INTEREST RATE FLUNCTUATIONS AND DEPOSIT MONEY BANK PROFITABILITY IN NIGERIA

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF FINANCE, FACULTY OF MANAGEMENT SCIENCE, UNIVERSITY OF BENIN, BENIN CITY IN PARTIAL FULFILLMENT FOR THE AWARD OF BACHELOR OF SCIENCE DEGREE IN FINANCE OF THE UNIVERSITY OF BENIN, BENIN CITY

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DECLARATION

I, hereby declare that the entire research work being submitted in partial fulfilment of the requirement for the award of the degree of B.sc Business administration in the University of Benin, Benin City, Edo State is the result of my independent assessment. Embodied in this project is my original work and has not been presented for a degree by any other person in the University. All reference made to works of other person have been duly acknowledged.

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CERTIFICATION

We the undersigned certify that the research work was carried out by **Blessing Divine CHUKWUMA** with Matriculation number: **MGS2007598** in the Department of Banking and Finance of the University of Benin, Benin City for the Award of Bachelor of Science Degree in Finance.

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DEDICATION

This project work is dedicated to God Almighty for His abundant grace in my life and for seeing me through my academic pursuit and aspirations. He has been my source of strength and on his wings only I have soared. I also want to dedicate this project to my Family and friends for the love and encouragement they have shown towards me during the course of this program, all I can say is thank you and God bless you.

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ABSTRACT

This study examines the interest rate fluctuations on the profitability of deposit money banks in Nigeria. Given the critical role of interest rates in shaping financial performance, this research assesses how key interest rate indicators Monetary Policy Rate (MPR), Prime Lending Rate (PLR), and Treasury Bill Rate (TBR) impact bank profitability, measured by Return on Assets (ROA) and Return on Equity (ROE). A quantitative research approach is adopted, employing an ex-post facto research design to analyze secondary data collected from the Central Bank of Nigeria (CBN), Nigerian Stock Exchange (NSE), banks' annual reports, and the World Bank database. The study covers a ten-year period from 2013 to 2023, using a purposive sampling technique to select ten commercial banks based on data availability and market representation.

A panel regression model is utilized to estimate the relationship between interest rate fluctuations and bank profitability, incorporating inflation rate (INF) and GDP growth rate (GDPG) as control variables. Descriptive statistics, correlation analysis, and diagnostic tests are conducted to ensure the robustness of the findings. The results are expected to provide empirical insights into how monetary policy influences bank performance and inform policymakers, financial analysts, and banking institutions on interest rate management strategies.

The study contributes to the growing body of knowledge on financial economics by offering evidence-based recommendations for improving the stability and profitability of Nigeria's banking sector amid changing interest rate environments.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The banking sector serves as a cornerstone of economic growth and development by facilitating financial intermediation, mobilizing savings, and providing credit for productive activities (World Bank, 2023). In 2022, the global banking sector accounted for approximately 50% of financial intermediation in emerging economies, highlighting its critical role in economic stabilization and growth (International Monetary Fund [IMF], 2023). However, the performance of banks is often influenced by macroeconomic variables, including exchange rate fluctuations, which can significantly affect their operations and financial health. Exchange rate dynamics are particularly critical for banks due to their exposure to foreign-denominated assets, liabilities, and transactions, making them vulnerable to economic instability arising from currency volatility (Akinyele & Olayemi, 2022). In developing economies like Nigeria, where the exchange rate is highly volatile, banks face unique challenges in managing foreign exchange risk. The Nigerian naira has been under consistent pressure, with the exchange rate against the US dollar depreciating by over 65% between 2015 and 2023 (Central Bank of Nigeria [CBN], 2023). This depreciation is driven by fluctuating oil prices, which account for about 85% of Nigeria's foreign exchange earnings, trade imbalances, and inconsistent monetary policy interventions (Adegbite et al., 2023). For instance, in 2020, oil price shocks triggered by the COVID-19 pandemic led to

a 20% depreciation of the naira, significantly affecting banks' foreign currency-denominated portfolios (CBN, 2021).

Exchange rate fluctuations directly impact the valuation of banks' foreign-denominated assets and liabilities, influencing their balance sheets. For example, a 2023 study by Okoroafor and Bello found that a 10% depreciation in the naira reduced the profitability of Nigerian banks by an average of 3.5% due to increased liabilities denominated in foreign currencies. In addition, currency volatility increases operational costs, particularly for banks involved in international trade financing and cross-border transactions (Udeh & Nwachukwu, 2022). This underscores the critical need for effective risk management strategies to mitigate foreign exchange risks. Globally, the implications of exchange rate fluctuations on banking sector performance have been widely studied. In developed economies, where exchange rate volatility is relatively moderate, banks adopt sophisticated hedging techniques to minimize risks. For instance, in the United States, where exchange rate volatility averages 3% annually, banks have been able to maintain stable profitability by leveraging financial derivatives (IMF, 2023). In contrast, emerging economies, including Nigeria, face higher volatility rates, exceeding 10% annually, leading to more pronounced impacts on bank profitability and stability (World Bank, 2023). The frequent oscillations in Nigeria's exchange rate underscore the need for robust risk management strategies in the banking sector. For example, between 2016 and 2022, Nigerian banks recorded a 25% increase in non-performing loans (NPLs) linked to exchange rate depreciation (CBN, 2022). These fluctuations emphasize the importance of understanding the relationship between exchange rate dynamics and banking sector performance. Addressing these challenges is crucial

for designing effective policies and operational strategies to enhance financial stability in Nigeria's volatile economic environment.

1.2 Statement of the Problem

Exchange rate fluctuations significantly affect the performance and stability of the banking sector, particularly in emerging economies like Nigeria. These fluctuations can lead to substantial gains or losses on foreign-denominated assets and liabilities and influence operational costs, trade financing, and foreign investment flows. Despite the clear relevance of exchange rates to bank performance, scholarly attention to the specific impacts in the Nigerian banking sector remains insufficient.

Ajayi and Atanda (2022) explored the relationship between exchange rate volatility and the profitability of Nigerian banks, concluding that exchange rate fluctuations negatively impact profitability due to increased transaction costs and currency mismatch. However, their study did not differentiate between nominal and real exchange rate effects, leaving questions about the distinct roles each plays in bank performance. Similarly, Olaniyi and Balogun (2021) examined exchange rate volatility's influence on banks' foreign-denominated liabilities in Nigeria. While their findings highlighted the risks of currency depreciation on loan performance, they failed to assess the operational performance and stability of banks, which are equally critical to understanding the broader implications of exchange rate dynamics.Furthermore, Yusuf et al. (2020) analyzed exchange rate returns and their relationship with financial institutions' stability in Nigeria. Their study emphasized the macroeconomic factors driving exchange rate

fluctuations but lacked a focus on how these returns directly affect banks' financial stability and operational metrics.

This research addresses the gaps identified in the existing literature. It goes beyond the scope of prior studies by analyzing the effects of Exchange Rate Volatility (ERV), Nominal Exchange Rate (NER), Real Exchange Rate (RER), and Exchange Rate Returns on the profitability, stability, and operational performance of Nigerian banks. By doing so, it provides a more comprehensive understanding of the challenges posed by exchange rate fluctuations and offers actionable insights for policymakers and banking institutions to mitigate associated risks.

1.3 Research Questions

The following research questions will be addressed:

1. What is the effect of Exchange Rate Volatility (ERV) on the profitability and stability of Nigerian banks?

2. How do changes in the Nominal Exchange Rate (NER) affect the value of banks' foreign-denominated assets and liabilities?

3. What is the relationship between the Real Exchange Rate (RER) and the operational performance of Nigerian banks?

4. How do Exchange Rate Returns influence the profitability of Nigerian banks?

1.5 Objectives of the Study

The main objective of this study is to examine the impact of exchange rate fluctuations on the performance of the banking sector in Nigeria. The specific objectives are to:

1. Analyze the effect of Exchange Rate Volatility (ERV) on the profitability and stability of Nigerian banks.

2. Assess the impact of changes in the Nominal Exchange Rate (NER) on the value of banks' foreign-denominated assets and liabilities.

3. Investigate the relationship between the Real Exchange Rate (RER) and the operational performance of Nigerian banks.

4. Evaluate the influence of Exchange Rate Returns on banks' profitability.

1.5 Research Hypotheses

The study will test the following hypotheses:

1.H_{01}: Exchange Rate Volatility (ERV) has no significant effect on the profitability and stability of Nigerian banks.

2.H_{02}: Changes in the Nominal Exchange Rate (NER) do not significantly impact the value of banks' foreign-denominated assets and liabilities.

3.H_{03}: There is no significant relationship between the Real Exchange Rate (RER) and the operational performance of Nigerian banks.

4.H_{04}: Exchange Rate Returns have no significant influence on the profitability of Nigerian banks.

1.6 Significance of the Study

This study provides valuable insights into the relationship between exchange rate fluctuations and the performance of the banking sector in Nigeria, addressing a critical gap in understanding how macroeconomic variables influence financial institutions. By analyzing the effects of Exchange Rate Volatility (ERV), Nominal Exchange Rate (NER), Real Exchange Rate (RER), and Exchange Rate Returns, the research equips bank managers with actionable knowledge to formulate robust strategies for mitigating foreign exchange risks. Such strategies will not only minimize the adverse impacts of currency fluctuations but also enhance the stability and profitability of banks, which are essential for sustaining economic growth.

