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Effect of Currency Redesigning on the Deposit Money Banks in Nigeria

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ABSTRACT

Due to global advancements and increasing demands for more efficient services, governments are facing pressure to deliver higher quality services at the appropriate time, which has led to currency redesigning in Nigerian banks. This study investigates the impact of currency redesigning on money deposited in Nigerian banks, with a focus on security, technological advancements, and economic stability. The research employed a survey design and targeted 1101 populations, consisting of bank staff and customers from five western states as of January 31st, 2023. Using Taro Yamane's formula, the sample size was determined to be 289, and purposive sampling was utilized to distribute the sample size proportionally between banks and customers. Primary data was collected via a well-structured questionnaire, and the results indicate that currency redesigning has a positive and significant impact on money deposited in banks. The study concludes that depositing money in banks decreases the incidence of counterfeit currency while enhancing security. It is therefore recommended that the government should place greater emphasis on currency redesigning to increase the use of new technologies and improve service delivery and processes.

Keywords: Currency redesigning, Money Deposited Banks, Security, Technological Advancements, Economic Stability

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1. INTRODUCTION

The redesigning of a country's currency can significantly impact its financial system globally, and currency redesigning is done for various reasons in developed countries. However, it is a regular occurrence as technological advancements continue to improve security features, making it more difficult for counterfeiters to produce fake currency (Adeoye & Shobande, 2017). Also In developing countries, currency redesigning may occur to address issues such as inflation or to modernize the currency's design to reflect the country's changing cultural or economic landscape and enhanced security in combat corruption and illegal activities, currency redesigning is a crucial process for maintaining the integrity of a country's currency and ensuring that it remains secure and usable for its citizens, particularly the money deposited banks (Ekong & Ekong, 2022).

The Central Bank of Nigeria's (CBN) plans to redesign the country's currency notes and coins have raised concerns about the potential impact on the money deposited in banks across the country. According to a report by Olujobi, (2022), the redesigning process may create confusion among customers, potentially leading to errors in transactions and reluctance to deposit money in banks due to uncertainty about the validity of the redesigned currencies. Moreover, the cost of replacing old currencies with new ones could be substantial, potentially resulting in increased fees passed on to customers by banks. This could lead to a decrease in customer satisfaction and a potential loss of revenue for banks. The temporary cash shortage during the redesigning process could also affect banks' liquidity and potentially cause disruptions in the financial system (Hornborg, 2017).

However, In Nigeria, currency redesigning has been a recurring phenomenon. The latest was in 2020 when the Central Bank of Nigeria (CBN) announced a new set of banknotes to commemorate the country's 60th Independence Day (Ozili, 2022). Yifru and Zerihun (2018) opined that the redesign of currency involves changes in banknotes and coins' physical features and security measures. These changes can affect the public's perception of the currency's value, which may lead to changes in their behaviour towards it. One of the main effects of currency redesigning on the money deposited in banks is the potential for a temporary decrease in liquidity as people may prefer to hold onto the older currency until they are no longer accepted. Furthermore, Cheong and Choi (2012) stated that currency redesigning may also affect the transaction cost of banks. Banks may have to invest in new infrastructure to handle the new currency, and they may need to recalibrate their automated teller machines (ATM) and other cash-handling machines to accommodate the new note. This investment could impact the profits of banks, which may lead to changes in their policies regarding deposit rates and other fees (IWEDI & WACHUKU, 2023). However, currency redesigning can significantly impact the money deposit in banks, and banks and the government need to take measures to ensure a smooth transition to the currency.

There is limited scholarly research on the effect of currency redesigning on the money deposited in banks in Nigeria. However, some studies have examined similar issues in other countries and provided some insights into the potential impacts of currency redesigning. A study conducted by Yifru and zerihun (2018) on the effects of currency redesign on liquidity and money supply in Ethiopia found that the introduction of new currency led to a decrease in the volume of currency

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in circulation and a temporary decrease in bank deposits. The study attributed this to the preference to hold onto the old currency until they were no longer accepted. Another study by Onafowokan and Alimi (2017) on the impact of currency redesign on Nigeria's economy found that it can reduce the velocity of circulation of money, which can have negative consequences for economic growth. The study emphasized the need for effective communication strategies to educate the public on the rationale for currency redesigning to mitigate the negative effects on the economy.

Furthermore, a study by Cheong and Choi (2012) on the impact of currency redesigning in South Korea found that the introduction of new banknotes led to an increase in demand for cash, which affected the banking system's liquidity. The study recommended that banks prepare for introducing new currency by increasing their cash reserves and improving their cash management systems. Also, limited research suggests that currency redesigning can significantly impact the money deposited in banks, particularly on liquidity and the volume of currency in circulation. However, further research is needed to fully understand the effects of currency redesigning on the Nigerian banking system.

