (Maredza, 2014). The resilience and financial stability of banks within the financial system are demonstrated by their capacity to withstand adverse pressure (Iskandar, Che-Yahya, and Wahid (2019). Furthermore, as demonstrated by Neupane (2020), a financially stable banking industry can survive negative shocks better than unprofitable ones.



Identifying primary drivers of deposit money bank profitability helps design policies for Nigeria's banking sector (Adeusi et al., 2014). Many scholars such as Zerihun (2021); Bolarinwa, Obembe and Olaniyi (2021), argue that internal structure, managerial effectiveness, industry-wide variables, and macroeconomic variables contribute to profitability. Recent advances in the field have also demonstrated that these factors are crucial for bank profitability (Okere, Uzowuru, and Uzokwe, 2022). According to Oke and Onwere (2023); Afriye (2022), regulatory interventions, such as capital adequacy requirements, liquidity standards, and loan classification norms, also influenced banks' operational strategies and profitability performances while studies by Asikhia and Sokefun (2013); Adeusi, Kolapo and Aluko (2014); Sanyaolu (2019) on the determinants of profitability of deposit money banks in Nigeria has shown that bank-specific and macroeconomic factors such as bank size, non-performing loans, capital adequacy, gross domestic product and inflation significantly impact profitability. However, these studies on Nigerian deposit money banks' profitability determinants were limited by excluding industry-related factors and other potential determinants.

According to Masindi (2022), Masindi (2022) identified the internal determinants as micro or bank-specific factors that can be controlled by the bank management while ..... ( ) identified industry structure as factors related to banking industry generally but the external determinants are macroeconomic factors that are unrelated to bank management but represented the legal and economic environment that influences the operation and performance of banks. Despite numerous studies on these factors, there are few comprehensive researches on Nigerian banks' profitability at both industry and macroeconomic levels.

Despite the plethora of studies on the effect of firm-specific, industry-level, and macroeconomic factors on the profitability performance of deposit money banks in developed and developing countries, there exists a dearth of extensive researches that comprehensively examined the various factors at the industry-level and macroeconomic level that affects the profitability of banks in Nigeria. The few studies in Nigeria such as Onuorah (2023), Bolarinwa, Obembe, and Olaniyi (2021), Okere, Uzowuru, and Uzokwe (2022), and Nyoka (2019) have shown mixed and inconclusive results on profitability determinants of banks hence, lacking clear policy guidance. This has led to growing scholarly discussion on the direction of policy for successful banking sector performance.

Despite the crucial roles that Nigeria's banking sector plays in promoting economic growth and development, there are a number of macroeconomic issues that affect the country, such as the large disparity between interest payments on bank deposits and receipts on loans and advances, as well as other external factors and industry-level and bank-specific factors that significantly impact the profitability of banks (Ozili, 2021; Abdilahi & Davis, 2022; Ayodeji et al., 2022). In the light of these challenges and complexities, a thorough impact analysis is imperative to determine the ways in which macroeconomic factors, such as interest rate spread, industry-level factors, such as market share and structure, and bank-specific factors, such as capital strength and management effectiveness, influence changes in Nigerian banks' profitability as indicated by net interest margin.

## 1.2 Statement of the Problem

Despite extensive reforms in Nigeria's banking sector, banks' financial performance remains very low and have not improved over the years (Abdilahi, Davis, 2022). This is attributed to low capital strength, high interest rate spreads, market concentration, competition, poor asset quality, and operational inefficiencies (Bolarinwa, Obembe, & Olaniyi, 2021; Sanyaolu et al. (2019). In addition, the Nigerian banking sector has witnessed numerous regulatory changes and competitive pressures due to small size of their assets in recent years, which have also resulted in low bank profitability (Ozili, 2021; EIB, 2022; Masindi, 2022).

Numerous studies have explored profitability determinants, but their definitions vary across different studies, indicating a mismatch between variables. While net interest margin was used as a dependent variable in some studies (Ozili, 2021), Agori et al. (2019), Edi and Edi (2022), and Raza et al. (2019), the same net interest margin was also proxied for profitability determinants in studies like Afriye (2022) and Masindi (2022).

The majority of banking studies, including Sanyaolu et al. (2019) and Adeusi et al. (2014), have noted that capital ratio, market structure, operational efficiency, and expense control are crucial elements in attaining high profitability, even when the appropriate profitability metrics are ignored. However, the results of studies such as Onuorah (2023), Bolarinwa, Obembe, and Olaniyi (2021), Okere, Uzowuru, and Uzokwe (2022), and Nyoka (2019) were contradictory and inconclusive because some of them only considered a limited set or single measure of banks profitability indicators



like return on equity and return on assets while the net interest margin, on the other hand, which represents the difference between deposit costs and loan income, was disregarded.

Despite the fact that research on the determinants of bank profitability has been done in both developed countries (Farkasdi, Septiawan, and Alghifari, 2021; Xu, Hu, and Das, 2019; Connell, 2023) and developing countries (Abdilahi and Davis, 2022; Muraina, 2019; Masindi, 2022; Afriyie, 2022; Oke and Onwere, 2023)), studies have shown that the profitability performance of banking firms is significantly impacted by industry structure, macroeconomic factors, and bank-specific characteristics, the results cannot be replicated. This is due to environmental disparities, historical periods, variable exclusions, and methodological flaws in the existing literature, more research is still needed in Nigeria. The main objective of this study is to empirically investigate impact analysis in order to determine the ways in which these macroeconomic, industry-level, and bank-specific factors affect the profitability of banks and whether there is a causal relationship between the profitability of Nigerian deposit money banks and its determinants.

### 1.3 Research Questions

The study will provide answer to the following research questions:

- i. To what extent does the bank-specific, industry-related and macroeconomic factors impact the profitability of listed deposit money banks in Nigeria?
- ii. Do any of the bank-specific, industry-related and macroeconomic factors Granger-cause the listed deposit money banks' profitability in Nigeria?

### 1.4 Objectives of the Study

The main objective of this study is to investigate the impact of bank-specific, industry-related and macroeconomic factors on the profitability of deposit money banks in Nigeria from 2001 to 2023. The specific objectives of the study are to:

- i. To evaluate the extent to which bank-specific, industry-related and macroeconomic factors influence the profitability of listed deposit money banks in Nigeria.
- ii. To determine whether or not bank-specific, industry-related and macroeconomic factors granger-cause the profitability of listed deposit money banks in Nigeria.

### Statement of Hypotheses

- i. There is no significant influence of the bank-specific, industry structure and macroeconomic factors influence the profitability of listed deposit money banks in Nigeria.
- ii. Bank-specific, industry-related and macroeconomic factors do not Granger-cause the profitability of listed Deposit Money Banks in Nigeria.

### 1.5 Significance of the Study

With the recent financial and economic crises having a significant impact on Nigeria's banking sector, it is more crucial than ever to investigate the factors that influence bank profitability. Although there have been many studies on the factors that influence bank profitability in both industrialized and developing nations, there is a dearth of this kind of research done in Nigeria. This study adds to the body of knowledge on the factors that influence bank profitability by concentrating on the effects of macroeconomic, industry-level, and bank-specific factors on the profitability of deposit money banks in Nigeria. According to theory, this study adds to the growing corpus of work on the factors that influence bank profitability.

As it highlights the significance of operational efficiency in boosting profitability for commercial banks, resulting in higher market power and exceptional performance, meaning that more profitable banks being more effective. From a practical viewpoint, the existing empirical results from different studies are largely mixed, inconsistent, and inconclusive. Thus, the findings of this research will provide valuable understanding of the nation's banking industry. Banks will be able to use the variables they have discovered as inputs into their policies and assess their significance. Strong macroeconomic and monetary policy performance at the national level is therefore largely dependent on the soundness of financial systems, particularly the banking system.

The study also used a robust econometric panel data Random effect estimation to analyze profitability in Nigerian banks with the aimed to providing a deeper understanding of profitability determinants and enabling informed policymaking. That is, the findings of the study will help regulators, policymakers, bank management, and other stakeholders to understand which variables to target in formulating policies that enhance bank performance, thereby promoting stability in the banking system. Finally, bank management and shareholders will find the study's conclusions useful in determining the external and internal critical



elements for maximizing profits, which ultimately contribute to bank stability.