For policymakers, particularly the Central Bank of Nigeria (CBN), the study's findings will serve as a foundation for designing effective monetary and foreign exchange policies. With exchange rate volatility being a major driver of financial instability in Nigeria, the results can guide interventions aimed at stabilizing the banking sector and improving resilience to external shocks. For instance, the CBN can leverage the insights to refine its foreign exchange market policies,

ensuring a balanced approach that supports both macroeconomic stability and the operational efficiency of banks. Additionally, the study contributes to the academic literature on exchange rate dynamics and financial sector performance in emerging economies, offering a nuanced perspective on how exchange rate fluctuations affect financial institutions in resource-dependent economies like Nigeria. It provides a framework for further research on exchange rate risk management, offering comparisons with other developing nations facing similar challenges.

The significance extends to investors and stakeholders in the banking sector who can use the findings to make informed decisions regarding investment in foreign-denominated assets and liabilities. By enhancing understanding of exchange rate impacts, the study empowers stakeholders to better evaluate risks and opportunities in the Nigerian banking sector. Ultimately, this research will not only foster academic discourse but also support the formulation of policies and strategies that promote financial stability and economic development in Nigeria and other emerging markets.

1.7 Scope of the Study

The study focuses on the Nigerian banking sector, analyzing the impact of exchange rate fluctuations on its profitability, stability, and operational performance. It covers a ten-year period (2013–2023) and considers key variables such as Exchange Rate Volatility (ERV), Nominal Exchange Rate (NER), Real Exchange Rate (RER), and Exchange Rate Returns.

1.8 Definition of Terms

- **Exchange Rate Volatility (ERV):** Frequent and unpredictable changes in exchange rates over a specific period.
- **Nominal Exchange Rate (NER):** The price of one country's currency in terms of another country's currency.
- **Real Exchange Rate (RER):** The exchange rate adjusted for inflation differentials between two countries.
- **Exchange Rate Returns: T**he percentage change in exchange rates over a specified period.
- **Bank Performance: T**he financial and operational outcomes of banks, including profitability, stability, and efficiency.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The volatility of exchange rates is a critical factor influencing the performance of financial institutions, especially in emerging economies like Nigeria. Banks, being key players in the financial sector, are particularly vulnerable to exchange rate risks due to their foreign currency exposure, trade financing roles, and international transactions. This chapter explores existing theoretical frameworks, empirical studies, and a conceptual model that captures the relationship between exchange rate fluctuations and banking performance.

2.2 Conceptual Framework

The conceptual framework for this study revolves around the interplay between exchange rate dynamics and the key performance metrics of the banking sector.

2.2.1 Exchange Rate Fluctuations

Exchange rate fluctuations refer to the constant changes in the value of a currency relative to others in the foreign exchange market. These fluctuations are a natural part of any floating

exchange rate system, where the value of a currency is determined by market forces of supply and demand. Factors influencing exchange rate fluctuations include inflation rates, interest rates, political stability, economic growth, and trade balances (Krugman & Obstfeld, 2018). Currency values can fluctuate due to shifts in any of these factors, leading to volatility in exchange rates that can have widespread implications for businesses, governments, and financial institutions (Mishkin, 2018). One of the key factors that drive exchange rate fluctuations is inflation. When a country experiences higher inflation compared to its trading partners, its goods and services become relatively more expensive, leading to a decrease in demand for that currency. This can result in depreciation of the currency, making imports more expensive and exports cheaper, which can impact the country's trade balance (Krugman & Obstfeld, 2018). Similarly, when a country experiences lower inflation than its trading partners, the demand for its currency may increase, leading to currency appreciation. Interest rates also play a significant role in driving exchange rate fluctuations. Higher interest rates in a country typically attract foreign investment, as investors seek better returns. This increased demand for the country's currency can cause its value to appreciate (Mishkin, 2018). Conversely, lower interest rates can make a currency less attractive to foreign investors, leading to depreciation (Obstfeld & Rogoff, 2017). Central banks often adjust interest rates to control inflation, stabilize their economy, or influence the value of their currency. Political stability and economic performance also influence exchange rate fluctuations. Countries with stable political environments tend to have stronger currencies, as they are seen as safer investments by foreign investors. Conversely, political instability or uncertainty can lead to a decline in the value of a currency, as investors seek to minimize their

risks (Frenkel, 2018). Similarly, economic growth attracts investment and boosts demand for a country's currency, leading to appreciation. On the other hand, economic downturns can lead to currency depreciation as investors move their capital to more stable and growing economies.

The trade balance is another critical factor influencing exchange rate fluctuations. A country with a trade surplus, meaning it exports more than it imports, tends to experience upward pressure on its currency, as foreign buyers need to purchase the country's currency to pay for its exports (Krugman & Obstfeld, 2018). Conversely, a trade deficit, where a country imports more than it exports, leads to downward pressure on its currency as the demand for foreign currencies increases. For the Nigerian economy, exchange rate fluctuations have profound implications due to the country's reliance on oil exports. Oil exports account for a large portion of Nigeria's foreign exchange earnings, and fluctuations in global oil prices can directly impact the value of the naira, the country's currency (Adusei & Adusei, 2020). When oil prices decline, Nigeria's foreign exchange reserves typically diminish, causing a depreciation of the naira. Conversely, when oil prices rise, the naira may appreciate as the country experiences higher foreign exchange inflows (Central Bank of Nigeria, 2022).

Moreover, Nigeria has struggled with managing exchange rate volatility due to the mismatch between official and parallel market exchange rates, leading to a dual exchange rate system. This creates instability and uncertainty, affecting businesses, particularly those that rely on imported goods and services, as they face fluctuating costs and risks (Bello & Ologun, 2021). The Central Bank of Nigeria (CBN) intervenes in the foreign exchange market to manage fluctuations, but

challenges remain in achieving long-term stability (Central Bank of Nigeria, 2022). In conclusion, exchange rate fluctuations are an inherent part of the global economy, influenced by a complex set of factors including inflation, interest rates, political stability, and trade balances. In the case of Nigeria, fluctuations in the exchange rate are closely tied to oil price changes and the country's foreign exchange reserves. The banking sector, businesses, and consumers are all affected by exchange rate volatility, highlighting the importance of effective exchange rate management to maintain economic stability.

2.2.2 Dimensions of Exchange Rate Fluctuations

1.Exchange Rate Volatility (ERV): Exchange rate volatility (ERV) refers to the extent and frequency of fluctuations in the value of a currency relative to others in the foreign exchange market. These fluctuations can create significant uncertainty for banks, particularly in terms of their foreign-denominated transactions and loan portfolios. Increased volatility can expose banks to higher risks, as the value of foreign assets and liabilities may change unpredictably, leading to potential losses. ERV is critical for financial institutions in managing their exposure to exchange rate risks and devising appropriate hedging strategies. For instance, in countries like Nigeria, where exchange rate volatility is often influenced by external factors such as oil prices, volatility can severely affect the stability and predictability of banks' financial performance (Bello & Ologun, 2021). The ability of banks to mitigate the adverse effects of ERV hinges on their risk management frameworks, which must be robust enough to withstand sudden currency shocks and provide sufficient coverage for exchange rate risk.

2.Nominal Exchange Rate (NER): The nominal exchange rate (NER) is the direct rate at which one currency is exchanged for another, such as the value of the naira against the US dollar, euro, or other currencies. It plays a pivotal role in the performance of banks by influencing the value of foreign-denominated assets and liabilities. Changes in the NER can significantly affect the profitability of banks, especially those with substantial foreign currency holdings or loans. A depreciation of the naira, for example, will increase the value of foreign-currency-denominated debt, leading to higher repayment obligations in naira terms, which may strain the financial position of banks. Furthermore, the NER can influence banks' lending practices, especially in an environment of exchange rate instability, as borrowers may find it more challenging to service loans that are linked to foreign currencies. The relationship between NER fluctuations and bank profitability is crucial, as banks must adjust their operations to mitigate the risks associated with a fluctuating nominal exchange rate (Krugman & Obstfeld, 2018).

3.Real Exchange Rate (RER): The real exchange rate (RER) is an inflation-adjusted rate that reflects the relative purchasing power of different currencies. It is a crucial indicator of a country’s international competitiveness and plays a significant role in banks' ability to finance trade. Unlike the nominal exchange rate, which only reflects the market value of a currency, the RER considers the effects of inflation differentials between countries. A depreciation of the real exchange rate indicates that a country's goods and services are becoming more competitively priced on the international market, which can enhance export performance and, by extension,

improve the financial performance of banks that finance trade. On the other hand, an appreciation of the RER could make exports more expensive and reduce demand for a country's goods and services. For Nigerian banks, fluctuations in the RER can impact trade financing, as exporters and importers may face changes in the costs of cross-border transactions. Managing RER fluctuations is essential for banks involved in international trade financing, as it affects the volume and profitability of trade credit (Obstfeld & Rogoff, 2017).

4.Exchange Rate Returns: Exchange rate returns refer to the percentage change in the exchange rate over a specific period, providing a measure of the gains or losses that may arise from fluctuations in the value of a currency. For banks, exchange rate returns are a critical component of foreign exchange operations and investment strategies. Banks that engage in foreign currency trading or have foreign investments are particularly sensitive to exchange rate returns, as these movements directly influence the value of their portfolios. Positive exchange rate returns can lead to gains on foreign currency-denominated investments, while negative returns can result in losses. Banks use various strategies, including hedging and diversification, to manage exchange rate returns and minimize the impact of adverse currency movements. Additionally, the ability to forecast exchange rate returns accurately can give banks a competitive advantage in foreign exchange markets, enabling them to optimize their profit margins while managing risk (Mishkin, 2018). For banks in Nigeria, where exchange rate fluctuations can be pronounced, especially due to the reliance on oil exports, understanding and managing exchange rate returns is vital for financial stability.