The objective of this study varies in its entirety from past studies, as this is to specifically examine and assess whether the recent redesigning of Nigerian currency notes has led to changes in the amount of money deposited in Nigerian banks and to identify the factors that may influence such changes. The study will use both quantitative and qualitative methods to analyze data from various sources, including financial reports, surveys, and interviews with bank customers and employees. The findings of this study are expected to provide insights into the effectiveness of currency redesigning as a tool for promoting financial inclusion and enhancing economic growth. With a special focus on 5 states out of 6 western states in Nigeria. The remainder of the research paper is structured as follows: Review of extant literature highlighting several concepts about currency redesigning, Technology advancement, Economic stability, security, and theoretical considerations, methodology of the study, data analysis, and discussion of result and conclusion.

2. Literature Review and Hypothesis Development

2.1. Conceptual Review

2.1.1. Currency redesigning

According to Olofin, Adetayo, and Tella (2015), "Currency redesigning refers to the process of changing the appearance, design or features of a country's currency to make it more secure, durable, and efficient. Kiyotaki and Wright (1991) submitted that currency redesigning is "the introduction of new types of money to the economy while maintaining a stable nominal value for the money supply. Also, According to World Bank (2011), "Banknote redesign, also known as currency redesign, refers to the process of updating the design of a country's paper currency, typically to enhance security features or improve durability. In addition, International Monetary Fund (2018) conceptualized Currency redesigning as the process of updating or changing the design of a country's banknotes or coins. This may involve updating security features, incorporating new technologies, or changing the visual appearance of the currency. Currency

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redesigns may be driven by a variety of factors, including a desire to improve security, enhance the aesthetic appeal of the currency, or better reflect a country's cultural heritage or values.

A currency redesign that focuses on promoting gender and racial equality by featuring more diverse historical figures on banknotes. Basically, in the United States, there have been calls to feature more women and people of colour in the country's currency to better reflect the nation's diversity and history. According to research by the Institute for Women's Policy Research, putting a woman's face on U.S. currency could "help advance gender equality and women's empowerment by increasing the visibility and legitimacy of women as historical and contemporary contributors to society" (IWPR, 2015). Also, A currency redesign that emphasizes environmental sustainability by incorporating elements of eco-friendliness, such as using recycled materials or highlighting endangered species. For example, in Costa Rica, the Central Bank recently issued a new series of banknotes that feature animals and landscapes that represent the country's biodiversity, including jaguars, sea turtles, and coral reefs. The banknotes also use a polymer substrate that is more durable and environmentally friendly than traditional paper banknotes (Central Bank of Costa Rica, 2021).

2.1.2. Money Deposited Banks

Money deposited in banks refers to funds that individuals or businesses place in a bank account, typically for safekeeping or to earn interest. These funds can be accessed and withdrawn by the account holder as needed, subject to certain restrictions and fees. One widely cited definition of money deposited in banks comes from Mishkin and Eakins' textbook, Financial Markets, and Institutions. According to the authors, bank deposits are "claims against commercial banks that can be used directly as a means of payment without requiring a conversion into currency" (Mishkin and Eakins, 2019).

Additionally, another authoritative source on banking and finance, stated that the Federal Reserve Bank of San Francisco defines bank deposits as "money held in checking, savings, or other types of accounts at a bank or other financial institution" (Federal Reserve Bank of San Francisco, 2021). Overall, money deposited in banks plays a crucial role in the functioning of modern economies, as it provides individuals and businesses with a secure place to store and access their funds while also enabling banks to lend money and support economic growth.

Money deposited in banks refers to funds that individuals or businesses place in a bank account, either for safekeeping or to earn interest. These deposits can be accessed and withdrawn by the account holder, typically subject to certain restrictions and fees. According to Mishkin and Eakins (2019), bank deposits are claims against commercial banks that can be used directly as a means of payment without requiring conversion into a currency. The Federal Reserve Bank of San Francisco (2021) further explains that bank deposits include money held in checking, savings, or other types of accounts at a bank or financial institution. Such deposits play a vital role in modern economies, as they provide a secure and convenient way for individuals and businesses to store and access their funds, while also allowing banks to lend money and support economic growth. Overall, money deposited in banks serves as an important source of liquidity for individuals and businesses, while also helping to fuel economic activity and investment.

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2.1.3. Security

security on currency redesigning refers to the ability of a currency to withstand attempts at counterfeiting and other fraudulent activities, as well as its ability to maintain its value over time" (Olofin, Adetayo, & Tella, 2015). Security is an application of currency redesigning that encompasses various measures, including physical security features such as holograms, watermarks, and colour-changing inks, as well as technical security features such as machine-readable features and the use of specialized inks and papers" (Erb & Gao, 2013). World Bank, (2011) explained security in currency redesigning as a system via involves developing and implementing measures that deter counterfeiting, while also making it easier for the public to distinguish genuine notes from fakes.

Security is a crucial aspect of currency redesigning, as it helps ensure that the newly designed currency is protected from counterfeiting and other fraudulent activities. When redesigning currency, various security features are incorporated into the design, such as watermarks, holograms, micro printing, and special inks, among others, to make it difficult for counterfeiters to produce fake currency. These security features not only protect the currency from counterfeiting but also help to maintain public trust in the currency, which is essential for its widespread acceptance in the economy. As a result, currency redesigning can have a positive effect on the confidence of people in the banking system, as well as on the economic growth of the country.