### 1.6 Scope of the Study

This paper examines how the profitability of Deposit Money Banks (DMBs) listed on the Nigerian Stock Exchange from 2006 to 2023 is impacted by industry structure, bank-specific features, and macroeconomic factors. The distinctive characteristics of their obligations, market structure, and regulatory frameworks led to the selection of Nigerian DMBs as the study's focus. Additionally, despite the banking industry's substantial contribution to Nigeria's economic growth and development, there have been very few studies in this field of study pertaining to the country.

Furthermore, the study's timeframe of 2006 to 2023 was chosen in order to cover the post-bank consolidation period, as well as the periods during and following the various financial and economic crises. Also, the study the period of the banking sector reforms that continue to be controversial in Nigeria's banking industries up till date. This is because all these have contributed to changes to the financial structure, strength and number of deposit money banks in Nigeria.

### 1.7 Organization of the Study

The paper is structured as follows: the first part covered the paper's background, and the second part covered the review of related literature, specifically the general conceptual, theoretical, and empirical reviews of bank-specific, industry structure, macroeconomic factors, and deposit money banks' profitability. The third part focused methodology like the study's mathematical model, variables measurement, data gathering sources, and analysis. Discussions and a result analysis are included in the fourth part and finally, conclusion, recommendations and suggestions for additional research are made fifth part.

## II. Review of Literature

### 2.1 Conceptual Review

#### 2.1.1 Profitability Determinant

Profitability determinant are the elements that propel profitability of any corporate organizations including banks, and these factors include internal (bank-specific), and external (industry-related, macroeconomic) factors (Connell, 2023; Yuan et al., 2022; Ozili, 2021).

#### 2.1.2 Bank-Specific (Endogenous) Factors

Bank-specific characteristics refer to internal factors that influenced management decisions and policy

objectives on the profitability of banks. That is, internal factors, such as capital strength and management efficiency are observed for the study. These factors are specific to the bank and directly controlled by bank management, forming bank-specific drivers (Nuhiu, Hoti&Bektashi, 2017; Al-Harbi, 2019).

#### Management Efficiency

According to San and Heng (2013), the efficiency ratio measures a bank's management performance by comparing total operating expenses to total assets. It can also be used to evaluate a bank's cost effectiveness by dividing operating expenses by total income or revenue of the bank. To improve the efficiency ratio, strategies like cost reduction, revenue increase, or a combination of both are necessary. The study by Zerihun (2021) highlights the importance of management efficiency in improving financial performance and operational efficiency in commercial banks. It also highlights the moderated association between sustainable competitive advantage and long-term performance. For the purpose of this study, management efficiency is expressed as the ratio of operating expenses to total assets. It is expected to have positive influence on the profitability of banks.

#### Capital Strength

Deposits, retained earnings, and securities make up bank capital, which acts as a safety net for both creditors and depositors. Tier-One capital (share capital) is the most susceptible to losses, and it can be quantified using capital adequacy ratios and risk-weighted assets. Capital adequacy, according to San and Heng (2013), is a bank's ability to manage financial risks, lower its need for outside funding, and boost profitability. The equity to total asset ratio is used in this study to gauge capital strength in accordance with Neupane's (2020) research.

#### 2.1.3 Industry Related (Exogenous) Factors

Market structure, banking sector development, and industry size are a few examples of industry level variables (Ferrouhi, 2018; Al-Harbi, 2019; Danişman, 2022; Wu, Guo, Chen & Jeon, 2019). The study examined market structure and banking sector development influences on the profitability of banks.

#### Market Structure / Share

Market structure is measured by market share, which is a measure of a bank's relative market power. It is calculated by dividing a bank's total assets by all banking industry total assets in Nigeria (Mirzaei, Liu and Moore, 2011). According to Genchev (2012), there is a positive relationship between market structure and bank profitability.



### **Banking sector development (industry size)**

The banking sector development is defined as a measure of the ratio of banks' assets to GDP. It significantly influences profitability of bank either positively or negatively. A larger or developed sector may lead to higher competition, potentially lowering profitability (Yuan et al., 2022). However, it also offers opportunities like economies of scale, diversification, and increased funding access (Munyambonera, 2013). In developing countries, this can lead to enhanced profitability.

#### **2.1.4 Macroeconomic (Exogenous) Factors**

Macroeconomic variables are exogenous or external factors that are not under the control banks' management but can impact profitability of banks. These factors include interest rates, gross domestic product growth, inflation, interest and exchange rates. As found by San and Heng (2013), Ozili (2021), Muraina (2018), Ebenezer et al. (2017), and others, each of these had a distinct impact on the banks' profitability. The impact of interest rate spread on bank profitability was the sole focus of this study.

#### **Interest Rate Spread (INT)**

Interest rates significantly impact the banking industry, determining borrowing costs and earning interest. This study uses interest rate spread to assess deposit money banks' profitability. Interest rate spreads boost net interest margins, potentially reducing loan demand and pressure on banks' net interest margins (Windsor, Jokipii & Bussiere, 2023). Rising interest rates can also reduce loan demand. Higher real interest rates can result in better interest margins and profitability most especially in emerging nations.

#### **2.1.5 The Concepts of Profitability**

Muraina (2018) asserts that companies, including banks, use profitability as a key metric to analyze internal performance as well as efficiency, competitiveness, and economic contribution. It entails calculating net income after operating expenses are subtracted and assessing the potential for profit-making.

A primary goal for businesses, including banks, is to maximize profits in order to secure financial success (Olaoye & Olarewaju, 2015; Odusanya, Yinusa, & Bamidele, 2018). In the banking industry, accounting profit is essential for evaluating a company's financial health. To analyze the performance of the banks, common metrics such as return on equity, return on assets, net interest margin, efficiency ratios, and as well as net interest income, return on average equity, and return on average asset, are used as stand-ins for profitability. The net interest margin (NIM) is used as a stand-in for

banks' profitability in this study following studies in Ozili (2021); Edi and Edi (2022)

#### **Net Interest Margin**

One important measure of a bank's profitability and effectiveness in handling interest income and costs is the Net Interest Margin (NIM) (Munyambonera, 2013; Neupane, 2020). If asset quality stays high, it indicates greater profitability. It is computed by dividing net interest revenue by average interest-earning assets (Ozili, 2021; Agori et al., 2019; Edi & Edi, 2022; San & Heng, 2013). Banks with high non-performing assets risk decreased NIM due to uncertainties in repayment (Ebenezer et al., 2017). Rising interest rates increase funding costs, affecting net interest margins and loan demand. To manage this, banks must adjust lending policies and strategies.

#### **2.2 Theoretical Review**

The study examines profitability in banking firms using macroeconomic, industry-level, and firm-specific factors. Following existing studies in Athanoglou et al. (2008) and Osuagwu (2014), the study's underlying hypotheses for explaining market conditions and bank-specific traits were the efficiency hypothesis and the structure-conduct-performance (SCP) model.

##### **2.2.1 The Model of Structure, Conduct, and Performance (SCP)**

The model of structure-conduct performance was developed by Mason (1939) and Bain (1956), it suggests that industry structure influences firm behavior and performance. That is, market power, such as market concentration, affects conduct, pricing, and performance (Munyambonera, 2013). Bank profitability is determined by internal factors like size, capital strength, liquidity, efficiency, and market concentration, potentially leading to higher interest rate spreads and inefficient operations (Iacobelli (2017).

Mason (1939) suggests that market power can lead to profitability in banks. Higher market concentration allows fewer banks to set higher prices and lower costs, while a more developed industry promotes efficiency and capital accumulation. According to Munyambonera (2013); Obumuyi (2013), the theory suggests that bank profitability is influenced by external market factors and industry structure, with larger banks with differentiated products earning non-competitive profits.

##### **2.2.2 The Efficiency Hypothesis**

The Chicago School's alternative efficiency theories, including the X-efficiency model and Scale efficiency hypothesis, argue that market power and



profitability are primarily determined by a firm's efficiency and product differentiation, rather than concentration, leading to higher productivity and lower costs. The X-efficiency model, introduced by Leibenstein in 1966, suggests that firms can improve efficiency by optimizing resource utilization, leading to higher productivity and lower costs. The Scale Efficiency Hypothesis suggests that banks' profitability is influenced by economies of scale, with better management leading to increased concentration and higher profits. The efficient structure hypothesis suggests that market domination and control by strong enterprises may be primarily due to efficiency, benefiting from economies of scale.