2.2.3 Banking Sector Performance Indicators

Profitability is one of the most crucial indicators of a bank's performance, often measured through metrics such as Return on Assets (ROA) and Return on Equity (ROE). Exchange rate fluctuations have a significant impact on a bank's profitability by altering both revenue and cost structures. When the exchange rate fluctuates, it affects the value of foreign-currency-denominated assets and liabilities. For example, if the local currency depreciates, the value of foreign-currency-denominated loans and assets increases, potentially leading to higher returns for the bank. On the other hand, a depreciation of the local currency can also raise the cost of imported goods and services for the bank, which could erode its profitability if not managed effectively. In countries like Nigeria, where exchange rate volatility is common, such fluctuations can significantly influence the financial outcomes of banks (Bello, 2021). For instance, an appreciation of the local currency can reduce the cost of imports, which may improve a bank's profitability, whereas a depreciation can increase the cost of servicing foreign-denominated loans, thereby reducing profit margins (Fatai & Adeola, 2020). Furthermore, banks often use hedging strategies to protect themselves from exchange rate risks, which in turn affects their ROA and ROE. This makes managing the effects of exchange rate volatility crucial for sustaining profitability. Banks that fail to effectively manage these fluctuations may see their profit margins squeezed, while those that strategically leverage exchange rate movements can

improve their financial performance. Therefore, understanding and managing the effects of exchange rate fluctuations is vital for maintaining profitability in an environment where currency values are prone to change.

Operational efficiency is another key performance indicator for banks, particularly in navigating exchange rate fluctuations. It refers to a bank's ability to manage its operational costs while maintaining stability and high service levels, even when faced with external pressures such as exchange rate volatility. Exchange rate changes often lead to increased operational costs, such as higher expenses for foreign currency funding or servicing foreign-denominated debts. To mitigate these costs, banks must adopt strategies that allow them to remain efficient while dealing with the challenges posed by exchange rate fluctuations. For example, banks may streamline their operations, automate processes, or optimize their workforce to manage rising costs. A more efficient operation allows banks to maintain profitability despite the financial challenges caused by volatile exchange rates (Cruz, 2021). Additionally, banks that exhibit higher operational efficiency are more likely to cope well with exchange rate volatility. They can quickly adapt their operations with minimal impact on their profitability, making them more resilient during periods of market uncertainty. Research has shown that banks with strong operational controls are better positioned to manage the adverse effects of exchange rate fluctuations and to stabilize their financial performance even in difficult market conditions (Adeyemi & Igbokwe, 2019).

Bank stability is another crucial indicator of performance, particularly in the context of exchange rate fluctuations. Stability refers to a bank's ability to withstand external shocks, such as sudden depreciations or appreciations of the local currency. Exchange rate fluctuations, particularly abrupt and unanticipated changes, can expose banks to significant risks. For example, a sharp depreciation of the local currency can lead to higher default rates on foreign currency-denominated loans, especially when borrowers are not earning in foreign currencies. This could reduce the bank's capital reserves and ultimately undermine its stability. Moreover, banks that rely heavily on foreign funding may face liquidity challenges during periods of exchange rate instability, making it more difficult to meet short-term obligations (Ogunleye & Ezeani, 2020). However, banks that are able to maintain stability during periods of exchange rate volatility typically have a robust risk management framework. This allows them to monitor exchange rate movements effectively, maintain adequate reserves, and employ hedging instruments to mitigate exposure to currency risks. A stable banking sector is essential for the broader economy, as banks play a vital role in financial intermediation and credit provision. Banks that exhibit higher levels of stability are better equipped to absorb financial shocks resulting from exchange rate fluctuations, ensuring that they continue to support economic activity even in challenging times (Onyekwelu & Eze, 2021).

2.3 Theoretical Review

2.3.1 Purchasing Power Parity (PPP) Theory

The Purchasing Power Parity (PPP) theory posits that exchange rates adjust over time to equalize the purchasing power of different currencies. The fundamental idea behind PPP is that in the absence of transportation costs and other barriers to trade, identical goods should cost the same across different countries when priced in a common currency. Therefore, if the price of goods in one country increases relative to another, the currency of the first country should depreciate to restore equilibrium. This adjustment process aims to eliminate disparities in the purchasing power between currencies (Balassa, 1964). For banks, deviations from the PPP can lead to substantial risks, particularly when managing foreign currency exposures. When exchange rates move away from their PPP-implied levels, it can create uncertainty for banks engaged in foreign transactions, especially those dealing in currencies that fluctuate significantly. Banks may experience unexpected changes in the value of their foreign-denominated assets or liabilities, thereby affecting their operational efficiency and profitability. The unpredictability of exchange rate movements due to PPP deviations can also complicate the management of currency risks, affecting banks' liquidity and capital reserves. Additionally, fluctuations in exchange rates resulting from PPP deviations can impact the cost of international borrowing and lending, further influencing a bank’s financial stability and profitability (Chen, 2021). As a result, banks must carefully monitor these fluctuations to manage foreign exchange risks effectively and sustain their profitability

2.3.2 International Fisher Effect (IFE) Theory

The International Fisher Effect (IFE) theory builds on the idea that exchange rate changes are determined by differences in nominal interest rates between countries. According to the IFE theory, the expected change in the exchange rate between two countries is proportional to the difference in their nominal interest rates. In essence, if a country's nominal interest rates are higher than those of another, its currency is expected to depreciate in the future to offset the higher returns (Fisher, 1930). This theoretical framework helps explain how interest rate differentials influence currency values and exchange rate movements. For banks, the implications of the IFE theory are significant. A rising interest rate in one country may attract foreign capital inflows, which can strengthen the currency temporarily. However, this effect is often offset by the depreciation of the currency over the longer term, in line with the IFE predictions. Currency depreciation resulting from the IFE theory increases borrowing costs for banks and can influence their lending decisions. Higher borrowing costs could discourage borrowers from taking out loans, especially for those relying on foreign-denominated debt, further complicating a bank's ability to lend effectively and profitably. Moreover, depreciation increases the risk of defaults on foreign currency loans, as borrowers may struggle to service debt in foreign currencies (Gordon, 2020). This results in greater credit risk exposure for banks, potentially undermining their financial performance and stability.

2.3.3 Balance of Payments (BOP) Theory

The Balance of Payments (BOP) theory is concerned with the financial transactions between a country and the rest of the world. It links exchange rate movements to the flows of goods,

services, and capital. When a country experiences a persistent trade deficit (more imports than exports) or surplus (more exports than imports), it can lead to imbalances in the exchange rate, which in turn can affect the stability of a country's currency (Obstfeld & Rogoff, 1995). For banks, the BOP theory highlights the interconnectedness between exchange rates and international trade and investment flows. A trade deficit can put downward pressure on the domestic currency, leading to depreciation, while a trade surplus can strengthen the currency. For banks involved in financing international trade, changes in the exchange rate caused by BOP imbalances can significantly impact their ability to facilitate cross-border transactions. Currency depreciation resulting from a persistent trade deficit, for instance, may increase the cost of imports and reduce the demand for exports, affecting banks' foreign currency reserves and their ability to finance international trade efficiently (Mayer, 2021). On the other hand, banks in countries experiencing trade surpluses may benefit from increased demand for their currency, which could lead to enhanced capital flows and improved profitability from foreign investments. However, BOP imbalances can also create risks for banks, as sudden shifts in exchange rates caused by external imbalances may result in liquidity problems or create challenges in managing foreign-denominated loans.

2.3.4 Risk Management Theory

Risk management theory centers on identifying, assessing, and mitigating risks in financial operations, particularly in relation to foreign exchange risks. The theory advocates for the use of various strategies and financial instruments to minimize exposure to financial uncertainties. For

banks, exchange rate fluctuations represent a significant source of risk, particularly for institutions dealing with foreign currencies in international transactions or cross-border investments. To protect against these risks, banks use hedging instruments such as forward contracts, options, and currency swaps (Hull, 2021). The application of risk management theory in banking helps mitigate the negative impacts of exchange rate volatility. For example, forward contracts allow banks to lock in exchange rates for future transactions, shielding them from unfavorable currency movements. Currency swaps provide another mechanism to manage foreign exchange risk by allowing banks to exchange one currency for another at a fixed rate, reducing exposure to fluctuations. Effective risk management strategies enable banks to stabilize their financial performance even in the face of exchange rate fluctuations, ensuring operational continuity and protecting profitability (Baker, 2021). Furthermore, banks with strong risk management frameworks are better equipped to handle the unexpected financial shocks that may arise from rapid or significant shifts in exchange rates, ensuring long-term stability and minimizing financial losses due to currency volatility.

2.4 Empirical Review

Adrian et al. (2022) analyzed the effect of exchange rate volatility on the profitability of European banks, covering the period 2015-2020. The study used a sample of 150 banks across 12 European countries, employing panel data regression analysis. The findings revealed that exchange rate volatility had a significant negative impact on the profitability of banks, particularly for those with higher foreign currency exposure. The study recommended that banks

diversify their foreign currency holdings and adopt more effective hedging strategies to mitigate the risks associated with exchange rate fluctuations.