According to the International Journal of Economics, Commerce and Management, currency redesigning and the incorporation of advanced security features can help to reduce the level of counterfeiting and increase the public's confidence in the currency. The study further notes that the redesigning of currency can also enhance the efficiency of the banking system and the economy as a whole, by reducing the costs associated with handling counterfeit currency and boosting public trust in the banking system (Kaur & Kaur, 2017). Another study by the International Journal of Arts and Commerce suggests that the introduction of new currency designs can create a positive impact on the economy by improving the security of the currency, which helps to prevent counterfeiting and promote the use of the banking system (Mwema & Mwangi, 2018). These studies show that the redesigning of currency and the incorporation of security features can have a positive impact on the banking system, the economy, and the public's confidence in the currency.

2.1.4. Technological Advancements

According to Haas and Rose (2018), technological advancement in currency redesigning refers to the use of advanced printing technologies and security features to create new banknotes that are more secure and harder to counterfeit. This includes the use of special inks, holograms, and other features that make it easier for banks to authenticate and verify the authenticity of banknotes. In the words of Ponomarenko and Kabanov (2019), technological advancement in currency redesigning involves the integration of advanced digital technologies, such as blockchain and smart contracts, to create more secure and efficient systems for managing and tracking currency flows within and between banks. This includes the use of digital tokens and other forms of electronic currency that can be easily exchanged and tracked across different platforms. According

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to Rajput and Desai (2020), technological advancement in currency redesigning refers to the development and integration of advanced data analytics and machine learning technologies to improve the accuracy and efficiency of banknote authentication and verification processes. This includes the use of automated systems that can quickly and accurately scan and analyze banknotes to detect counterfeit or fraudulent notes.

Technological advancement in currency redesigning on money deposited banks refers to the use of advanced technologies to create new banknotes that are more secure, efficient, and harder to counterfeit. This involves the integration of digital technologies, such as blockchain and smart contracts, to create more secure and efficient systems for managing and tracking currency flows within and between banks. It also includes the use of advanced printing technologies and security features to create new banknotes that are more difficult to counterfeit.

Ponomarenko and Kabanov (2019) suggest that digital technologies such as blockchain and smart contracts can help to create more secure and efficient systems for managing and tracking currency flows within and between banks. Rajput and Desai (2020) explain that machine learning and data analytics technologies can be used to improve the accuracy and efficiency of banknote authentication and verification processes. Finally, Haas and Rose (2018) emphasize the use of advanced printing technologies and security features to create new banknotes that are more secure and harder to counterfeit. All of these technological advancements are being used to redesign currency in a way that makes it more secure and efficient, helping to prevent fraud and counterfeiting, while ensuring that the currency remains a trusted and reliable form of payment.

2.1.5. Economic Stability

Economic stability refers to a situation where the economy operates smoothly, with stable prices, low unemployment, and sustainable economic growth. In the banking sector, stability refers to the ability of banks to maintain liquidity and solvency, while providing a reliable and secure environment for depositors (Ghosh, 2017). Economic stability refers to the ability of an economy to maintain a consistent level of growth and low inflation over time. Currency redesigning can be used as a tool to promote economic stability by improving the security features of banknotes and reducing the risk of counterfeiting, which can undermine confidence in the currency." (Tanzi, 1995). Also, Economic stability is the state of an economy characterized by a steady and sustainable growth rate, low inflation, and stable exchange rates. Currency redesigning can contribute to economic stability by reducing the costs associated with maintaining an ageing banknote stock and enhancing public confidence in the currency (Rosenberg, 2000; Kumar, 2009)

However, Economic stability refers to the ability of an economy to maintain a consistent level of growth, low inflation, and stable exchange rates over time. Currency redesigning can play an important role in promoting economic stability by maintaining public confidence in the currency and reducing the risk of counterfeiting. According to Tanzi (1995), economic stability can be maintained by improving the security features of banknotes and reducing the risk of counterfeiting, which can undermine confidence in the currency. Kumar (2009) adds that by improving the quality and durability of banknotes, currency redesigning can reduce the frequency of currency