The Scale Efficiency Hypothesis developed by Demsetz in 1973 suggests that banks' profitability is influenced by economies of scale, with better management leading to increased concentration and higher profits. It stressed further that market domination and control by strong enterprises may be primarily due to efficiency, benefiting from economies of scale (Iacobelli, 2017).

Nonetheless, the quiet life hypothesis suggests that banks may focus on cost efficiency or loan portfolio risk reduction, while the Efficiency Hypothesis suggests that high profitability and market share are achieved through superior cost management and operational efficiency, rather than market dominance. High capital strength in banks indicates efficient risk management, profitability, lower operating expenses, and competitive pricing, leading to narrower interest rate spreads and improved market share.

### 2.3 Empirical Review

The findings of earlier research works are examined to provide a thorough analysis of the empirical literature for this topic. To gain a thorough grasp of the elements that influence the profitability of deposit money banks in Nigeria, the review concentrated on a number of previous research on the factors that influence bank profitability in developed, developing countries, and Nigeria.

#### 2.3.1 Studies in Developed Countries

The study by Farkasdi, Septiawan, and Alghifari (2021) analyzed the profitability of five German commercial banks using multiple regression analysis between 2017 and 2020. Results showed that non-interest income, deposits, capital sufficiency, and asset size significantly increased profitability, with non-interest income being the main influencing factor. A study examining the factors influencing the profitability of the banking

industries in South Africa, Nigeria, and the US was carried out by Ozili (2021). Cost efficiency, non-performing loans, and the overhead cost ratio are among the major elements influencing the banking sector's profitability in the three nations, according to the study. Nigeria exhibits better net interest margin and return on assets as profitability metrics. Using net interest margin as a proxy for profitability, Edi and Edi (2022) examined the profitability of listed and non-listed banks in the Eurozone. The results of the study, which using panel data regression to examine data from a sample of 63 private-owned banks and 42 public-owned banks listed in OJK, demonstrated that market concentration, liquidity risk, and managerial effectiveness have a major influence on bank profitability.

Connell (2023) investigated the profitability determinants of UK commercial banks from 1998 to 2018. The study discovered that factors unique to each bank, aside from credit risk had a major impact on profitability. The SCP hypothesis, however, was not supported by any evidence. The business cycle, inflation, and interest rates were among the other factors that affected profitability.

#### 2.3.2 Studies in Developing Countries

The impact of several factors on net interest margin in the European banking industry between 2008 and 2014 was investigated by Angori, Aristei, and Gallo (2019). The study found that institutional and regulatory settings as well as the bank's market power, capitalization, interest risk, and efficiency level have an impact on the profitability of the bank measured by net interest margin. Raza, Saeed, and Hena (2019) studied the internal factors' impact on the profitability of 34 Pakistani banks from 2006 to 2016, using data from local private, public sector, foreign, and specialized banks, and using the Ordinary Least Square method. The results showed that asset size negatively impacts profitability, bank loans positively impact performance, capital positively affects NIM but negatively affects SR, and deposits do not significantly influence profitability.

The effect of macroeconomic, financial structure, and bank-specific factors on the profitability of banks in 47 Asian nations from 1995 to 2017 was investigated by Abdulazeez and Saif-Alyousfi (2020). The results show that bank profitability is highly influenced by macroeconomic indices as well as bank-specific factors. Additionally, atypical operations resulted in higher returns on equity, assets, and profit before taxes but reduced net interest revenue.



Using FRED data spanning 25 years, Ahmed and N'Dri (2021) examined the profitability of Ghanaian commercial banks and discovered that changes in the macroeconomic environment, along with macroeconomic variables like net interest margin, return on equity, and return on assets, have a significant impact on profitability. Zerihun (2021) investigated the effects of independent variables such bank size, capital ratio, and management effectiveness on profitability of banks in Ethiopia. The study found that management effectiveness significantly increases profitability, while capital ratio has no significant effect. Bank size negatively affects profitability, indicating that effectiveness is the main factor affecting profitability.

Sultan (2021) used panel data from 20 banks in Pakistan banks' profitability found that both internal and external factors significantly impact net interest margin apart from other key measures like return on equity, return on asset, and return on capital employed.

Afriyie (2022) examined the influence of net interest margin among other bank-specific characteristics on 400 commercial banks' profitability in 40 Sub-Saharan African countries from 2011 to 2018. The results showed that net interest margin (NIM) and net income (NIC) significantly impacted bank profitability positively while non-performing loans (NPL) and the cost to income ratio significantly impacted bank profitability negatively.

Masindi (2022) examined how macroeconomic and bank-specific factors affected the profitability of 33 banks in nine African countries between 2009 and 2019. The study found that, despite different regulatory and supervisory frameworks, there were conflicting effects of macroeconomic and bank-specific factors on bank profitability. Abdilahi and Davis (2022) investigated the factors influencing bank profitability in South Africa, Nigeria, and Kenya from 1990 to 2019. The macroeconomic, banking market, and bank-specific determinants influencing bank profitability in 240 banks spread throughout the three countries were identified by the study using a panel econometric technique with fixed effects at the bank level.

The effect of interest rates on bank profitability was investigated by Windsor, Jokipii and Bussiere (2023) using cross-country bank-level data. Finding of the study showed that interest rates have a significant impact on bank profitability, with variations depending on the economic context and regulatory environment of different countries.

Using a descriptive research approach and multiple linear regression model, Njoki and

Nyamute (2023) examined the determinants of the financial performance of Kenya's commercial banks and discovered that managerial effectiveness, capital adequacy, and asset quality had a negative impact on banks' profitability measured by return on assets (ROA)

### 2.3.3 Studies in Nigeria

Sanyaolu, Siynbola, Ogunmefun, and Makinde (2019) examined the profitability of ten Nigerian listed deposit money banks between 2008 and 2017. The results showed that while age had a negative effect on profitability, size, capital sufficiency, nonperforming loans, and loan to total asset had a positive effect.

Ojima and Ojima (2019) investigated factors affecting the profitability of Nigeria's commercial banks using secondary data and the Time Series technique as the methodology. The results showed that the main variables affecting the profitability of commercial banks were liquidity, asset quality, management effectiveness, bank size, and monetary policy rate.

Using time series data, Okere, Uzowuru, and Uzokwe (2022) examined the effects of bank-specific variables on the profitability of Nigerian deposit money institutions. The study found that asset quality had a significant effect on bank profitability while management efficiency, inflation, and capital adequacy had a negative effect. According to Rastogi, Sharma, Pinto, and Bhimavarapu (2022), market power, bank concentration, big banks, and a lack of competition all have a significant effect on the banks' profitability.

### 2.3.4 Research Gap

The factors affecting profitability are extensively researched, but the definition of profitability varies across different studies showed variables mismatch. For instance, studies like Afriyie (2022), Masindi (2022) used net interest margin as determinants of profitability whereas, this profitability indicator was used as dependent variable in (Ozili, 2021) Agori et al, (2019), Edi and Edi (2022), Raza et al. (2019) as dependent variables proxied for profitability.

The results of studies such as Onuorah (2023); Bolarinwa, Obembe and Olaniyi (2021); Okere, Uzowuru, and Uzokwe (2022); Olokoyo, Oyakhilome, Babajide, and Yinka-Banjo (2021) and Nyoka (2019) were mixed and inconclusive as some of the studies only considered a limited set or single measure of banks profitability performance metric like return on equity and return on asset or either