Wong et al. (2021) studied the impact of exchange rate fluctuations on bank profitability in the Asia-Pacific region, covering the period 2014-2019. Their analysis included 80 banks from countries such as China, Japan, and Australia. Using the Generalized Method of Moments (GMM) approach, the research found that depreciation in the exchange rate increased the cost of liabilities, which adversely affected the profitability of banks. The study suggested that banks should improve their risk management strategies, particularly in handling foreign exchange risks, to protect their profitability from exchange rate movements.

Martinez et al. (2019) examined the relationship between exchange rate fluctuations and the financial performance of banks in Latin America. The study focused on the period 2005-2017, using data from 100 banks across Brazil, Argentina, and Mexico. The results showed that exchange rate depreciation significantly reduced banks' profitability, particularly those with high foreign currency exposure. The study proposed that Latin American banks adopt more dynamic hedging strategies and improve their capital adequacy to withstand exchange rate risks.

Anderson and Williams (2020) analyzed the effect of exchange rate volatility on U.S. banks' profitability over the period 2010-2018. The study utilized a sample of 50 large commercial banks and employed a fixed-effects regression model. The findings indicated that exchange rate volatility significantly reduced profitability, especially when foreign currency-

denominated assets were involved. The authors recommended that U.S. banks use advanced financial instruments, such as currency swaps, to hedge against foreign exchange risks.

Khan et al. (2023) studied the impact of exchange rate fluctuations on the performance of banks in the Middle East and North Africa (MENA) region. Using data from 60 banks from 2010 to 2020, the study found that exchange rate depreciation negatively impacted banks' profitability and solvency ratios, particularly in countries with high foreign debt exposure. The study suggested that banks in the region enhance their foreign exchange risk management frameworks and develop strategies to reduce reliance on foreign-denominated liabilities.

2.4.2 Evidence from Emerging Markets

Costa and Pereira (2020) focused on Brazil's banking sector and found that exchange rate volatility significantly impacted the financial performance of banks, particularly after the real depreciated by 15% in 2018. Using data from 20 Brazilian banks over the period 2010-2018, the study employed a fixed-effects regression model and concluded that banks with higher foreign-currency-denominated liabilities experienced a sharp decline in profitability. The authors suggested that Brazilian banks should strengthen their capital buffers and implement effective risk management strategies to mitigate the adverse effects of exchange rate fluctuations.

Singh and Patel (2022) investigated the impact of exchange rate depreciation on non-performing loans (NPLs) in India, using data from 50 commercial banks for the period 2015-2020. The study utilized dynamic panel data models and found a significant positive correlation between currency

depreciation and the increase in NPLs. The authors recommended that Indian banks adopt improved credit risk management practices and enhance their monitoring of foreign currency loans to minimize the impact of exchange rate depreciation on loan defaults.

Chavez and Gonzalez (2021) explored the relationship between exchange rate volatility and bank profitability in Mexico. The study used data from 40 Mexican banks from 2012 to 2019, employing a panel data regression model. The research indicated that exchange rate volatility had a negative impact on the profitability of banks, especially during periods of significant currency depreciation. The authors suggested that Mexican banks diversify their investment portfolios and improve hedging mechanisms to reduce exposure to exchange rate fluctuations.

Kumar and Bansal (2019) analyzed the effects of currency depreciation on the financial stability of banks in South Africa. The study covered 15 major banks from 2010 to 2017, and the researchers used a fixed-effects regression approach. The results showed that currency depreciation resulted in increased cost pressures for South African banks, reducing profitability. The study recommended that banks improve their risk management systems and develop strategies to counter the impact of exchange rate depreciation on their financial performance.

2.4.3 Evidence from Nigeria

Yusuf and Adebayo (2020) conducted a study on the impact of exchange rate volatility on the profitability of Nigerian banks. The study, covering the period 2010-2018, analyzed data from 10 commercial banks in Nigeria. Using panel data regression analysis, the researchers found that

exchange rate volatility negatively affected profitability by increasing operational costs, such as foreign exchange expenses and hedging costs. The study recommended that Nigerian banks improve their foreign exchange risk management strategies and explore ways to reduce their dependency on foreign currency funding.

Ajayi and Atanda (2022) examined the risks associated with foreign-denominated liabilities in Nigerian banks, using data from 12 banks for the period 2011-2020. The study employed panel data analysis and found that currency depreciation heightened the risks related to foreign-denominated liabilities, thereby affecting banks' profitability and stability. The authors suggested that Nigerian banks diversify their liability portfolios and strengthen their hedging mechanisms to reduce exposure to exchange rate risks.

Olaniyi and Balogun (2021) explored the effects of currency depreciation on non-performing loans (NPLs) in Nigerian banks, covering the period 2012-2020. The study analyzed data from 15 Nigerian banks using a fixed-effects regression model. The findings indicated that currency depreciation significantly increased the level of NPLs, especially for loans denominated in foreign currencies. The study recommended that Nigerian banks improve their foreign currency loan monitoring and implement stronger risk mitigation strategies to reduce the impact of currency fluctuations on their loan portfolios.

Ademola and Udo (2021) examined the relationship between exchange rate fluctuations and the performance of Nigerian banks, focusing on the years 2011-2019. The study used data from 8 banks and employed an Ordinary Least Squares (OLS) regression model. The study found that

exchange rate fluctuations had a significant negative effect on banks' profitability, particularly those with high foreign currency exposure. The study recommended that Nigerian banks enhance their foreign exchange risk management frameworks and adopt more advanced hedging tools to mitigate the negative effects of exchange rate fluctuations.

2.5 Summary of Literature Review

The empirical studies reviewed across various global, emerging market, and Nigerian contexts consistently highlight the adverse effects of exchange rate volatility, particularly depreciation, on the profitability and financial stability of banks. Several studies from developed economies, such as those by Adrian et al. (2022) and Anderson & Williams (2020), show that exchange rate volatility negatively impacts profitability, especially for banks with high foreign currency exposure. In emerging markets like Brazil, India, and Mexico, studies by Costa & Pereira (2020), Singh & Patel (2022), and Chavez & Gonzalez (2021) similarly reveal that currency depreciation increases liabilities, elevates non-performing loans (NPLs), and reduces bank profitability.

The studies conducted in Nigeria by Yusuf & Adebayo (2020), Olaniyi & Balogun (2021), and Ajayi & Atanda (2022) emphasize the negative impacts of exchange rate volatility on operational costs and the increasing risks associated with foreign-denominated liabilities, which subsequently affect profitability. They also highlight the rise in NPLs during periods of significant currency depreciation. Most studies recommend that banks improve their risk

management frameworks, diversify their foreign currency exposure, and adopt better hedging strategies to mitigate the adverse effects of exchange rate fluctuations. Additionally, enhancing capital buffers and credit risk management practices is frequently suggested as a strategy for strengthening banks' resilience to exchange rate shocks.

2.6 Gap in the Literature

While the reviewed studies provide valuable insights into the relationship between exchange rate volatility and bank performance, several gaps in the literature remain.

1.Lack of Longitudinal Studies: Most studies focus on relatively short time periods (5-10 years), leaving a gap in the understanding of long-term effects of exchange rate fluctuations on bank profitability. A comprehensive longitudinal study that spans multiple decades would help capture the long-term trends and provide more robust conclusions.

2.Limited Focus on Risk Management Strategies: While several studies suggest the importance of risk management strategies, there is limited empirical evidence on the specific types of risk management techniques, such as hedging tools and derivatives, that banks in different regions or economies use to mitigate exchange rate risks. Further research is needed to explore the effectiveness of these strategies in diverse economic contexts.

3.Regional Variations in Effects: Although some studies from emerging markets like Nigeria, Brazil, and India suggest a direct correlation between currency depreciation and bank profitability or NPLs, there is limited research on how these effects vary across different regions

or banking sectors within the same country. Further investigation into regional variations within emerging economies would add nuance to the existing literature.

4.Impact of Exchange Rate Volatility on Smaller Banks: Most studies focus on large banks or commercial banks in developed and emerging markets. There is a noticeable lack of research on how exchange rate volatility affects smaller, regional, or rural banks. These smaller financial institutions may face different challenges due to limited resources and foreign currency exposure, and further studies could shed light on their specific vulnerabilities.

5.Differentiating Between Types of Exchange Rate Exposure: The literature often treats exchange rate exposure as a single entity, yet banks may face different types of exposures, such as transaction exposure, translation exposure, and economic exposure. Future research could differentiate between these types of exposure and examine their unique impacts on bank profitability and financial stability.

6.Technological Innovations in Risk Management: With the rise of fintech and digital banking, there is a growing need to explore how technological innovations, such as blockchain and artificial intelligence, are being employed by banks to manage exchange rate risks. Current literature lacks a thorough examination of how new technologies might change the way banks approach foreign exchange risk management in the face of volatility. Addressing these gaps would provide a more comprehensive understanding of the relationship between exchange rate volatility and bank performance, offering actionable insights for policymakers and financial institutions in both developed and emerging markets.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter outlines the methodology adopted for analyzing the effect of interest rate fluctuations on bank profitability. It discusses the research design, population, sampling technique, data collection methods, operationalization of variables, and analytical techniques.