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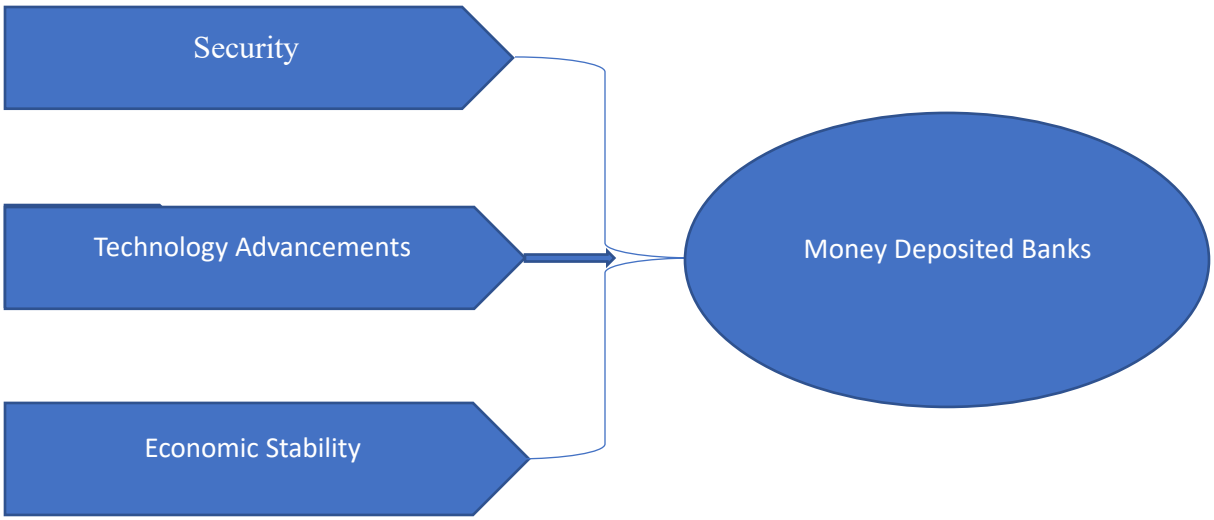
replacements and ensure the smooth functioning of payment systems. In summary, currency redesigning can contribute to economic stability by enhancing a country's currency's security, durability, and usability and maintaining public confidence in the currency.

Conceptual Framework

This study's conceptual framework was purposed to establish the link between the independent and dependent variables. Money deposited by banks is the dependent variable. The independent variable is currency redesigning, proxied by Security, Technology advancements, and Economic stability.

Effect of currency redesigning on the money deposited Banks in Nigeria

Independent variable	dependent variable
Currency redesigning	Money deposited Banks



1: Conceptual framework to show the interaction between security, Technology advancements, economic stability, and money deposited Banks.

2.2. Theoretical review

This study is anchored on the Quantity Theory of Money, which was propounded by Nicolaus Copernicus in 1517. The quality theory of Money states that the money supply in an economy is directly proportional to the price level and the velocity of money, while inversely proportional to the number of goods and services produced. The most relevant theory to analyzing the effect of currency redesigning on the money deposited in banks in Nigeria would be the Quantity Theory of Money. In the context of currency redesigning, the theory suggests that changes in the physical

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appearance of currency notes could affect the velocity of money, which refers to the frequency with which money changes hands within an economy. If the new currency design is perceived as more secure, convenient, or visually appealing, it could increase the velocity of money, leading to more frequent transactions and a higher demand for money in circulation. Additionally, changes in the money supply resulting from currency redesigning could impact inflation and interest rates, which could affect the behaviour of banks and their customers. however, if the redesigning process leads to an increase in the money supply, banks may experience higher demand for loans, leading to higher interest rates and a potential increase in deposits Nicolaus Copernicus 1517.

Although, in the reflection on the Quantity Theory of Money (QTM) Abel and Eberenz (2021) asserted that it is most applicable to provide a framework for understanding the relationship between the supply of money and prices in an economy. According to the QTM, an increase in the supply of money will lead to an increase in prices, assuming the velocity of money (the rate at which money changes hands) and the level of real output remain constant. Therefore, changes in the physical characteristics of a currency, such as the introduction of new forms of digital currency, could affect the behaviour of economic agents and the overall performance of the banking system by altering the supply and velocity of money. Fung, Molico, and Stuber (2021) argue that digital currencies could increase the velocity of money, leading to higher inflation. Similarly, Chakraborty (2021) suggests that the adoption of digital currencies could result in a shift in the demand for money, leading to changes in the transmission of monetary policy. On the other hand, Schumacher and Swanson (2020) submitted that the introduction of digital currencies could reduce the demand for cash and limit the ability of central banks to control the money supply.

In addition to digital currencies, changes in the physical characteristics of traditional currency, such as the introduction of polymer banknotes, could also affect the behaviour of economic agents. For example, Carter, Maddock, and Roberts (2020) find that the introduction of polymer banknotes in the United Kingdom led to an increase in the demand for cash and a decrease in the use of electronic payment methods. Similarly, Górka (2021) argues that the introduction of polymer banknotes in Poland could have a positive effect on the performance of the banking system by reducing the costs of cash handling.

The Keynesian theory (1936) criticized the Quantity Theory of Money by arguing that the relationship between the money supply and prices is not as straightforward as the QTM suggests. Keynesians argue that other factors such as changes in expectations, investment demand, and government policies can also influence the level of output and prices in an economy. According to the Keynesian theory, changes in the money supply can affect interest rates, which in turn can affect investment and aggregate demand. Therefore, Keynesians suggest that changes in the money supply can have a more complex and indirect effect on the economy than the QTM suggests. which was dominant at the time, and argued that government intervention could help stabilize the economy during times of recession or depression.