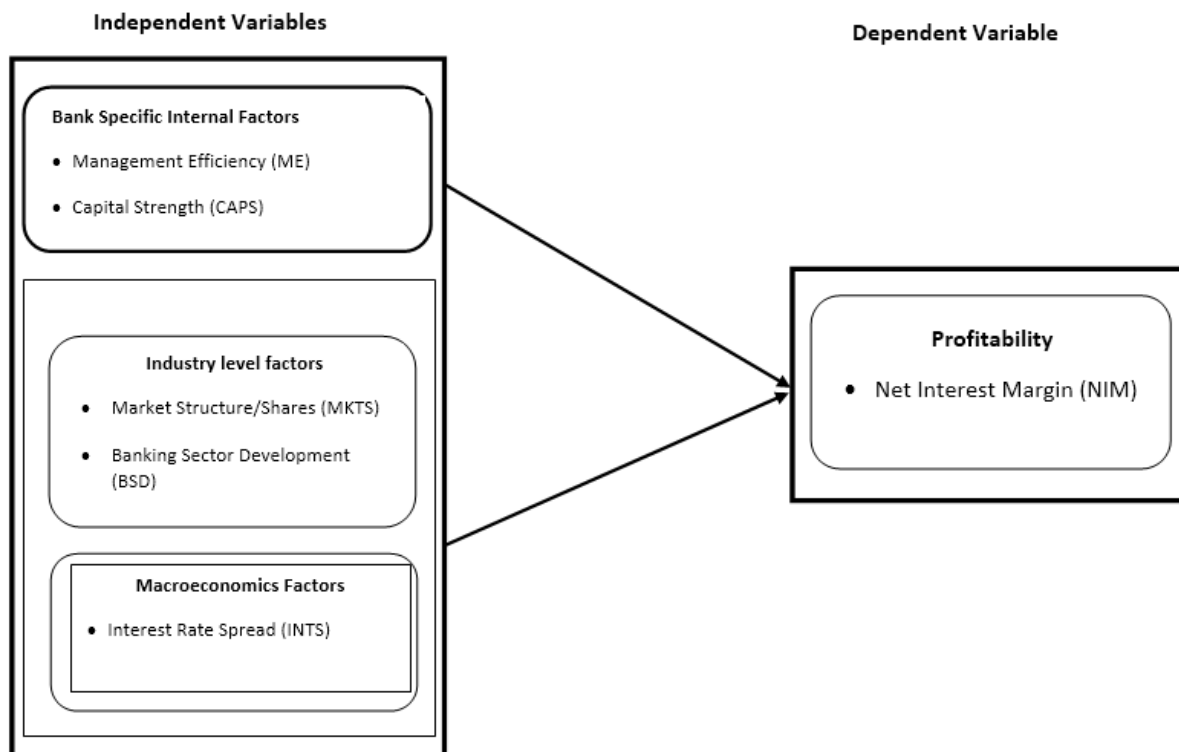
used only one of the two whereas, the net interest margin that captured the variance of income earned on loans and deposit interest expenses, was neglected. Notwithstanding the profitability metrics, most banking research has found that the capital ratio, market structure, operational efficiency, loan-loss provisions, and expense control are critical components in attaining high profitability (Sanyaolu et al., 2019; Adeusi et al., 2014).

Even though studies on factors influencing bank profitability conducted in both developed such as Xu, Hu, and Das (2019); Farkasdi, Septiawan, and Alghifari (2021); Connell (2023)) and developing nations like (Abdilahi and Davis (2022); Muraina (2019); Jayaprakash (2019); Masindi (2022); Afriyie, (2022), Oke and Onwere (2023)) have highlighted the significant impacts of bank-

specific characteristics, industry structure, and macroeconomic factors on banking firms' profitability performance, there is still the need for further researches in Nigeria due to environmental disparities, past time periods, variable exclusions, and methodological flaws identified in the existing literature.

### 2.5 Conceptual Framework/Model

Figure 2.5 presents a conceptual model linking independent variables, industry-specific, bank-specific, and macroeconomic factors, and dependent variables like profitability, revealing that management efficiency, banking sector development, market share, and interest rate spread influence profitability.



## III. Methodology

### 3.1 Research Design

This study analyzed quantitative and historical data on the factors that influence the profitability of deposit money banks in Nigeria using an ex-post facto research design and a quantitative research approach. Also, possible causative elements that the researcher could not control will be established with the use of this research design.

### 3.2 Population and Sample Size of the Study

The target population consisted of 15 deposit money banks that were operational between 2006 and 2023 and listed on the Nigerian Stock Exchange. Considering the size of the banks, purposeful, non-probability sampling is the method used. Consequently, only six of the biggest banks with the largest assets that were operating during the study periods and listed on the Nigerian Stock Exchange make up the sample size. This account for 40% of the target demographic. And the sampled banks are Access Bank, Guaranty Trust Bank, Union Bank of



Nigeria, United Bank for Africa, Zenith Bank, and First Bank Nigeria Holdings are the sampled listed DMBs

**3.3 Method of Data Collection**

This study obtained relevant secondary data from the financial statements and annual reports of the selected Nigerian listed deposit money banks from 2006 to 2023. The methodology of balanced panel data is employed because it controls cross-sectional heterogeneity, prevents false results, and offers more information and degrees of freedom with less collinearity among independent variables. Also, data pertaining to macroeconomics variables were obtained from the National Bureau of Statistics (NBS) and the Central Bank of Nigeria (CBN) yearly statistical bulletins.

**3.4 Method of Data Analysis**

The study used panel data and multiple regression models (Random-Effect Model, Fixed Effect Model, and Pooled Ordinary Least Square Model) to examine the impact of bank-specific, industry-related and macroeconomic factors on the Nigerian deposit money banks profitability. Following the study in Neupane (2020), descriptive statistics and correlation analysis were employed to describe profitability and its determinants. Diagnostic tests like unit root and normality tests were used to test stationarity and autocorrelation, while Pairwise granger-causality test examined causal relationships. Furthermore, the study used Lagrange multiplier (LM) test for random effects, F test for fixed effects, and Hausman specification test to determine the best between Fixed Effect and Random Effect Models for linear relationship estimation.

**3.5 Model Specification**

The study estimated the factors that influence bank profitability using a linear panel regression model, with macroeconomic, industry-specific, and bank-specific variables as independent variables and net interest margin as the dependent variable. This model based on the conceptualization from a similar study by Ahmad Al-Harbi (2018) and Neupane.

(2020). The specific models for the study are depicted in equations below:

$$\text{Profitability} = f(\text{Bank-specific factors, industry structure, macroeconomic factors}) \dots\dots(1)$$

This is specified in econometric model as:

$$\text{NIM}_{it} = \beta_0 + \beta_1\text{ME}_{it} + \beta_2\text{CAPS}_{it} + \beta_3\text{itBSD}_{it} + \beta_4\text{MKS}_{it} + \beta_5\text{INTS}_{it} + \text{Uit} \dots\dots\dots(2)$$

Where;

$\text{NIM}_{it}$  is the profitability measured by net interest margin for bank  $i$  in year  $t$ ;  $\beta_0$  is Constant;  $\text{ME}_{it}$  is management efficiency for bank  $i$  in year  $t$ ;  $\text{CAPS}_{it}$  represents capital strength for bank  $i$  in year  $t$ ;  $\text{MKS}_{it}$  is market structure/share for bank  $i$  in year  $t$ ;  $\text{BSD}_{it}$  also represent banking sector development/industry size for bank  $i$  in year  $t$ ;  $\text{INTS}_{it}$  is interest rate spread for bank  $i$  in year  $t$ ;  $\text{Uit}$  is standard error;  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  are coefficient of explanatory variables; while  $i$  and  $t$  represent bank and time specific effects.

A Priori Expectations in line with extant literature are:  $\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0, \beta_5 > 0$

It is expected that management efficiency  $\beta_1$ , capital strength  $\beta_2$ , banking sector development  $\beta_3$ , market share  $\beta_4$ , interest rate spread  $\beta_5$ , will positively related to profitability of the Nigerian deposit money banks within the period of study

**3.6 Decision Rule**

The decision to reject or accept is guided by statistical tests like F-statistic, t-test, Z-value, or chi-square, with p-values less than or equal to 0.05 often indicating evidence against the null hypothesis. The null hypothesis is accepted or rejected at a significance level of 5%.

**3.7 Description of variables**

The independent variables of the study include banks' management efficiency (ME), capital strength (CAPS), market share (MKS), banking sector development (BSD) and interest rate spread (INTS) while the dependent variable is proxied by profitability and this is measured by net interest margin (NIM). Table 3.1 showed detailed descriptions of all the concerned variables.

**Table 3.1: Measurement of Variables**

Variables	Acronyms	Measurements	Expected Effect	Previous Authors
<b>Dependent Variable</b>				
<b>Profitability</b>	<b>NIM</b>	Net interest income/Total assets		Masindi (2022). (Ozili, 2021) Edi and Edi (2022), Raza et al. (2019)
<b>Independent Variables</b>				



Internal - Bank-Specific Variables				
Management Efficiency	ME	Operating Expenses/Total Asset	+	Ozili (2021); Abdilahi& Davis (2022)
Capital Strength	CAPS	Equity capital/total asset	+	Yuan et al. (2022); Ozili (2021); Zhang Dong (2011) Munyambonera (2013)
External - Industry-level Variables				
Market share	MKTS	Banks' Total assets/Total banking industry Assets	+	Ozili (2021); Iacobelli (2017)
Banking sector Development	BSD	Ratio of the banks' total assets to gross domestic product Gdp	+	Jeon & Miller (2005); Yuan et al. (2022)
External - Macroeconomic Variables				
Interest Rate Spread	INTS	Lending rate – Deposit rate	+	Abdilahi& Davis (2022); Odusanya et al. (2018)

Source: Author's Computation (2025)

#### IV. Results and Discussion

##### 4.1 Descriptive Statistics

The study variables' mean, standard deviation, minimum, and maximum values are shown in Table 4.1. With the minimum and greatest values being 0.0171 and 0.0873, respectively, the chosen banks' NIM is 0.0473 and their standard deviation is 0.0149, showing low profitability of 5% and minimal data dispersion from the mean. This suggests that, during the study period, the performance of Nigeria's sectors has been more stable.

