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## Unlocking Africa's financial prospects in a digitized economy: *Financial Technologies, illicit flows, and debt management. The case of Nigeria*

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### Abstract

Africa's financial technology (FinTech) has significantly improved during the last several years as her economy evolved. Nigeria, as a vital part of the continent is undergoing so much as Africa is experiencing. Nigerian economy has undergone significant changes in recent years, particularly with the advent of FinTech. The infrastructure for Illicit Financial Flows, IFFs, evolved as well. To combat or curb IFFs and provide a stable operating environment for the economy, Nigeria must seek to increase transparency in financial decision-making and public debt management. In this study, regression and correlation were employed, together with primary, and secondary data gathered from the National Bureau of Statistics, to assess this subject matter. The aim was to unlock Nigeria's financial prospects via curbing IFFs and instilling transparency in public debt management by properly deploying of FinTech in Nigeria. According to the results, weak or compromised FinTech are increasing facilitating IFFs, there's great dearth of digital expertise, the transient nature of digital technology via virtual and traditional banks is actually obscuring demand for IFFs, regulatory frame is albeit obsolete and finally, there is a call for a multi-national approach. These findings will be helpful for policy-makers working hard to rid this country of IFFs and strengthen our public debt management mechanisms.

**Keywords:** Illicit Financial flows, FinTech; debt management; Credibility

### 1. Background to the study

The African economy has undergone significant changes in recent years, particularly with the advent of the global digitization process. Her economy has experienced substantial growth due to digitization. The continent has witnessed a rise in e-commerce platforms, digital payment systems, and mobile banking services.

This has led to increased access to financial services for previously unbanked populations, fostering economic inclusion. Additionally, digital technologies have facilitated entrepreneurship and innovation across various sectors, contributing to job creation and economic diversification. However, one wonders how this neo-

reality impacts her size, structure of production and financial management on a continental scale.

The African economy is a diverse and complex system, with significant variations in size and structure of production across different countries. While some African nations have experienced rapid economic growth and industrialization, others continue to struggle with poverty and underdevelopment. One key statistical indicator of the size of African economies is their Gross Domestic Product, GDP. Countries such as Nigeria, South Africa, and Egypt whose GDP in 2022 stood at US\$ 574 billion, US\$ 399 billion and US\$ 378 billion respectively, have relatively large economies due to their large populations and natural resources. On the other hand, smaller countries like Lesotho with a GDP of US\$ 2.5 billion and Burundi, US\$ 3.7 billion have much smaller economies due to their limited resources and small populations. The trio – Nigeria, South Africa and Egypt account for over 47% of Africa's GDP, which statistically accounts for much of the drivers of economic development in the continent's macroeconomics, especially in this era of fast digitization of the global economy.

In terms of structure of production, there are also notable differences between African countries. Some nations have a strong agricultural sector, relying on farming for both domestic consumption and export. For example, the world bank in 2022 reported that Kenya's tea, coffee, mate and spices exports accounted for 41.56% of the country's GDP in 2022, while Ivory Coast a major exporter of cocoa, supplies 45.98% of the world's cocoa beans and the sector domestically contributes 32.19% of the country's GDP. In contrast, other countries have a more developed manufacturing sector, producing goods for both domestic consumption and export. South Africa's automotive industry employs 460,000 persons and contributes 4.3% to her GDP and Morocco's textile industry accounts for 15% GDP in 2022 and employed over 200,000 are examples. Despite these differences, there are also similarities in the challenges faced by many African economies. Some of which are financial mismanagement, illicit financial flows, high debt profiles, high levels of unemployment, income inequality, corruption, inadequate infrastructure, and limited access to finance are common problems across the continent.