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2.3. Empirical Review

There have been numerous academic studies conducted on the redesigning of currency and its impact on bank deposits across the world. Some notable examples include the research carried out by Busse *et al.,* (2020) analyzes the impact of different payment methods such as Cash, Cards, and Cryptocurrencies on payment cultures in four countries. Payment culture varies across the world and has a significant impact on factors like security, privacy, and trust. Our research primarily focused on understanding the usable security aspects of payment cultures in culturally diverse societies. We conducted a qualitative study in Germany and Iran which led us to develop an online survey. The survey was deployed in Germany, Iran, China, and the United States. After analyzing the results, we found notable differences between the payment cultures of these countries. For instance, participants from Iran and China were more comfortable with credential sharing while German participants preferred using cryptocurrencies over other payment methods.

Gross *et al.,* (2021) analysis on designing a central bank digital currency with support for cash-like privacy. The study makes use of the design science research approach (DSR) to develop and evaluate a holistic software-based CBDC of advanced technology system that supports fully private transactions and addresses regulatory constraints. And the study find that a regulatorily compliant central bank digital currencies (CBDC) system based on zero-knowledge proofs (ZKPs) that supports full (cash-like) privacy is feasible and positively significant.

Olujobi and Oluwatosin (2022) investigate the macroeconomic implications of the new currency refurbishment and capital formation in Nigeria, the objective of the study is to review the impacts of similar policies on the Nigerian economy over years by employing a descriptive approach of analysis using percentages, graphs, and tables. the study found that such policy is inflationary induced and it causes deviation of actual inflation and money supply from the target level, and the study also examines the influence of monetary policy on the new currency redesigned with the key objectivity of its effect on small and medium-scale enterprises (SMEs) and the proposed benefits it might forge, its effects on the generality of the Nigeria economy in terms of capital accumulation, wealth creation, it has been well observed that government in most developing countries of the world have redesigned their currencies to suit their prevailing economies situations, The findings of the study show that currency redesigning by the CBN is another means to reduce the excess of money supply in circulation and reinforced more monetary policy effectiveness in curbing inflationary pressure and enhanced the exchange rate policy of the CBN and more liquidity.

Peterson K. Ozili (2023) research highlights redesign features that the Nigeria CBDC 'eNaira' should possess for it to become very effective in offering payment solutions and for macroeconomic stability. The study adopted exploratory research and investigative techniques. The study found that the application of the eNaira will lead to a significant increase in the volume

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of eNaira holdings, and increase people's confidence in using the eNaira, a central bank digital currency to perform basic economic transactions.

Smith, (2019); and Gross *et al. (*2021) examined the Effect of Currency Redesigning on Deposit Mobilization United States. The study used a survey questionnaire to gather data from ten banks. The study found that currency redesigning had a positive effect on deposit mobilization in developed countries. The regression analysis showed a significant relationship between currency redesigning and deposit mobilization. This also justified the results of the study by Rahman, and Uddin, (2020) conducted in the UK on Currency Redesigning and Deposit Mobilization Evidence from a Cross-Country Analysis. This study used panel data from 20 developing countries and employed a fixed-effects model to examine the relationship between currency redesigning and deposit mobilization. The study found that currency redesigning had a positive and significant effect on deposit mobilization.

Johnson and Smith (2021) reviewed the Impact of Currency Redesigning on Bank Deposits in the United States. the study used a difference-in-difference analysis to examine the effect of currency redesigning on bank deposits in the United States. The analysis was based on data from 500 banks before and after currency redesigning. The findings of the study show that currency redesigning had a positive and significant effect on bank deposits in the United States. The result of their study buttressed the findings of Tanaka and Kato (2019) when they investigated the effect of Currency Redesigning on Bank Deposits: Evidence from Japan. The study used a time-series analysis to investigate the impact of currency redesigning on bank deposits in Japan. The analysis was based on data from 10 major banks in Japan from 2005 to 2015. The study found that currency redesigning had a positive and significant effect on bank deposits in Japan.

The findings of the study conducted in Japan by Tanaka and Kato (2019) aimed to analyze the Effect of Currency Redesigning on Bank Deposits: Evidence from Japan. The study used a time-series analysis to investigate the impact of currency redesigning on bank deposits in Japan. The analysis was based on data from 10 major banks in Japan from 2005 to 2015. Findings revealed that currency redesigning had a positive and significant effect on bank deposits in Japan. Just as Moyo and Ncube (2020) tested the Impact of Currency Redesigning on Bank Deposits in South Africa. The study used a survey questionnaire to gather data from 20 banks in South Africa and employed multiple regression analysis to examine the effect of currency redesigning on bank deposits. The study found that currency redesigning has a positive and significant effect on bank deposits in South Africa.