The study reveals high variation in management efficiency and profitability among Nigerian banks, with an average of 3% and a standard deviation of 2%, while capital strength values range from -0.1608 to 0.2602 and the mean value of 0.1352 as well as the standard deviation

value of 0.0503, showing high level of capital adequacy. The average level of banking sector development is relatively low with the mean value of 5.94% and a standard deviation of 5.73% which is almost equal to the mean, implying that there is high variability in the banking sector development across Nigerian while most banks have relatively low levels of development, a few have very high levels. The results also showed that most banks have a market share near 10.53% with a moderate variability. That is, the bank market is moderately spread while most banks' market share dataset assuming a roughly normal distribution. However, interest rate spread with a mean value of 7.5793 (7.58%) is narrowly deviating by 1.74% with minimum and maximum values of 3.2683 (3.27%) and 11.0642 (11.06%) respectively.

**Table 4.1 Descriptive Statistics**

Variables	Mean	Standard Dev.	Min	Max	Observations
NIM	0.0473	0.0149	0.0171	0.0873	108
ME	0.0316	0.0164	0.0131	0.0961	108
CAPS	0.1352	0.0503	-0.1608	0.2602	108
BSD	0.0594	0.0573	0.0042	0.3424	108
MKS	0.1053	0.0519	0.0243	0.3349	108
INTS	7.5793	1.7442	3.2683	11.0642	108

Source: Author's Computation (2025)



#### 4.2: Correlation Matrix

Table 4.2 displays correlation matrix results for this study, assessing bivariate relationships and ensuring explanatory variables' correlations are not excessively high, preventing multi-collinearity issues. The study found that net interest margin correlated positively with management efficiency, capital strength, and interest rate spread, while a negative association was found with market share and banking sector development. The results confirmed the absence of multicollinearity as all

variables' correlation coefficients are below 0.80 level.

#### 4.3: Unit Roots Tests

The ADF Fisher Phillips-Parron Fisher Unit Roots tests in Table 4.3 revealed that NIM, ME, CAPS, BSD, MKS, and INTS were stationary at first and second differences, indicating that using OLS regression techniques at levels would lead to spurious results. The best regression results were obtained using first and second differences of variables. The results also shows that the variables are all integrated of order one and two.

**Table 4.2: Correlation Matrix**

Variables	NIM	ME	CAPS	BSD	MKS	INTS
NIM	1					
ME	0.2295	1				
CAPS	0.4321	-0.0384	1			
BSD	-0.3872	-0.4266	-0.2939	1		
MKS	-0.1796	-0.3274	-0.2814	0.8708	1	
INTS	0,2273	0.0461	-0.0621	-0.1574	-0.0606	1

Source: Author's Computation (2025)

#### 4.3 Unit Roots Tests

**Table 4.3: ADF Fisher Phillips-Parron Fisher Unit Roots Tests**

Variables	ADF-Choi Z-stat	Level of Integration	PhillipsParronPPChoi Z-stat	Level of Integration	Remarks
NIM	-4.6101 (0.0000)	I(1)	-7.3017 (0.0000)	I(1)	Stationary
ME	-5.9160 (0.0000)	I(1)	-8.2907 (0.0000)	I(1)	Stationary
CAPS	-6.5107 (0.0000)	I(1)	-2.8679 (0.0021)	I(0)	Stationary
BSD	-3.0352 (0.0012)	I(2)	-1.7304 (0.0418)	I(2)	Stationary
MKS	-2.4552 (0.0070)	I(2)	-2.6743 (0.0037)	I(1)	Stationary
INTS	-4.3277 (0.0000)	I(0)	-8.2295 (0.0000)	I(1)	Stationary

Source: Author's Computation (2025)

**Table 4.4: Redundant Fixed Effects Tests-Likelihood Ratio**

Effect Test	Statistic	d.f	Prob.
Cross-section F	14.818521	(5,97)	0.0000
Cross-section Chi-square	61.289351	5	0.0000

Source: Author's Computation (2025)



**Table 4.5: Hausman Specification Test Results**

Test Summary Chi-Sq.	Statistic Chi-Sq.	d.f.	Prob.
Cross-section random	8.2327	5	0.1439

Source: Author’s computation (2025)

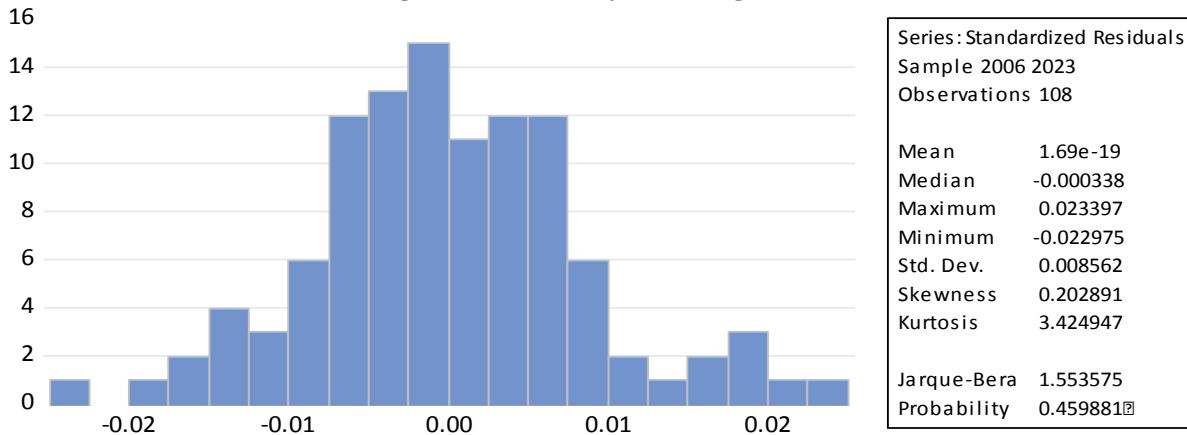
The Likelihood ratio in Table 4.4 was used to test whether Pool OLS or Fixed Effect model is appropriate for the analysis. The results reject null hypothesis as  $p = 0.0000 < 0.05$  of Cross-section F and Chi-square showed that null hypothesis is rejected and alternative hypothesis is accepted meaning that fixed effect model is appropriate. However, the Hausman specification test results in Table 4.5 revealed that chi-sq value of 8.2327 with the prob-value of 0.1439, is greater than the 0.05 level of significance. This suggests that the alternative hypothesis (H1) is rejected and that we accept the null hypothesis (H0), that the random effects panel regression model estimation is suitable for estimating the factors influencing banks' profitability. Therefore, rather than using a fixed

effect regression, random effect regression is used for the study

**4.6 Regression Results**

The study computed Pooled OLS multiple regression analysis to estimate the determinants of bank profitability. The test of comparison to pooled OLS model showed that the fixed effect model is superior to the pooled OLS model due to higher Adjusted R-squared and log-likelihood, and must also be compared with the random effect model. The test of comparison with random effect model using Hausman Specification test shows the best model that explains the determinants of profitability of deposit money banks in Nigeria was random effect model.