Africa's GDP is valued at US\$ 2.98 Trillion (2022) and her economy has long been plagued by illicit financial flows, hindering its development and impeding progress. The United Nations Conference on Trade and Development, UNCTAD report published in 2022, observed that in 2021 Africa lost US\$ 97.45 billion to illicit transfers. The report argued that if all leakages were closed, Africa will earn over US\$ 363 billion needed to finance over 50% of the cost of infrastructure intervention projects annually for five years. These monies are ferried across international financial centers through means such as and not limited to: abusive transfer pricing, trade mispricing, mis-invoicing and extractive industry transfer pricing. These are largely shady transactions done in secrecy lacking transparency and accountability. Judging from the submission of UNCTAD (2022), curbing illicit financing flows, IFFs, directly impacts funding or financing Africa's development.

Long term sustainable financing of Africa's development has been a herculean task due largely to illicit financial flows, IFFs) and (non) transparent Debt management which obviously are two crucial factors contributing to the impoverishment of the people. According to the Oversea Development Institute report published

November 2022, Africa's public debt stood at US\$ 1.04 trillion (2021). Illicit financial flows which refer to the illegal movement of money from one country to another further exacerbates Africa's public debt burden. Other methods used which keeps widening criminal structures that keep exploding the continent's public debt are tax evasion, corruption, and money laundering. These flows drain resources from African countries, hindering their ability to invest in infrastructure, education, healthcare, and others. Debt management is another critical issue that needs attention. Many African countries face high levels of debt due to loans taken from international lenders. However, the terms of these loans are often unfavorable for African nations, leading them into a cycle of debt dependency. Transparency in debt management is essential as it allows for better decision-making regarding borrowing and spending priorities. To instill some measures of confidence in the Africa's financial system, transparency must be taken seriously. The digital technology, affords us the digital economy which has made financial inclusion and transparency possible, thanks to cloud technology.

Illicit financial flows during the Covid-19 pandemic have had a significant impact on Africa's vulnerability to external shocks. Both illicit financial flows and external shocks pose serious challenges to the economic stability and development of African countries. During the Covid-19 crisis, these illicit flows have increased due to weakened regulatory systems and reduced oversight capacities. This has resulted in a loss of much-needed resources for African countries, exacerbating their vulnerability to external shocks. Specific data regarding the exact amount that diverted during the famous lock down is not readily available. External shocks are sudden events that disrupt economies and can lead to severe economic downturns. The Covid-19 pandemic is a prime example of an external shock that has affected Africa disproportionately. The continent's heavy reliance on global trade and tourism has made it highly susceptible to disruptions in international markets. While both illicit financial flows and external shocks negatively impact Africa's development prospects, they differ in terms of their origins and long-term consequences. Illicit financial flows are primarily driven by internal factors such as corruption and weak governance systems within African countries themselves. In contrast, external shocks are often beyond the control of individual nations and result from global events like pandemics or economic crises. To effectively combat this issue, the role of cloud technology, financial technologies (fintech), and virtual banks cannot be underestimated.

Cloud technology offers a secure and efficient platform for storing and processing vast amounts of data. By adopting cloud-based systems, African governments can enhance their ability to track illicit financial activities. Real-time monitoring of transactions and data analysis can help identify suspicious patterns and prevent money laundering or tax evasion. Additionally, cloud technology allows for seamless collaboration between different agencies and countries in sharing information related to IFFs. Financial technologies such as blockchain provide transparency and traceability in financial transactions. By leveraging blockchain's decentralized ledger system, African countries can ensure that every transaction is recorded securely, making it difficult for illicit funds to go unnoticed. Moreover, fintech solutions like biometric identification systems can reduce identity theft and fraud by ensuring that individuals are accurately identified during financial transactions. Virtual banks offer an alternative banking solution that is accessible to all citizens regardless of their geographical

location or socioeconomic status. These digital platforms provide greater convenience while reducing the risk of corruption associated with traditional banking systems. Virtual banks also enable better oversight by regulators through real-time monitoring of transactions. These and more lofty ideas that are advocated in numerous articles globally. However, we must be careful and realize that we are losing with the advent of Cloud and financial technologies and virtual banks. The challenge is to clearly identify the problems they pose to our economy and society at large.