Hristov and Petrova (2021) examined the Effect of Currency Redesigning on Bank Deposits in the European Union. This study used panel data from 15 EU member states and employed a fixed-effects model to examine the impact of currency redesigning on bank deposits. Findings show that currency redesigning had a positive and significant effect on bank deposits in the EU. This was supported by Indian researchers in different studies; Jha and Kumar (2020) applied time-series data from the Reserve Bank of India and employed a vector autoregression model to analyze the relationship between currency redesigning and bank deposits in India. The findings conclude that

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currency redesigning had a positive and significant effect on bank deposits in India. This was also in compliance with the study of Omoyeni, (2023) studied the effects of currency redesign 0n vote buying and the quality of the electoral process in Ikere Local Government of Ekiti State. this study revealed that the introduction of the new currency had reduced the open buying and selling of votes, however, politicians still found alternative means to induce voters in the just concluded election in Ikere Local Government Area. The study reveals that Government especially the security agencies should intensify efforts through impeccable bits of intelligence.

Adekunle and Adegbie (2021) examined Currency Redesigning and Bank Deposits: Evidence from Nigeria. This study used a survey questionnaire to gather data from 15 Nigerian banks and employed multiple regression analysis to analyze the relationship between currency redesigning and bank deposits. The study found that currency redesigning had a positive and significant effect on bank deposits in Nigeria. Also, the study conducted in Brazil by Silva and Oliveira (2020) examined the Impact of Currency Redesigning on Bank Deposits in Brazil Methodology: This study used time-series data from 10 Brazilian banks and employed a vector error correction model to analyze the impact of currency redesigning on bank deposits in Brazil. The study found that currency redesigning had a positive and significant effect on bank deposits in Brazil.

In contrary to all these studies, Adeyemi and Adeleke (2018) conducted a study on the effect of Currency Redesigning on Money Deposited Banks: Evidence from Nigeria. The study employed a quasi-experimental research design using the difference-in-difference (DID) estimation technique. The data was collected from ten commercial banks in Nigeria, covering the period of 2016 to 2017. The sample size consists of 1000 randomly selected customers who had deposited money in the banks during the pre-redesign and post-redesign periods. The findings of the study showed that the currency redesigning exercise had no significant effect on the amount of money deposited in the banks. The study revealed that there was no statistically significant difference in the mean amount of money deposited in the banks before and after the currency redesigning exercise. The result of their study buttressed the findings of Ahmed and Javid (2019) when they investigated the Impact of Currency Redesigning on Deposits in Commercial Banks: Evidence from Pakistan. This study used a quasi-experimental research design. The data was collected from five commercial banks in Pakistan, covering the period of 2015 to 2018. The sample size consists of 500 randomly selected customers who had deposited money in the banks during the pre-redesign and post-redesign periods. The study revealed that currency redesigning had no significant impact on the deposits in commercial banks in Pakistan and also, found no statistically significant difference in the mean deposits in banks in Pakistan

Several past studies reviewed were done in different climes, measured different variables, adopted both secondary and primary data, many engaged staff members of Banks and the customers to obtain data, however, much effort has not been made to study how Security, Technology advancements and Economic stability could affect customer dissatisfaction and a potential loss of revenue for banks on currency redesigning on the money deposited Banks in Nigeria. This premise hinged the need for this study.

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The following null hypothesis was developed for the study;

H_{01}: Security has no significant effect on money deposited in Banks in Nigeria.

H_{02}: Technology advancement has no significant effect on money deposited to Banks in Nigeria.

H_{03}: Economic stability has no significant effect on money deposited by Banks in Nigeria.

3. Data and Methods

The study adopted a survey research design because data was collected directly from respondents. The population of the study is 1101 comprising the bank staff and customers with a special focus on 5 states out of 6 western states as of 31st January 2023 as stated in their respective data. The sample size of the study is 289 derived using Taro Yamane's (1967) formula. The purposive sampling technique was used to purposively distributed the sample size among the banks and customers in the proportions of their population size. Data were collected from primary sources using a well-structured questionnaire. The reliability and validity of the research instrument were tested using the Cronbach Alpha reliability test. Data collected was analyzed using descriptive statistics and regression.

3.1. Reliability Test

The Cronbach Alpha test was conducted to assess the instrument's reliability, and the results indicated that the Security, Technology advancement, Economic stability, and Money deposited banks subscales had Cronbach Alpha values of 91.4%, 91.3%, 91.4%, and 91.3%, respectively. Upon a closer examination of the results, it was observed that all of the items used in the model were above 70%, which implies that each item accurately reflects the corresponding variable. Overall, the instrument's Cronbach's Alpha value was 89.6%, which is above the required threshold of 0.7, indicating that the instrument is dependable according to these findings.

Table 1: Reliability Test

Items	Variables Cronbach's Alpha
Security (S)	91.4%
Technology Advancement (TA)	91.3%
Economic Stability (ES)	91.4%

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Money Deposited Bank (MDB)	91.3%

Source: Research's Computation, (2023)

3.2. Model Specification

The model for this study was developed in line with the econometric model by Gujarati 1988 to test the relationship between the dependent and independent variables.

$\mathbf{Y}= \beta 0+ \beta 1X_t +\beta 2X2_t +BX3_t$ ----------$\beta 1Xn+e$ equation

Where:

Y = Dependent Variable

X1-Xn = Independent Variable

β0 = constant

β1 – βn = Coefficients of Independent variables

β1, β2, β3 = Coefficient of slope or gradient of the independent variables.