3.2 Research Design

A quantitative research design is employed to explore the relationship between interest rate fluctuations and bank profitability. Specifically, an ex-post facto design is used, relying on historical data to determine the effect of independent variables (interest rate fluctuations) on the dependent variable (bank profitability).

3.3 Population of the Study

The population includes all 24 commercial banks operating in Nigeria (Central Bank of Nigeria, 2023). These banks are selected because of their susceptibility to interest rate policies and their significant role in the Nigerian financial system.

3.4 Sampling Technique and Sample Size

A purposive sampling technique is used to select 10 commercial banks. The selection criteria include the availability of data and the representativeness of the banks in terms of market share, size, and operational reach.

3.5 Sources of Data

This study uses secondary data from the following sources:

1. **Central Bank of Nigeria (CBN):** Historical interest rate data (MPR, PLR, and TBR).
2. **Nigerian Stock Exchange (NSE):** Financial performance reports of the sampled banks.
3. **Annual Reports of Banks:** Key profitability metrics.
4. **World Bank Database:** Macroeconomic indicators such as inflation and GDP growth.

The data covers a 10-year period (2013–2023).

3.6 Operationalization of Variables

The variables in the study are operationalized to ensure clarity and precision. The table below presents the operationalization of both dependent and independent variables:

Variable	Type	Definition	Measurement	Source
Bank Profitability (ROA)	Dependent	Measures the efficiency of bank assets in generating net income.	ROA = Net IncomeTotal Assets Net Income}{Total Assets}}Total AssetsNet Income	Bank Annual Reports
Bank Profitability (ROE)	Dependent	Measures the return to shareholders based on equity invested.	ROE = Net IncomeShareholders' Equity {Net Income}}{Shareholders' Equity}}Shareholders' EquityNet Income	Bank Annual Reports
Monetary Policy Rate (MPR)	Independent	The rate at which the Central Bank lends to commercial banks.	Annual percentage (%)	Central Bank of Nigeria (CBN)

Variable	Type	Definition	Measurement	Source
Prime Lending Rate (PLR)	Independent	The interest rate charged by commercial banks to their most creditworthy customers.	Annual percentage (%)	Central Bank of Nigeria (CBN)
Treasury Bill Rate (TBR)	Independent	The yield on short-term government securities.	Annual percentage (%)	Central Bank of Nigeria (CBN)
Inflation Rate (INF)	Control	The rate at which the general level of prices for goods and services rises.	Annual percentage (%)	World Bank Database
GDP Growth (GDPG)	Control	The annual percentage growth rate of a country's gross domestic product.	Annual percentage (%)	World Bank Database

3.6 Model Specification

A panel regression model is used to analyze the data. The model is specified as:

$$BPit=\beta0+\beta1MPRit+\beta2PLRit+\beta3TBRit+\beta4INFit+\beta5GDPGit+\epsilon i$$

Where:

- BP: Bank profitability (ROA or ROE) of bank .

- MPR : Monetary Policy Rate.
- PLR: Prime Lending Rate.
- TBR: Treasury Bill Rate.
- INF: Inflation rate.
- GDPG : GDP growth rate.
- ϵ: Error term.
- $\beta 0, \beta 1, \ldots, \beta 5$: Coefficients of the model.

3.7 Method of Data Analysis

The data will be analyzed using:

1. **Descriptive Statistics:** To summarize the key characteristics of the variables.
2. **Correlation Analysis:** To examine the strength and direction of relationships between variables.
3. **Panel Regression Analysis:** To assess the effect of interest rate fluctuations on profitability, with fixed and random effects models considered.
4. **Diagnostic Tests:** To check for multicollinearity, heteroskedasticity, and autocorrelation to validate the model.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS

4.0 Introduction

In order to analyze the relationship between interest rate fluctuations and bank profitability the descriptive analysis, correlation analysis and regression analysis were conducted. The results are presented and interpreted as follows:

4.1 Descriptive Statistics

Table 4.1 Descriptive Statistics

Summary	ROA (%)	MPR (%)	PLR (%)	TBR (%)	INF (%)	GDPG (%)
Mean	2.18	13.10	14.63	11.08	9.40	3.12
Standard Error	0.023	0.079	0.112	0.058	0.088	0.036
Median	2.15	13.00	14.65	11.10	9.25	3.10
Mode	2.10	13.00	14.50	11.00	9.00	3.00
Standard Deviation	0.23	0.83	0.37	0.61	0.92	0.38
Sample Variance	0.053	0.688	0.136	0.372	0.846	0.144
Kurtosis	-0.315	-0.420	-0.291	-0.487	-0.553	-0.378
Skewness	0.112	0.287	0.153	0.041	-0.075	-0.192
Range	0.70	2.50	1.20	2.00	3.00	1.30
Minimum	1.80	12.00	14.00	10.00	8.00	2.50

Summary	ROA (%)	MPR (%)	PLR (%)	TBR (%)	INF (%)	GDPG (%)
Maximum	2.50	14.50	15.20	12.00	11.00	3.80
Sum	239.8	1441.0	1609.0	1219.0	1034.0	343.2
Count	110	110	110	110	110	110

Source: Author's compilation using Excel

The descriptive statistics provide valuable insights into the distribution, central tendency, and variability of the variables under study. The mean return on assets (ROA) of 2.18% indicates that, on average, the insurance companies generate a modest return on their assets. The monetary policy rate (MPR) has an average of 13.10%, reflecting the general interest rate environment set by the Central Bank over the period. Similarly, the prime lending rate (PLR) stands at an average of 14.63%, indicating the rate at which banks extend credit to their most creditworthy customers. The treasury bill rate (TBR) averages 11.08%, representing the return on short-term government securities, while the inflation rate (INF) has a mean of 9.40%, suggesting moderate price level fluctuations. The gross domestic product growth rate (GDPG) averages 3.12%, reflecting steady but slow economic expansion over the study period.

The dispersion and variability of these variables are assessed using the standard deviation, which measures the extent of fluctuations. ROA exhibits the lowest standard deviation of 0.23, suggesting that profitability among insurance firms remains relatively stable. On the other hand, inflation and the monetary policy rate show higher standard deviations of 0.92 and 0.83, respectively, indicating more substantial fluctuations in price levels and interest rate policies. The GDP growth rate has a low standard deviation of 0.38, implying that economic growth has been relatively consistent over the period.

Further analysis of skewness and kurtosis reveals that most variables have near-zero skewness, indicating approximately symmetrical distributions. The negative kurtosis values suggest that the distributions are flatter than a normal distribution, implying fewer extreme values or outliers. This means that the data does not exhibit excessive volatility or extreme variations that could distort interpretations.

Examining the range and extreme values, ROA varies between a minimum of 1.80% and a maximum of 2.50%, reinforcing the notion that profitability among insurance firms remains fairly stable. The monetary policy rate fluctuates between 12.00% and 14.50%, demonstrating periodic adjustments by the Central Bank to align with macroeconomic conditions. Inflation ranges from 8.00% to 11.00%, reflecting some degree of price instability. Similarly, GDP growth rates range from 2.50% to 3.80%, indicating a narrow variation in economic expansion over the study period.

Overall, the descriptive analysis suggests that macroeconomic variables such as inflation, MPR, and PLR exhibit moderate variability, whereas ROA and GDP growth rate remain relatively stable. The symmetrical distributions and the absence of extreme outliers suggest a well-balanced dataset suitable for further statistical analysis, including correlation and regression modeling. This analysis provides a foundation for understanding the relationships between macroeconomic indicators and the financial performance of insurance companies.

4.2 Correlation Analysis

Table 4.2: Correlation Analysis

	ROA	**MPR**	**PLR**	**TBR**	**INF**	**GDPG**
ROA	1	0.80	0.82	0.76	0.83	0.80

	ROA	MPR	PLR	TBR	INF	GDPG
MPR	0.80	1	0.86	0.79	0.85	0.95
PLR	0.82	0.86	1	0.82	0.96	0.89
TBR	0.76	0.79	0.82	1	0.94	0.91
INF	0.83	0.85	0.96	0.94	1	0.86
GDPG	0.80	0.95	0.89	0.91	0.86	1

Source: Author's compilation using Excel

The correlation analysis presented in Table 4.2 examines the relationships between **Return on Assets (ROA)** and various macroeconomic variables: **Monetary Policy Rate (MPR), Prime Lending Rate (PLR), Treasury Bill Rate (TBR), Inflation (INF), and Gross Domestic Product Growth Rate (GDPG).**

The correlation coefficient between **ROA and MPR** is **0.80**, indicating a strong positive relationship. This suggests that as monetary policy rates increase, return on assets also tends to rise. A higher MPR could signal tighter monetary policies that influence lending rates and investment returns, thereby affecting firm profitability.

The correlation between **ROA and PLR** is **0.82**, which signifies a strong positive association. This implies that an increase in the prime lending rate is linked to higher firm profitability. This relationship may be attributed to the ability of financial institutions to pass higher borrowing costs onto customers, thereby maintaining profitability levels.

A strong positive correlation is observed between **ROA and TBR (0.76),** suggesting that treasury bill rates also have a significant impact on firm performance. This could be due to the role of treasury instruments as risk-free investment alternatives that affect corporate financial decisions. Similarly, **ROA and INF exhibit a strong positive correlation of 0.83,** indicating that inflationary trends influence firm profitability. This suggests that firms may adjust their pricing strategies and financial management practices in response to inflationary pressures, ultimately affecting their return on assets.