**Figure 4.1: Normality Test (Jargue-Bera)**



Source: Author’s Computation (2025)

**Table 4.6: Regression Results: Pool OLS, Fixed Effect and Random Effect Models**

VARIABLES DEPENDENT	POOL OLS (NIM)	FIXED EFFECT MODEL(NIM)	RANDOM EFFECT MODEL (NIM)
<b>ME</b>	0.1196 (0.1279)	0.2250 (0.0005)	0.2117 (0.0009)
<b>CAPS</b>	0.1210 (0.0000)	0.0935 (0.0000)	0.0969 (0.0000)
<b>BDS</b>	-0.1869 (0.0000)	-0.2259 (0.0000)	-0.2140 (0.0000)
<b>MKS</b>	0.1766 (0.0002)	0.2698 (0.0000)	0.2465 (0.0000)
<b>INTS</b>	0.0015 (0.0317)	0.0013 (0.0121)	0.0014 (0.0101)
<b>C</b>	0.0086	0.0251	0.0040



	(0.2842)	(0.7144)	(0.5810)
<b>R2</b>	0.4143	0.6680	0.5007
<b>Adjusted R<sup>2</sup></b>	0.3856	0.6337	0.4763
<b>F-Statistics</b>	14.4327	19.5138	20.4596
<b>Prob-value</b>	0.0000	0.0000	0.0000
<b>D-W Statistic</b>	0.9781	1.5681	1.4306

Source: Author's Computation (2025)

Note: NIM = Net Interest Margin, ME = Management Efficiency, CAPS = Capital strength, BDS = Banking Sector Development, MKS = Market share, C = Constant.

**Table 4.7: Pairwise Granger Causality Test (Lags 2)**

Null Hypothesis (H <sub>0</sub> )	Obs	F-Statistic	Prob..	Remarks
ME does not Granger Cause NIM	96	0.41295	0.6629	Insig. Accept (H <sub>0</sub> ). There is no Granger causality relationship
NIM does not Granger Cause ME		0.15929	0.8530	
CAPS does not Granger Cause NIM	96	3.55626	0.0326	Sig. Reject (H <sub>0</sub> ). There is . Bi-directional causal relationship
NIM does not Granger Cause CAPS		3.53926	0.0331	
BSD does not Granger Cause NIM	96	6.90672	0.0016	Sig. Reject (H <sub>0</sub> ). There is . Uni-directional causal relationship from BSD to NIM
NIM does not Granger Cause BSD		1.73167	0.1828	
MKS does not Granger Cause NIM	96	8.32817	0.0005	Sig. Reject (H <sub>0</sub> ). There is . Bi-directional causal relationship between MKS & NIM
NIM does not Granger Cause MKS		3.60222	0.0312	
INTS does not Granger Cause NIM	96	3.48332	0.0349	Sig. Reject (H <sub>0</sub> ). There is . Bi-directional causal relationship between INTS & NIM
NIM does not Granger Cause INTS		7.63609	0.0009	

Source: Author's Computation (2025)

#### 4.5 Results and Discussion

The study examined the influence of bank-specific, industry, and macroeconomic variables (management efficiency, capital strength, market share, banking sector development and interest rate spread) on the profitability measured by net interest margin of Nigerian Deposit money banks.

The regression results' goodness of fit test showed a coefficient of determination of  $R^2 = 0.5007$  (50%) and adjusted  $R^2$  of 0.4763 (47.63%). This implied that 50% variance in the dependent variable (NIM) explained by independent variables (ME, CAPS, BSD, MKS, INTS). The significant F-statistics value (20.4596 with p-value of 0.0000) confirmed the predictive ability of the independent variables. The Durbin Watson model, with a

reliability of 1.4306, is within the acceptable range and the normality test results showed that Jargue-Bera value of 1.5536 ( $p=0.4599$ ) accepted null hypothesis that the data is normally distributed and there is presence of low auto-serial correlation. Also, the absence of multicollinearity and heteroscedasticity confirmed that the model is statistically reliable.

#### 4.5.1 Testing of Null Hypotheses

##### 4.5.1.1 Null Hypothesis One (H<sub>01</sub>)

Regression analysis in Table 4.6 was used to test the null hypothesis, which holds that the profitability of listed deposit money banks in Nigeria is not significantly impacted by macroeconomic (interest rate spread), industry-



specific (banking sector development and market share), or bank-specific (management efficiency and capital structure) factors. The results showed that profitability as measured by net interest margin (NIM) =  $0.0040 + 0.2117*ME + 0.0967*CAPS - 0.2140*BSD + 0.2465*MKS + 0.0014*INTS$ . This is interpreted as follows:

#### Management efficiency and Profitability

According to the regression output, the coefficient ( $\beta$ ) value of management efficiency (ME) measured as the ratio of operating expenses to total assets of banks, is 0.2117 ( $p = 0.0009$ ). It is statistically significant at the 0.05 level. This indicates that a significant increase in management efficiency by one unit will lead to 0.21 units increase in profitability. This result rejected the null hypothesis and accepted the alternative, which states that management efficiency has a significant and positive influence on the profitability of listed DMBs in Nigeria. This result is also conformed with the studies in Edi & Edi. (2022), Raza, Saeed, & Hena (2019) and Saimum & Faruque (2015) where management efficiency was significantly and positively affected bank profitability measured by net interest margin.

#### Capital strength and Profitability

The estimated coefficient ( $\beta$ ) of capital strength (CAPS) is 0.0969 with p-value of 0.0000. This is positively and statistically significant at 0.05 level. This suggests that a unit increase in capital strength (CAPS) will result to a significant increase in the profitability measured by net interest margin (NIM) of banks by 0.10 units. The results therefore rejected the null hypothesis and accepted the alternative, meaning that profitability of listed DMBs in Nigeria is significantly and positively impacted by capital strength. This result is in tandem with the findings in Raza, Saeed & Hena (2019) and Farkasdi, Septiawan and Alghifari (2021). The study also supports the idea that well-capitalized banks can charge more for loans, pay less interest on deposits, and pursue more business opportunities due to lower bankruptcy risk, contradicting previous research such as Nuhui, Hoti, and Bektashi (2017) who suggested a negative relationship between capital strength and bank profitability.

#### Banking sector development and Profitability

The results also revealed that the coefficient ( $\beta$ ) of banking sector development (BSD) of 0.2140 ( $p = 0.0000$ ) is significant at 0.05 level. This implies that a unit increase in banking

sector development (BSD) will lead to a decline in profitability measured by net interest margin (NIM) by 0.21 units. Based on this, the result rejected null hypothesis and accepted the alternative hypothesis that banking sector development (BSD) has a significant and negative impact on the profitability of listed DMBs in Nigeria was accepted. The study suggests that Nigerian banks' long-term profitability may decrease due to increased costs in the banking sector as in Le & Ngo (2020), contradicting Athanasoglou et al. (2008) that found a positive effect of bank asset/GDP.

#### Market share and Profitability

The estimated coefficient ( $\beta$ ) of market share (MKS) is 0.2465 and its p-value is 0.0000. This result showed that it is positively and statistically significant at 0.05 level. This also suggests that a unit increase in market share (MKS) will lead to a positive and significant increase in the profitability of banks by 0.25 units. The results rejected the null hypothesis and accepted the alternative, meaning that market share (MKS) has a positive and significant influence on the profitability measured by net interest margin (NIM). This result is in tandem with the study in Edi and Edi. (2022), Saimum & Faruque (2015) where market concentration was significantly affected net interest margin. The study also supports the SCP hypothesis that market concentration in Nigeria increases bank profitability due to monopoly power, but contradicting Osuagwu (2014) that found that market structure negatively affects bank profitability. This implies that concentrated markets in Nigeria are key drivers of profitability.

#### Interest rate spread and Profitability

The regression results also revealed that the coefficient ( $\beta$ ) of interest rate spread (INTS) is 0.0014 with ( $p = 0.0101$ ) which is significant at 0.05 level. This implies that a unit increase in interest rate spread (INTS) will result to a week increase in profitability measured by net interest margin (NIM) by 0.0014 units. Based on this, the null hypothesis was rejected. The alternative hypothesis that interest rate spread (INTS) has a significant and positive impact on the profitability of listed DMBs in Nigeria was accepted. That is, interest rate spread positively correlates with net interest margin, and this is in line with Ahmad Al-Harbi (2019) but contradicts finding in Owoputi, Kayode & Adeyefa (2014) where interest rates negatively impact profitability.



In summary, the regression analysis showed significant influence of bank-specific, industry structure, and macroeconomic factors on the profitability of listed deposit money Banks in Nigeria, thereby rejected null hypothesis ( $H_0$ ) and adopt the alternative hypothesis ( $H_1$ ), which state that there is significant influence of the bank-specific, industry structure and macroeconomic factors on the profitability of listed deposit money banks in Nigeria.