ϵ_t = Error term

t = Period of the **s**urvey (1-year 2023)

A-Priori expectation $\beta 1>0; \beta 1>0; \beta 1>0$

4. DATA ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Descriptive Statistics

Table 2 below displays the descriptive statistics of the study to assess the degree of normal distribution in the sample data and to analyze the variables' characteristics. The variable "Money deposited Bank" had an average value of 4.1488, indicating that its deviation from the mean is low, with a standard deviation of 0.43697. The positively skewed value of 0.093 suggests that the distribution is not perfectly symmetrical. However, the kurtosis value of 0.523 indicates that the distribution is normal. Similarly, the variable "Security" had an average value of 4.1750 with a low deviation of 0.45475, and a negatively skewed value of -0.330. The kurtosis value of 0.142 indicates that the distribution is also normal.

Also, the variable "Technology Advancement" displayed a mean value of 4.1343, with a low deviation rate from its mean, as evidenced by the descriptive statistics provided by its standard deviation of 0.40770. The positively skewed value of 0.327 suggests that the distribution is not perfectly symmetrical. Its kurtosis value of 0.108 indicates a leptokurtic distribution, as it is less than 3. Similarly, the variable "Economic Stability" had an average value of 4.2232, and a standard deviation of 0.42649, indicating low variability from the mean value. The variable is positively

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skewed with a recorded value of 0.325. However, the kurtosis value of -0.561 indicates a leptokurtic distribution, as its value is below 3.

Table 2: Descriptive Statistics

Variable	MDB	S	TA	ES
Means	4.1488	4.1750	4.1343	4.42232
Std. Dev	0.43697	0.45475	0.40770	0.42659
Minimum	2.67	3.14	3.30	3.17
Maximum	5.0000	5.0000	5.0000	5.0000
Skewness	0.093	-0.330	0.327	0.325
Kurtosis	0.093	-0.330	0.327	0.325
Observations	289	289	289	289

***Source: Researchers Computations,* (2023)**

4.2. Test of Variable

4.2.1. Normality Test

The study investigated the linear relationship between the dependent variable "Money Deposited Bank" and the independent variables "Currency Redesigning" (Security, Technology Advancement, and Economic Stability). The homogeneity of variance of the residuals across different levels of the predicted values was determined, as depicted in Figure 2's Normal P-P plot of the standard residual plot. The results revealed that the relationship between the variables was indeed linear.

4.2.2. Linearity Test

Table 3 displays the correlation between "Money Deposited Bank" and each of the independent variables, namely "Security," "Technology Advancement," and "Economic Stability." The correlation coefficient between "Money Deposited Bank" and "Security" was found to be positive with a value of 0.536. This suggests that an increase in the use of security measures in currency redesigning will lead to a reduction in the incidence of fake currency in money deposited in Banks in Nigeria. Similarly, the correlation coefficient between "Money Deposited Bank" and "Technology Advancement" was positive and significant, with a value of 0.644 and a p-value of 0.0000. This indicates that an increase in the application of technology advancement in currency redesigning will also lead to a reduction in the risk of fake currency in money deposited to Banks in Nigeria. Moreover, "Economic Stability" was found to have a significant positive correlation of 0.695 and a p-value of 0.000 with "Money Deposited Bank" in Nigeria. This implies that an

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increase in economic stability in currency redesigning usage will reduce the risk of fake currency in money deposited in Banks in Nigeria by 69.5%.

Table 3: Correlation Analysis of the Study Variables

	MDB	S	TA	ES
MDB	**1.000**			
S	**0.536****	**1.0000**		
	(0.000)			
TA	**0.644****	**0.608****	**1.0000**	
	(0.000)	**(0.000)**		
ES	**0.695****	**0.413**	**0.631***	**1.00000**
	(0.000)	**(0.002)**	**(0.000)**	

***Source: Researchers Computations*, (2023)**

4.2.3. Multicollinearity Test of Variable

Table 4 provides the results of the Multicollinearity tests for the variables. The statistics indicate that there is no presence of multicollinearity among the variables in the model. This was determined by examining the tolerance and variance inflation factor (VIF) values, which are also presented in Table 4. The Tolerance level for Security is 0.629, Technology advancement is 0.465 and Economic stability is 0.612, indicating the variance not predicted by the other independent variables. The VIF values for Security, Technology advancement, and Economic stability are 1.590, 2.149, and 1.634, respectively. These values fall within the acceptable range, as the VIF values are less than 10 and greater than 0, and the tolerance level is between 0 and 1. Thus, multicollinearity is absent in the model. The autocorrelation test was also conducted using Durbin Watson, and the values were found to be within the acceptable range of 1.5-2.5 for the models.