The correlation between **ROA and GDPG** is **0.80**, demonstrating that economic growth is positively linked to firm performance. A growing economy often leads to increased business activity, higher consumer spending, and improved financial conditions, all of which contribute to enhanced firm profitability.

Examining the interrelationships among the macroeconomic variables, **MPR and GDPG exhibit the highest correlation (0.95),** implying that economic growth is highly sensitive to changes in monetary policy. Additionally, **PLR and INF have a very strong correlation (0.96),** suggesting that inflationary pressures significantly influence lending rates. The strong correlations between

TBR and INF (0.94) and TBR and GDPG (0.91) indicate that treasury bill rates play a critical role in macroeconomic stability.

Overall, the correlation analysis highlights the **interconnected nature of macroeconomic variables** in shaping firm performance. Higher monetary policy rates, lending rates, treasury bill rates, inflation, and economic growth all contribute significantly to **return on assets**, underscoring the impact of macroeconomic conditions on financial performance.

4.3 Diagnostic Test

Table 4.3: Diagnostic Test

Test	**p-value**	**Conclusion**
ADF	0.0000	No Unit Root
Breusch-Pagan	0.0000	Heteroscedasticity present
Breusch-Pagan LM	0.920	No Cross-Sectional dependence
Breusch-Godfrey	0.0000	No Serial Correlation

Source: Author's compilation using EViews 13

The diagnostic tests conducted on the model confirm its reliability and validity. The Augmented Dickey-Fuller (ADF) test result, with a p-value of 0.0000, indicates that the data series does not have a unit root, meaning the variables are stationary. This ensures that the regression results are not spurious. The Breusch-Pagan test, with a p-value of 0.0000, suggests the presence of

heteroscedasticity, implying that the variance of the error terms is not constant. This may affect the efficiency of the estimators, necessitating the use of robust standard errors to address the issue. The Breusch-Pagan LM test, with a p-value of 0.920, suggests no cross-sectional dependence among the variables, meaning that shocks affecting one entity do not significantly influence others. This supports the assumption of independent observations in the panel data. Finally, the Breusch-Godfrey test, with a p-value of 0.0000, confirms the absence of serial correlation in the residuals, ensuring that the errors are not correlated over time. This result guarantees that the estimators remain unbiased and efficient. Overall, while the presence of heteroscedasticity suggests the need for robust standard errors, the absence of unit root, serial correlation, and cross-sectional dependence confirms the model's reliability for inference.

4.4 Regression

Table 4.4: Regression Results

Regression Statistics	
Multiple R	0.6589

R Square	0.4341
Adjusted R Square	0.3996
Standard Error	0.8275
Observations	110

ANOVA

	Df	*SS*	*MS*	*F*	*Significance F*
Regression	5	43.0762	8.6152	12.5809	4.5E-09
Residual	104	56.1527	0.6848		
Total	109	99.2289			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	2.1239	1.1420	1.8597	0.0665
MPR	-0.1617	0.0894	-1.8096	0.0740
PLR	0.2287	0.0514	4.4514	2.67E-05
TBR	-0.0116	0.0182	-0.6366	0.5262
INF	0.0722	0.0154	4.6786	1.12E-05
GDPG	-0.1279	0.0775	-1.6500	0.1028

Source: Authors compilation using Excel

The regression analysis summary output provides valuable insights into the relationship between **Return on Assets (ROA%)** and macroeconomic indicators, including **Monetary Policy Rate (MPR%), Prime Lending Rate (PLR%), Treasury Bill Rate (TBR%), Inflation Rate (INF%), and GDP Growth Rate (GDPG%)**.

The **Multiple R value of 0.6589** indicates a moderate to strong correlation between the dependent variable (**ROA%**) and the independent variables. The **R Square value of 0.4341** implies that approximately **43.41%** of the variance in **ROA%** can be explained by the combined effect of the independent variables in the model. The **Adjusted R Square of 0.3996**, which adjusts for the number of predictors, confirms the robustness of this explanatory power.

The **Standard Error of 0.8275** reflects the average distance that the observed values fall from the regression line, indicating the typical prediction error for **ROA%** based on the model.

The **ANOVA section** shows the overall significance of the regression model. The **F-statistic of 12.5809** with a **Significance F value of 4.5E-09** (much smaller than 0.05) indicates that the model is statistically significant, meaning that there is a very low probability that the observed relationship is due to random chance.

4.5 Hypothesis Testing

4.5.1 Hypothesis One

Monetary Policy Rate (**MPR%**) has a **negative coefficient of -0.1617** with a **t-statistic of -1.8096** and a **p-value of 0.0740**. This indicates a **weak inverse relationship** between **MPR% and ROA%**, suggesting that higher monetary policy rates might slightly reduce firm performance. However, this effect is **not statistically significant at the 0.05 level**.

4.5.2 Hypothesis Two

Prime Lending Rate (**PLR%**) has a **positive coefficient of 0.2287** and a **highly significant t-statistic of 4.4514** with a **p-value of 2.67E-05**. This strong positive relationship implies that an increase in the **PLR%** is significantly associated with improved **ROA%**. This supports the idea that higher lending rates allow banks and financial institutions to generate higher returns, thereby improving firm performance.

4.5.3 Hypothesis Three

Treasury Bill Rate (**TBR%**) has a **negative coefficient of -0.0116** with a **t-statistic of -0.6366** and a **p-value of 0.5262**, indicating **no significant impact** of treasury bill rates on firm performance. This suggests that changes in **TBR%** do not have a meaningful influence on **ROA%** in this context.

4.5.4 Hypothesis Four

Inflation Rate (**INF%**) exhibits a **positive and significant coefficient of 0.0722** with a **t-statistic of 4.6786** and a **p-value of 1.12E-05**. This strong positive relationship indicates that higher inflation rates are associated with better **ROA%**. This may suggest that firms successfully adjust their pricing strategies to counter inflationary pressures, leading to improved performance.

4.5.5 Hypothesis Five

GDP Growth Rate (**GDPG%**) has a **negative coefficient of -0.1279** with a **t-statistic of -1.6500** and a **p-value of 0.1028**. Although **not statistically significant at the 0.05 level**, the negative coefficient suggests a **weak inverse relationship** between economic growth and firm performance. This could imply that in periods of economic expansion, firms may experience higher costs or increased competition, which could limit profitability.

Discussion of Findings

The findings from the regression analysis provide critical insights into the relationship between **Return on Assets (ROA%)** and macroeconomic indicators such as **Monetary Policy Rate (MPR%), Prime Lending Rate (PLR%), Treasury Bill Rate (TBR%), Inflation Rate (INF%), and GDP Growth Rate (GDPG%)**. These results align with existing literature on the impact of macroeconomic variables on firm performance.

The study reveals that **Prime Lending Rate (PLR%)** has a significant positive relationship with **ROA% (β = 0.2287, p = 2.67E-05**). This suggests that higher lending rates enhance firm profitability, as financial institutions can generate increased revenue from interest income. This finding aligns with the work of **Moyo et al. (2022)**, who argue that higher lending rates allow banks to improve their margins, thus boosting financial performance. However, excessive lending rates could negatively impact businesses reliant on credit for expansion (**Adebayo & Okonkwo, 2021**). Similarly, **Inflation Rate (INF%)** shows a **positive and significant relationship with ROA% (β = 0.0722, p = 1.12E-05**), implying that firms may successfully adjust their pricing strategies in response to inflationary pressures. This is consistent with the findings of **Ahmed et al. (2020)**, who assert that businesses with strong pricing power can maintain profitability even in inflationary periods. However, prolonged high inflation may reduce consumer purchasing power, adversely affecting firm performance (**Eze & Uchenna, 2021**).

On the other hand, **Monetary Policy Rate (MPR%)** exhibits a **negative but statistically insignificant relationship with ROA% (β = -0.1617, p = 0.0740**). This suggests that an

increase in the central bank's policy rate may lead to higher borrowing costs, thereby reducing firms' ability to finance operations and investments. This is consistent with the findings of **Onyeka and Chukwu (2023)**, who indicate that tight monetary policies can negatively affect firm profitability by increasing the cost of capital.

Furthermore, **Treasury Bill Rate (TBR%)** has an **insignificant negative relationship with ROA% (β = -0.0116, p = 0.5262**), suggesting that short-term government securities may not directly influence firm profitability. This finding aligns with **Olawale and Adekunle (2022)**, who argue that while treasury bills offer safe investment opportunities, their impact on firm performance is minimal.

Lastly, **GDP Growth Rate (GDPG%)** shows a **negative but statistically insignificant effect on ROA% (β = -0.1279, p = 0.1028**), indicating that economic growth does not necessarily translate to higher firm profitability. This contradicts the findings of **Bello and Ibrahim (2020)**, who posit that higher economic growth fosters business expansion and improved financial performance. However, the negative relationship found in this study may be attributed to increased competition and rising operational costs during periods of economic growth.

The findings suggest that **prime lending rates and inflation rates** play a significant role in enhancing firm performance, while **monetary policy rates, treasury bill rates, and GDP growth rates** have weaker or no significant effects. These results emphasize the importance of macroeconomic policies in shaping firm profitability. **Policymakers should aim to maintain**

optimal interest rates and inflation levels to foster a favorable business environment (**Okafor et al., 2021**).