#### 4.5.1.2 Testing of Null Hypothesis Two ( $H_{02}$ )

The Pairwise Granger causality test (Lags 2) was employed to test the null hypothesis two ( $H_{02}$ ), that states that bank-specific, industry-related and macroeconomic factors does not granger-cause the profitability of listed deposit money banks in Nigeria. The results of granger causality links between bank-specific variables (ME) and profitability (NIM) in Table 4.6 revealed that the F-statistics of management efficiency (ME) to profitability (NIM), profitability (NIM) to management efficiency (ME) variables at Lag 2 are 0.4130 ( $p = 0.6629$ ), 0.1593 ( $p = 0.8530$ ) respectively. The p-value of F-statistic is insignificant at 0.05 level in both, this implies that we accept the null hypothesis ( $H_{02}$ ) which state that there is no causal relationship between management efficiency and banks' profitability measured by net interest margin. Furthermore, F-statistic and p-values of capital strength in relation to profitability, and profitability in relation to capital strength of 3.5563 ( $p = 0.0326$ ), and 3.5393 ( $p = 0.0331$ ) which showed a significant result at 0.05 level. The result therefore rejected null hypothesis but accepted alternative hypothesis ( $H_1$ ) mining that there is bi-directional granger causality relationship between capital strength (CPS) and profitability proxied by net interest margin (NIM).

## V. Conclusion and Recommendations

### 5.1 Conclusion

This study employed a unique methodology and balanced panel data of six big sampled deposit money banks in Nigeria from 2006 to 2023 to examines profitability determinants of six sampled Nigerian big and listed deposit money banks from 2006-2023. It also investigates whether there is causality relationship between the observed variables of the study. The net interest margin was used as proxy for profitability indicator, and the determinants incorporating bank-specific variables like capital strength, management efficiency, industry structure such as market structure and banking sector development as well as

macroeconomic factor represented by interest rate spread. This study is unique and add to existing literature on banking sector in Nigeria as it employs variables and methodology not commonly used in the existing Nigerian studies on banks' profitability determinants. The study revealed that Nigerian deposit money banks experienced low profitability and capital adequacy

Furthermore, the study found that all the observed variables like management efficiency, capital strength, market structure and banking sector development as well as interest rate spread significantly contributed about 50% variation in the profitability of deposit money banks in Nigeria within the period of investigation. However, other factors not included in study contributed remaining 50%. The results also aligned with existing theories and literature in the field. Specifically, the impact of each determining factors on the profitability of Nigerian deposit money banks revealed by the study are that:

- i. The study found that efficient management of operating expenses significantly increases the profitability of Nigerian deposit money banks, thereby generating higher earnings.
- ii. Capital strength significantly and positively influences profitability, allowing banks to pursue business openings more viably and manage issues more effectively, leading to increased profitability.
- iii. Market share proxied for bank concentration positively impacts net interest margin, allowing Nigerian deposit money banks to earn monopolistic profits by increasing net interest margins.
- iv. Also, the development of the Nigerian banking sector is adversely and significantly affected profitability, potentially increasing costs and resulting in lower long-term profitability for banks.
- v. The interest rate spread positively correlates with Nigerian deposit money banks' net interest margins, possibly due to market inefficiencies, risk premiums, or regulatory factors. However, excessively high spreads may indicate banking sector inefficiencies, high credit risk, or lack of competition.
- vi. The study equally demonstrated the existence of a bidirectional, significantly positive causal relationship between capital strength, market share, banking sector development interest rate spread and net interest margin proxied for profitability but no causality link between management efficiency and profitability.



The study therefore concluded that, throughout the study period, all five observed bank-specific, industry structure and macroeconomic variables of the study were found to have statistically significant explanatory power for the profitability variable of deposit money banks in Nigeria.

## 5.2 Recommendations

Based on the outcomes of the study, several policy recommendations are suggested for the regulation and policymaking concerning profitability determinants and improved performance in profitability of deposit money banks in Nigeria, and these are:

- i. Banks' management should endeavor to manage and upholding optimization of resources, observe prudent operating expenses management procedures to improve management efficiency as well as sustainability of increased profitability of banks.
- ii. Bank managers should also try to find ways to boost bank capitalization levels and invest in less risky ventures for the bank business in order to increase profitability.
- iii. Since the banking sector development is negatively and significantly related to profitability, banks' management should adopt strategies to maintain competitiveness, enhance efficiency, and create new revenue streams.
- iv. Management of banks can improve their profitability by adopting appropriate market strategy through the pursuit of market share growth by engaging the possible efficacy of mergers and acquisitions.
- v. Since the interest rate spread is important for banks' profitability, banking regulators must supervise and support banks and maintain the benchmark interest rate at a level that aligns with banking requirements
- vi. The study suggests that banks should focus on operational cost efficiency and leverage ratio to improve financial performance. The Central Bank of Nigeria should review regulatory capital reviews and pressure banks to increase capital quality and reduce hybrid capital structure holdings.

Finally, the recommendations emphasize prudent management practices and conformity with financial theories for Nigerian deposit money banks, aiming to enhance profitability, stability, and sustainability, ultimately benefiting the economy.

Like all empirical research, there are certain limitations to this study. This study, involving six sampled Nigerian stock exchange-listed banks, has

limitations as it excludes non-financial enterprises and core variables. Future research should focus on macroeconomic factors affecting financial firms' profitability and non-financial firms in developing nations, especially Nigeria. Future studies should gather more financial and economic data and expand variables to include more developing countries.

## 5.3 Acknowledgements

This study was funded from the proposal stage to the final completion and publication of the paper by the Tertiary Education Trust Fund (TetFund) through Institution Based Research (IBR) grants. We further declare that the authors have no personal interests or biases that might influence the outcome of this project work.

## References

- [1]. Abdulazeez, Y. H., & Saif-Alyousfi. (2020). Determinants of bank profitability: Evidence from 47 Asian countries. *Journal of Economic Studies*. <https://doi.org/10.1108/JES-05-2020-0215>
- [2]. Abdilahi, R. A. and Davis, E. P. (2022). Econometric Analysis of the Determinants of Bank Profitability in Three Major African Countries: Kenya, Nigeria, and South Africa. *Economics and Finance Working Paper Series*, 2206, 1-43.
- [3]. Adeusi, S. O., Kolapo, F. T. and Aluko, A. O. (2014). Determinants of Commercial Banks' Profitability Panel Evidence from Nigeria. *International Journal of Economics, Commerce and Management*, II (12), 1-18.
- [4]. Afriyie, E. Y. (2022). Profitability Determinants of Commercial Banks: Empirical Evidence from Sub-Saharan Africa. *African Journal of Business and Economic Research*, 17(3), 7-25.
- [5]. Al-Harbi, A. (2019). The determinants of conventional banks profitability in developing and underdeveloped OIC countries. *Journal of Economics, Finance and Administrative Science*, 24 (47), 4-28. <https://doi.org/10.1108/JEFAS-05-2018-0043>
- [6]. Ahmed, A. and N'Dri, K. S. (2021). Determinants of Banks Profitability: Empirical Evidence from Ghana's Commercial Banking Industry. *International Journal of Economics and Financial Research*, 7 (4), 175-189.
- [7]. Angori, G., Aristei, D. and Gallo, M. (2019). Determinants of Banks' Net Interest Margin: Evidence from the Euro Area during the Crisis and Post-Crisis Period. *Sustainability*,