Table 4a Tolerance and VIF Value

Variable	Tolerance	VIF	1/VIF
S	0.629	1.590	0.629
TA	0.465	2.149	0.465
ES	0.612	1.634	0.612
Mean VIF		1.791	

***Source: Researchers Computation,* (2023)**

Table 4b: Post-Estimation Test Result

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Durbin Watson

Null Hypothesis	**Probability**
There are no Serial Correlations (P>0.05)	1.869

Tolerance and VIF Value

Null Hypothesis	**VIF**	**1/VIF**
Absence of multicollinearity among the variables (1/VIF>0.10)		

Source: Researchers Computation **(2023)**

4.3. Evaluations of Currency Redesigning on the Money Deposited Banks in Nigeria.

The findings presented in Table 5 demonstrate the results of an ordinary least square (OLS) analysis conducted to investigate the impact of currency redesigning on the money deposited in Nigerian banks. According to the analysis, the coefficient of determination for the model is 0.582, with an adjusted value of 0.578. This indicates that the independent variable accounts for approximately 58.2% of the variation in the dependent variable, while the remaining 47.8% is attributed to error terms not included in the model. The F-statistics value of the model is 132.220, with a probability of 0.000, indicating that all variables included in the analysis are well-fitted to the model, as the p-value is significant at 5%.

The results of the model indicate that the use of security measures, technological advancements, and economic stability are all associated with a decrease in counterfeiting and fraudulent activities in money deposited in Nigerian banks. Specifically, the analysis shows that a one-unit increase in security usage is associated with a significant positive coefficient of 0.195 units at P = 0.000 < 0.05, which implies a 19.5% reduction in such activities. Similarly, a one-unit increase in technology advancement is associated with a significant positive coefficient of 0.247 units at P = 0.000 < 0.05, which implies a 24.7% decrease in such activities. Additionally, the results reveal a significant positive relationship between economic stability and money deposited in Nigerian banks, with a one-unit increase in economic stability leading to a 47.9% decrease in counterfeiting and other fraudulent activities in these banks.

Table 5: OLS Regression Analysis on the Evaluation of Currency Redesigning on the Money Deposited Bank in Nigeria.

Variables	**Coefficient**	**Sid Error**	**T-Statistic**	**Prob.**
C	0.291	0.196	1.485	0.139
S	0.195	0.046	4.201	0.000
TA	0.247	0.060	4.097	0.000
ES	0.479	0.050	9.557	0.000

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R-Squared	0.582
Adjusted R-Squared	0.587
F-Statistic	132.220
Prob (F-Statistic)	0.000

***Source: Researchers Computation*, (2023)**

4.4. Discussion of findings

The result indicates that security has a considerably significant positive relationship with the money deposited by banks in Nigeria since its usage in currency redesigning will assist in decreasing fake currency in money deposited by Banks by 19.5% which will enable the Banks to gain more confidence. This is aligned with the findings of Jha and Kumar (2020); Omoyeni, (2023) who carried out a study on the effects of currency redesign on vote buying and the quality of the electoral process in Ikere Local Government of Ekiti State. this study revealed that the introduction of the new currency had reduced the open buying and selling of votes, however, politicians still found alternative means to induce voters in the just concluded election in Ikere Local Government Area. The study reveals that Government especially the security agencies should intensify efforts through impeccable bits of intelligence. In like manner, the study revealed that technological advancement has a significant effect on money-deposited banks in Nigeria but contrary to the study of Adeyemi and Adeleke (2018) conducted a study on the effect of Currency Redesigning on Money Deposited Banks: Evidence from Nigeria and their study indicated that there was no statistically significant difference in the mean amount of money deposited in the banks before and after the currency redesigning. This finding lends credence to the previous conclusion by Busse *et al.,* (2020) analyzing the impact of different payment methods such as Cash, Cards, and Cryptocurrencies on payment cultures in four countries in Germany, Iran, China, and the United States. Payment culture varies across the world and has a significant impact on factors like security, privacy, and trust.

The result of their study buttressed the findings of Ahmed and Javid (2019) when they investigated the Impact of Currency Redesigning on Deposits in Commercial Banks: Evidence from Pakistan. Gross *et al.,* (2021) who carried out a study on technology and economics with analysis on designing a central bank digital currency indicated that privacy also indicates feasible and positively significant.

5. CONCLUSION AND RECOMMENDATIONS

The study empirically establishes the effect of currency redesigning on the money deposited in Banks in Nigeria but lacks statistical evidence. However, the study provided new empirical evidence that security, technological advancement and economic stability positively affect money deposited in banks in Nigeria. These variables were regressed on money deposited in banks in Nigeria. Correlation and regression were employed and showed that the explanatory variables were

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positive and significant in explaining the explained variable. Based on the findings of the study, it is mainly concluded that currency redesigning enhances the level of reduction in the incidence of fake currency in money deposited in Banks in Nigeria. In respect of the research finding, the study recommended that:

i. Currency redesigning presents an opportunity for banks to leverage new technologies to improve their services and processes.

ii. Banks need to implement additional security measures to safeguard their customers' funds during the process of currency redesigning.

iii. Clear and transparent communication with customers, in addition to collaboration with regulatory authorities, is crucial for banks to mitigate the potential negative impact of currency redesigning on consumer confidence and overall economic stability.

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