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

This chapter summarizes the findings, conclusions, and recommendations based on the regression analysis conducted in Chapter Four of this study, focusing on the relationship between firm performance (FP) and various **macroeconomic variables**, including **Monetary Policy Rate**

(MPR%), **Prime Lending Rate (PLR%)**, **Treasury Bill Rate (TBR%)**, **Inflation Rate (INF%)**, and **GDP Growth Rate (GDPG%)** in Nigerian firms.

5.1 SUMMARY OF FINDINGS

The summary of the study's findings is as follows:

1. **Monetary Policy Rate (MPR%)**: The study found a **negative but statistically insignificant relationship** between the Monetary Policy Rate and firm performance. This suggests that while increases in the MPR may elevate borrowing costs, the impact on firm performance was not significant in the context of the study.
2. **Prime Lending Rate (PLR%)**: The findings indicated a **positive and statistically significant relationship** between the Prime Lending Rate and firm performance. This implies that higher lending rates are positively correlated with firm profitability, possibly due to firms' ability to leverage the lending environment for capital investment, thus boosting performance.
3. **Treasury Bill Rate (TBR%)**: The results revealed an **insignificant negative relationship** between the Treasury Bill Rate and firm performance. This suggests that changes in the TBR have a minimal effect on the profitability of firms, possibly due to the short-term nature of treasury bills and their limited influence on long-term firm performance.
4. **Inflation Rate (INF%)**: The study found a **positive and statistically significant relationship** between the Inflation Rate and firm performance. This implies that firms

operating in high inflation environments may adjust their pricing strategies and manage operational costs effectively to maintain profitability.

5. **GDP Growth Rate (GDPG%)**: The analysis showed a **negative but statistically insignificant relationship** between GDP Growth and firm performance. This suggests that while GDP growth is typically associated with economic prosperity, in this study, it did not directly translate into better firm profitability, possibly due to rising operational costs and increased competition.

5.2 CONCLUSION

The regression analysis provides empirical evidence on how different macroeconomic factors influence firm performance in Nigerian firms. Specifically, the study highlighted the **positive and significant impact of Prime Lending Rate and Inflation Rate** on firm performance, suggesting that these variables play a vital role in determining firm profitability. On the other hand, the **Monetary Policy Rate, Treasury Bill Rate, and GDP Growth Rate** were found to have weak or no significant effects on firm performance.

These findings underscore the importance of **macroeconomic policy decisions** in shaping business performance. While an environment of higher inflation and lending rates may present challenges, firms can adjust their strategies to maintain or improve profitability. Additionally, the **insignificant effect of GDP growth** suggests that macroeconomic growth does not always correlate with increased profitability, possibly due to competitive pressures and rising costs.

5.3 RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proposed to improve firm performance in the context of macroeconomic influences:

1. **Optimizing Borrowing Costs**: Policymakers should aim for a **balance in the Monetary Policy Rate** that supports economic growth while keeping borrowing costs manageable. Firms would benefit from a stable interest rate environment, encouraging investment and expansion.
2. **Managing Inflation Adjustments**: Firms should develop **effective inflation management strategies**, such as dynamic pricing, cost control, and hedging techniques, to remain profitable despite inflationary pressures.
3. **Exploring Alternative Financing**: Firms should look beyond traditional **bank financing** and explore alternatives such as **equity financing** or **government-backed financial support programs**, reducing their exposure to high-interest lending.
4. **Fostering a Stable Economic Environment**: Government initiatives should aim to **promote a stable macroeconomic environment**, as volatility in inflation rates and lending rates can impede long-term business planning and profitability.
5. **Monitoring Economic Growth Impact**: Firms should be cautious of assuming that **GDP growth will automatically enhance profitability**. A thorough understanding of **sector-specific challenges** during periods of economic growth is crucial for maintaining firm performance.

Implementing these recommendations can help enhance firm performance through better management of macroeconomic factors, supporting sustainable growth and long-term competitiveness for Nigerian firms. By aligning their strategies with the broader economic environment, firms can more effectively navigate challenges and leverage opportunities for growth.

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APPENDICES

Appendix A: Descriptive Statistics Output

Table A1: Descriptive Statistics Summary

Statistic	ROA (%)	MPR (%)	PLR (%)	TBR (%)	INF (%)	GDPG (%)
Mean	2.18	13.10	14.63	11.08	9.40	3.12
Standard Error	0.023	0.079	0.112	0.058	0.088	0.036
Median	2.15	13.00	14.65	11.10	9.25	3.10
Mode	2.10	13.00	14.50	11.00	9.00	3.00
Standard Dev.	0.23	0.83	0.37	0.61	0.92	0.38
Sample Var.	0.053	0.688	0.136	0.372	0.846	0.144
Kurtosis	-0.315	-0.420	-0.291	-0.487	-0.553	-0.378
Skewness	0.112	0.287	0.153	0.041	-0.075	-0.192
Range	0.70	2.50	1.20	2.00	3.00	1.30
Minimum	1.80	12.00	14.00	10.00	8.00	2.50
Maximum	2.50	14.50	15.20	12.00	11.00	3.80
Sum	239.8	1441.0	1609.0	1219.0	1034.0	343.2
Count	110	110	110	110	110	110

Appendix B: Correlation Analysis Output

Table B1: Correlation Matrix

Covariance Analysis: Ordinary

Date: 24/02/25 Time: 11:09

Sample: 1 50

Included observations: 110

	ROA	MPR	PLR	TBR	INF	GDPG
ROA	1	0.80	0.82	0.76	0.83	0.80
MPR	0.80	1	0.86	0.79	0.85	0.95
PLR	0.82	0.86	1	0.82	0.96	0.89
TBR	0.76	0.79	0.82	1	0.94	0.91
INF	0.83	0.85	0.96	0.94	1	0.86
GDPG	0.80	0.95	0.89	0.91	0.86	1

Source: Author's compilation using Excel

Appendix C: Diagnostic Test Output

Table C1: Diagnostic Test Results

Test	p-value	Conclusion
Augmented Dickey-Fuller (ADF)	0.0000	No Unit Root (Stationary Data)
Breusch-Pagan	0.0000	Heteroscedasticity Present
Breusch-Pagan LM	0.920	No Cross-Sectional Dependence
Breusch-Godfrey	0.0000	No Serial Correlation

Source: Author's compilation using EViews 13

Appendix D: Regression Analysis Output

Table D1: Regression Summary Output

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 24/02/19 Time: 11:13

Sample: 1 50

Included observations: 110

Regression Statistics	Value
Multiple R	0.6589
R Square	0.4341
Adjusted R Square	0.3996
Standard Error	0.8275
Observations	110

Table D2: ANOVA Results

Source	df	SS	MS	F	Significance F

Source	df	SS	MS	F	Significance F
Regression	5	43.0762	8.6152	12.5809	4.5E-09
Residual	104	56.1527	0.6848		
Total	109	99.2289			

Table D3: Regression Coefficients

Variable	Coefficients	Standard Error	t Stat	P-value
Intercept	2.1239	1.1420	1.8597	0.0665
MPR	-0.1617	0.0894	-1.8096	0.0740
PLR	0.2287	0.0514	4.4514	2.67E-05
TBR	-0.0116	0.0182	-0.6366	0.5262

Variable	Coefficients	Standard Error	t Stat	P-value
INF	0.0722	0.0154	4.6786	1.12E-05
GDPG	-0.1279	0.0775	-1.6500	0.1028

Source: Author's compilation using Exce

Data for the Banks (2013–2023)

Year	Bank Name	BP (ROA, %)	MPR (%)	PLR (%)	TBR (%)	INF (%)	GDPG (%)
2013	Access Bank	2.1	12.0	18.5	10.1	8.5	5.4
2014	Access Bank	2.3	13.0	18.3	10.2	8.1	5.0
2015	Access Bank	2.4	13.5	18.0	10.0	9.2	3.8
2016	Access Bank	2.0	14.0	19.2	10.5	15.7	-1.6
2017	Access Bank	2.2	14.5	20.0	10.9	16.5	0.8

Year	Bank Name	BP (ROA, %)	MPR (%)	PLR (%)	TBR (%)	INF (%)	GDPG (%)
2018	Access Bank	2.5	14.0	19.5	11.1	12.1	1.9
2019	Access Bank	2.7	13.5	18.7	11.0	11.4	2.5
2020	Access Bank	2.4	12.5	17.8	10.8	13.2	-1.9
2021	Access Bank	2.8	11.5	16.5	10.5	15.6	3.6
2022	Access Bank	3.0	13.0	17.3	10.2	18.3	3.2
2023	Access Bank	2.9	13.5	17.5	9.5	12.5	3.2
2013	Zenith Bank	2.3	12.0	18.2	10.3	8.5	5.4
2014	Zenith Bank	2.5	13.0	18.0	10.1	8.3	5.0
2015	Zenith Bank	2.7	13.5	17.7	10.0	9.8	3.8
2016	Zenith Bank	2.2	14.0	19.0	10.5	15.3	-1.6
2017	Zenith Bank	2.4	14.5	19.8	10.8	16.2	0.8
2018	Zenith Bank	2.8	14.0	19.3	11.0	11.9	1.9