- 11(14),  
3785; <https://doi.org/10.3390/su11143785>
- [8]. Asikhia, O. & Sokefun, A. (2013). Capital Adequacy and Banks' Profitability: An Empirical Evidence from Nigeria. *American International Journal of Contemporary Research*, 3(10), 87-93.
- [9]. Athanasoglou, P. P., Brissimis, S. N. and Delis, M. D. (2008), Bank specific, industry specific and macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institutions and Money*, 18(2), 121–136.
- [10]. Ayodeji, M. O., Vusani, M, and Ntunguhadzeni, F. M. (2022). Basel III Capital Regulations and Bank Efficiency: Evidence from Selected African Countries. *International Journal Financial Studies*, 10(3), 57 <https://doi.org/10.3390/ijfs10030057>
- [11]. Bolarinwa, S. T., Obembe, B. O., & Olaniyi, C. (2019). Re-examining the determinants of bank profitability in Nigeria. *Journal of Economic Studies*, 633–645.
- [12]. Connell, M. O. (2023). Bank-specific, industry-specific and macroeconomic determinants of bank profitability: evidence from the UK. *Studies in Economics and Finance*, 40 (1), 155-174
- [13]. Danişman, G. Ö. (2022). Bank market power and risk during crises. *İstanbul Ticaret Üniversitesi Sosyal Bilimler Dergisi*, 21(45), 1405-1422. doi:10.46928/iticusbe.1171085
- [14]. Ebenezer, O. O., Omar, W. A.W.B., Kamil, S. (2017). Bank Specific and Macroeconomic Determinants of Commercial Bank Profitability: Empirical Evidence from Nigeria. *International Journal of Finance & Banking Studies*, 6 (1), 25-38. DOI:10.20525/ijfbs.v6i1.627
- [15]. EIB (2022). Finance in Africa: Navigating the financial landscape in turbulent times. European Investment Bank Economic Department, 1-121.
- [16]. Farkasdi, S., Septiawan, B. and Alghifari, E. S. (2021). Determinants of commercial banks profitability: Evidence from Germany. *Jurnal Riset Akuntansi Kontemporer*, 13(2), 82-88. <https://journal.unpas.ac.id/index.php/jrak/index>
- [17]. Ferrouhi, E. M. (2018). Determinants of banks' profitability and performance: an overview. Munich Personal RePEc Archive, MPRA Paper No. 89470, 1 – 16.
- [18]. Genchev, E. (2012). Effects of Market Share on the Bank's Profitability. *Review of Applied Socio- Economic Research*, 3(1), 87-95.
- [19]. Iacobelli, A. (2017). Determinants of Profitability: Empirical Evidence from the Largest Global Banks. *Financial Analyst*, 1-29. [https://scholarsarchive.library.albany.edu/honorscollege\\_finance/11Iacobelli](https://scholarsarchive.library.albany.edu/honorscollege_finance/11Iacobelli)
- [20]. Iskandar, A. S., Che-Yahya, N. and AbuWahid, Z. (2019). Determinants of Commercial Banks' Profitability in Malaysia. *Journal of Entrepreneurship and Business*. 7(1), 27-39.
- [21]. Le, T.D.Q. and Ngo, T. (2020). The determinants of bank profitability: A cross-country analysis. *Central Bank Review*, 20(2), 65-73.
- [22]. Masindi, N. (2022). The Impact of bank-specific and macroeconomic variables on the profitability of banks from selected African countries. *International Journal of Scientific Research and Management (IJSRM)*, 10(02), 1-14
- [23]. Maredza, A. (2014). Internal Determinants of Bank Profitability In South Africa: Does Bank Efficiency Matter? *International Business & Economics Research Journal*, 13(5), <https://doi.org/10.19030/iber.v13i5.8770>
- [24]. Munyambonera, E. F. (2013). Determinants of Commercial Bank Profitability in Sub-Saharan Africa. *International Journal of Economics and Finance*, 5 (9), 134-147. [www.ccsenet.org/ijef](http://www.ccsenet.org/ijef)
- [25]. Muraina S A., (2019) Effect of Bank-Characteristic and Macro-Economic Factors on Listed Commercial Banks' Profitability in Sub-Saharan Africa *International Journal of New Economics and Social Sciences*, 1 (9) 2019: 51-76 DOI 10.5604/01.3001.0013.303
- [26]. Mirzaei, A., Liu, G. and Moore, T. (2011). Does Market Structure Matter on Banks' Profitability and Stability? Emerging versus Advanced Economies. Department of Economics and Finance Working Paper, 11(12), 1 - 40
- [27]. Neupane, B.P. (2020). Profitability determinants of Nepalese commercial banks. *Press Academia Procedia (PAP)*, 12, 40-45. DOI:



- <http://doi.org/10.17261/Pressacademia.2020.1345>
- [29]. Njoki, N. M., and Nyamute, W. (2023). Factors Affecting Financial Performance of Commercial Banks in Kenya. *Journal of Finance and Accounting*, 7(1), 100–115. <https://doi.org/10.53819/81018102t2122>
- [30]. Nuhiu, A., Hoti, A., &Bektashi, M. (2017). Determinants of Commercial Banks Profitability through Analysis of Financial Performance Indicators: Evidence from Kosovo. *Business: Theory and Practice*, 18, 160-170. <https://doi.org/10.3846/btp.2017.017>
- [31]. Nyoka, C. (2019). Bank Capital and Profitability: An Empirical Study of South African Commercial Banks. *Comparative Economic Research Central and Eastern Europe*, 22(3), 99-116.
- [32]. Odusanya, I. A., Yinusa, G. O. & Bamidele, M. I. (2018). Determinants of Firm Profitability in Nigeria: Evidence from Dynamic Panel Models. *Journal of Economics and Business*, 68(1), 43-58.
- [33]. Ojima, N. And Ojima, D. (2019). Influencing factors on profitability of commercial banks: study of some selected banks in nigeria (2005-2018). *International Journal of Institutional Leadership, Policy and Management*, 1(2), 256-273.
- [34]. Oke, B. O. and Onwere, H. I. (2023). Evaluating the Impact of CAMEL Variables on the Share Price of Banks in Sub-Sahara Africa. *Journal of Accounting, Finance and Auditing Studies*, 9 (2), 46-73
- [35]. Okere, P. A., Uzowuru, L. N. and Uzokwe, N. (2022). Determinants of Financial Performance of Deposit Money Banks in Nigeria. *International Journal of Research and Innovation in Social Science (IJRISS)*, 6(5), 537-544.
- [36]. Olaoye, F. O. and Olarewaju, O. (2015). Determinants of Deposit Money Banks' Profitability in Nigeria. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 4(9), 11-18.
- [37]. Onuorah, A. C. (2023). Analysis of the macro and micro determinants of profitability of deposit money banks in Nigeria. *International Journal of Management & Entrepreneurship Research*, 5(5), 242- 253. (<http://www.creativecommons.org/licences/by-nc/4.0/>),
- [38]. Osuagwu, E. S. (2014). Determinants of Bank Profitability in Nigeria. *International Journal of Economics and Finance*, 6(12);
- [39]. Ozili, Peterson (2021): Bank profitability determinants: comparing the United States, Nigeria and South Africa. MPRA Paper 105638,
- [40]. Rastogi, S., Sharma, A., Pinto, G. &Bhimavarapu, V.M. (2022). A literature review of risk, regulation, and profitability of banks using a scientometric study. *Future Business Journal*, 8(28), 1-17.
- [41]. Raza, H., Saeed, A. M. and Hena, S. (2019). Determinants of Profitability in Banking Sector: An Evidence from Pakistan. *European Scientific Journal*, 15 (7), 35-48
- [42]. San, O. T. and Heng, T. B. (2013). Factors affecting the profitability of Malaysian commercial banks. *African Journal of Business Management*, 7(8), 649-660,
- [43]. Sanyaolu, W. A. Siynbola, T. T. Ogunmefun, G. T. and Makinde, A. B. (2019). Determinants of profitability of Nigerian deposit money banks. *Journal of Economics and Business*, 17(1), 47-62.
- [44]. Saimum, H. and Faruque, A. (2015). Determinants of bank profitability: A study on the banking sector of Bangladesh. *Journal of Finance and Banking*, 13 (1 & 2), 43-58.
- [45]. Sultan, Y. (2021). Determinants of bank profitability. *Jinnah Business Review*, 9(2), 1-14
- [46]. Windsor, C., Jokipii, T. and Bussiere, M. (2023). The Impact of Interest Rates on Bank Profitability: A Retrospective Assessment Using New Cross-country Bank-level Data. *International Banking Research Network contributors, Discussion Paper 2023-05*, 1-27.
- [47]. Wu, P., Guo, M. Chen, M. and Jeon, B. N. (2019). Market power and risk-taking of banks: Some semi parametric evidence from emerging market. *Emerging Markets Review*, 41, 2019, 100630
- [48]. Xu, T. T., Hu, K. and Das, U. S. (2019). Bank Profitability and Financial Stability. *International Monetary Fund, Working Paper 2019 (005)*, 1-54.
- [49]. Yuan, D., Gazi, A. I., Harymawan, I., Kumar, B. and Hossain, A. I. (2022). Profitability determining factors of banking sector: Panel data analysis of commercial banks in South Asian countries. doi: 10.3389/fpsyg.2022.1000412



- [50]. Zerihun, H. L. (2021). Effect of Bank Specific Factors on Profitability of Commercial Banks in Ethiopia. *Journal of Finance and Accounting (Science Publishing Group)*, 9(2), 23-27