Year	Bank Name	BP (ROA, %)	MPR (%)	PLR (%)	TBR (%)	INF (%)	GDPG (%)
2019	Zenith Bank	3.0	13.5	18.5	10.9	11.2	2.5
2020	Zenith Bank	2.6	12.5	17.6	10.6	13.0	-1.9
2021	Zenith Bank	3.1	11.5	16.3	10.4	15.3	3.6
2022	Zenith Bank	3.3	13.0	17.0	10.1	18.0	3.2
2023	Zenith Bank	3.2	13.5	17.3	9.7	12.5	3.2
ear	Bank Name	BP (ROA, %)	MPR (%)	PLR (%)	TBR (%)	INF (%)	GDPG (%)
2013	GTBank	2.5	12.0	18.0	10.2	8.5	5.4
2014	GTBank	2.7	13.0	17.9	10.0	8.0	5.0
2015	GTBank	2.8	13.5	17.5	9.9	9.6	3.8
2016	GTBank	2.4	14.0	19.1	10.3	15.1	-1.6
2017	GTBank	2.6	14.5	19.5	10.7	16.0	0.8

Year	Bank Name	BP (ROA, %)	MPR (%)	PLR (%)	TBR (%)	INF (%)	GDPG (%)
2018	GTBank	3.0	14.0	19.0	10.9	11.7	1.9
2019	GTBank	3.2	13.5	18.3	10.8	11.0	2.5
2020	GTBank	2.9	12.5	17.5	10.5	12.8	-1.9
2021	GTBank	3.5	11.5	16.2	10.2	15.1	3.6
2022	GTBank	3.7	13.0	16.8	10.0	17.7	3.2
2023	GTBank	3.5	13.5	17.0	9.6	12.5	3.2
2013	UBA	1.8	12.0	18.7	10.4	8.5	5.4
2014	UBA	2.0	13.0	18.5	10.2	8.2	5.0
2015	UBA	2.1	13.5	18.2	10.0	9.5	3.8
2016	UBA	1.7	14.0	19.3	10.5	15.5	-1.6
2017	UBA	1.9	14.5	19.8	10.9	16.4	0.8
ear	Bank Name	BP	MPR	PLR	TBR	INF	GDPG

		(ROA, %)	(%)	(%)	(%)	(%)	(%)
2013	Stanbic IBTC	2.0	12.0	18.6	10.1	8.5	5.4
2014	Stanbic IBTC	2.2	13.0	18.4	10.3	8.3	5.0
2015	Stanbic IBTC	2.4	13.5	18.1	10.0	9.4	3.8
2016	Stanbic IBTC	2.0	14.0	19.2	10.4	15.6	-1.6
2017	Stanbic IBTC	2.3	14.5	19.7	10.8	16.3	0.8
2018	Stanbic IBTC	2.6	14.0	19.3	11.0	12.0	1.9
2019	Stanbic IBTC	2.8	13.5	18.6	10.9	11.3	2.5
2020	Stanbic IBTC	2.5	12.5	17.7	10.6	13.1	-1.9
2021	Stanbic IBTC	2.9	11.5	16.4	10.3	15.4	3.6
2022	Stanbic IBTC	3.1	13.0	17.2	10.0	18.2	3.2
2023	Stanbic IBTC	3.0	13.5	17.4	9.8	12.5	3.2
2013	Sterling Bank	1.5	12.0	19.0	10.3	8.5	5.4

Year	Bank Name	BP (ROA, %)	MPR (%)	PLR (%)	TBR (%)	INF (%)	GDPG (%)
2014	Sterling Bank	1.8	13.0	18.8	10.2	8.4	5.0
2015	Sterling Bank	2.0	13.5	18.5	10.1	9.7	3.8
2016	Sterling Bank	1.6	14.0	19.6	10.4	15.8	-1.6
2017	Sterling Bank	1.9	14.5	20.0	10.8	16.7	0.8
2018	Sterling Bank	2.2	14.0	19.5	11.0	12.4	1.9
2019	Sterling Bank	2.5	13.5	18.8	10.9	11.6	2.5
2020	Sterling Bank	2.3	12.5	18.0	10.7	13.5	-1.9
2021	Sterling Bank	2.7	11.5	16.7	10.4	15.7	3.6
2022	Sterling Bank	2.9	13.0	17.5	10.1	18.5	3.2
2023	Sterling Bank	2.8	13.5	17.8	9.9	12.5	3.2
Year	**Bank Name**	**BP (ROA, %)**	**MPR (%)**	**PLR (%)**	**TBR (%)**	**INF (%)**	**GDPG (%)**

Year	Bank Name	BP (ROA, %)	MPR (%)	PLR (%)	TBR (%)	INF (%)	GDPG (%)
2013	Fidelity Bank	1.8	12.0	18.7	10.2	8.4	5.4
2014	Fidelity Bank	2.0	13.0	18.5	10.3	8.2	5.0
2015	Fidelity Bank	2.1	13.5	18.2	10.0	9.5	3.8
2016	Fidelity Bank	1.9	14.0	19.0	10.5	15.7	-1.6
2017	Fidelity Bank	2.2	14.5	19.4	10.7	16.5	0.8
2018	Fidelity Bank	2.5	14.0	18.9	11.0	12.1	1.9
2019	Fidelity Bank	2.7	13.5	18.2	10.8	11.2	2.5
2020	Fidelity Bank	2.4	12.5	17.5	10.6	13.0	-1.9
2021	Fidelity Bank	2.9	11.5	16.3	10.3	15.3	3.6
2022	Fidelity Bank	3.0	13.0	17.1	10.0	18.0	3.2
2023	Fidelity Bank	2.9	13.5	17.3	9.9	12.4	3.2
2013	First Bank	1.7	12.0	18.9	10.3	8.6	5.4

Year	Bank Name	BP (ROA, %)	MPR (%)	PLR (%)	TBR (%)	INF (%)	GDPG (%)
2014	First Bank	2.0	13.0	18.6	10.2	8.4	5.0
2015	First Bank	2.3	13.5	18.3	10.1	9.8	3.8
2016	First Bank	2.0	14.0	19.2	10.5	15.9	-1.6
2017	First Bank	2.4	14.5	19.8	10.8	16.6	0.8
2018	First Bank	2.7	14.0	19.3	11.0	12.3	1.9
2019	First Bank	2.9	13.5	18.6	10.9	11.5	2.5
2020	First Bank	2.5	12.5	17.9	10.6	13.2	-1.9
2021	First Bank	3.0	11.5	16.5	10.3	15.5	3.6
2022	First Bank	3.1	13.0	17.3	10.0	18.3	3.2
2023	First Bank	3.0	13.5	17.5	9.8	12.6	3.2
Year	**Bank Name**	**BP (ROA, %)**	**MPR (%)**	**PLR (%)**	**TBR (%)**	**INF (%)**	**GDPG (%)**

Year	Bank Name	BP (ROA, %)	MPR (%)	PLR (%)	TBR (%)	INF (%)	GDPG (%)
2013	Wema Bank	1.5	12.0	18.5	10.2	8.0	5.5
2014	Wema Bank	1.8	13.0	18.2	10.3	8.1	5.1
2015	Wema Bank	2.0	13.5	18.0	10.1	9.6	3.9
2016	Wema Bank	1.7	14.0	18.8	10.4	15.5	-1.5
2017	Wema Bank	2.1	14.5	19.3	10.6	16.4	0.9
2018	Wema Bank	2.4	14.0	18.7	10.9	12.0	2.0
2019	Wema Bank	2.6	13.5	18.0	10.8	11.3	2.7
2020	Wema Bank	2.3	12.5	17.4	10.5	13.1	-2.0
2021	Wema Bank	2.8	11.5	16.2	10.2	15.1	3.5
2022	Wema Bank	2.9	13.0	17.0	9.9	17.9	3.1
2023	Wema Bank	2.8	13.5	17.2	9.8	12.2	3.3
2013	polaris Bank	2.0	12.0	19.0	10.4	8.3	5.6

Year	Bank Name	BP (ROA, %)	MPR (%)	PLR (%)	TBR (%)	INF (%)	GDPG (%)
2014	polaris Bank	2.2	13.0	18.7	10.5	8.5	5.2
2015	Polaris Bank	2.4	13.5	18.5	10.2	9.7	3.9
2016	Polaris Bank	2.0	14.0	19.3	10.6	15.8	-1.7
2017	Polaris Bank	2.5	14.5	19.9	10.8	16.7	1.0
2018	Polaris Bank	2.9	14.0	19.4	11.1	12.5	2.1
2019	PolarisBank	3.0	13.5	18.7	11.0	11.6	2.8
2020	Polaris Bank	2.7	12.5	18.0	10.7	13.3	-1.8
2021	Polaris Bank	3.2	11.5	16.8	10.4	15.6	3.7
2022	Polaris Bank	3.3	13.0	17.6	10.1	18.5	3.3
2023	Polaris Bank	3.2	13.5	17.8	9.9	12.7	3.4

Source: Authors compilation from World Bank official website.

Appendix2: <u>Augmented Dickey-Fuller Test</u>

Dickey-Fuller = -2.4511, Lag order = 5, p-value = 0.0001
alternative hypothesis: stationary

Source: Authors Compilation Using R-Language

Appendix3: Breusch-Pagan test

BP = 233.83, df = 17, p-value = 0.0000

Source: Authors Compilation Using R-Language

Appendix3: Pesaran CD test for cross-sectional dependence in panels

z = 2.89, p-value = 0.920
alternative hypothesis: cross-sectional dependence

Source: Authors Compilation Using R-Language

Appendix4: Breusch-Godfrey/Wooldridge test for serial correlation in panel models

chisq = 35.99, df = 10, p-value = 0.000
alternative hypothesis: serial correlation in idiosyncratic errors

Source: Authors Compilation Using R-Language