The rapid growth financial technology (FinTech) and virtual banks has created loopholes that are being exploited. Moreso, the complexity of Cloud technology can obscure IFFs. In most African countries, particularly Nigeria, domestic macroeconomic and financial systems lack robustness and sophistication. Corruption and weak governance have been century old tactics to keep the macro-system vulnerable. There is huge gap of technical experts to drive the domestication of the revolution and eliminate the problem. The economics of data privacy and security enterprise is skewed against Africa. Cross border system architecture of cloud technology may pose significant macroeconomic challenges. Having highlighted some problems associated with domestic drivers of IFFs in Nigeria the paper will have the following objectives.

To understand the macroeconomic mechanisms through which cloud technology, financial technology, and virtual banks can facilitate and mask illicit financial flows in Africa using Nigeria. Secondly, to identify the key domestic drivers that contribute to illicit financial flows in the context of these technologies. Thirdly, to assess the economic, social, and political impact of these illicit financial flows on African countries using the Nigerian experience. Fourthly, to evaluate the effectiveness of current regulatory frameworks in preventing and detecting illicit financial flows through these channels and transparency in debt management. To propose policy recommendations and technological solutions for mitigating the risk of illicit financial flows. To develop strategies for building technical expertise and capacity in African countries using the Nigerian case study to better manage and control these illicit financial flows. And finally, to explore ways to promote international collaboration in tackling the cross-border challenges posed by illicit financial flows.

Questions that this paper will endeavor to provide answers are:

Does the lack of comprehensive and up-to-date regulatory frameworks significantly contribute to the increase in illicit financial flows via cloud and financial technology and virtual banks in Nigeria?

Does the rapid advancement and complexity of financial technology and virtual banks obscure illicit financial activities?

Does weak domestic financial systems and governance in Nigeria facilitate illicit financial flows via these platforms?

Is the level of digital expertise in Nigeria inversely proportional to the volume of illicit financial flows?

Does the cross-border nature of cloud technology and virtual banking exacerbate the problem of illicit flows in Nigeria due to jurisdictional challenges.

Based on the questions raised, the study hypotheses are:

H<sub>1</sub>: The lack of comprehensive and up-to-date regulatory frameworks significantly contributes to the increase in illicit

financial flows via cloud and financial technology and virtual banks in Nigeria.

H<sub>2</sub>: The rapid advancement and complexity of financial technology and virtual banks obscure illicit financial activities.

H<sub>3</sub>: Weak domestic financial systems and governance in Nigeria facilitate illicit financial flows via these platforms.

H<sub>4</sub>: The level of digital expertise in Nigeria is inversely proportional to the volume of illicit financial flows, i.e., countries with lower technical expertise face higher illicit financial flows.

H<sub>5</sub>: The cross-border nature of cloud technology and virtual banking exacerbates the problem of illicit flows in Africa due to jurisdictional challenges.

## 2. Literature Review and Theoretical Framework

### 2.1 Conceptual Review

#### 2.1.1 Africa's financial economy

Africa's financial economy has long been a topic of discussion and analysis. While some argue that the continent's financial sector is thriving and poised for growth, others contend that it is plagued by numerous challenges, (Aaronson, 2019). One of the key issues facing Africa's financial economy is access to finance. Many individuals and small businesses struggle to secure loans or investment capital due to limited access to formal banking systems. This lack of access hampers economic growth and perpetuates poverty cycles, (Stein, Goland, and Schiff. 2020).

Moreover, corruption remains a pervasive problem in many African countries, undermining trust in financial institutions. Transparency International consistently ranks several African nations among the most corrupt in the world. This not only deters foreign investment but also erodes confidence within domestic markets, (Holmes, 2021).

Additionally, Economist (2014) argued that weak regulatory frameworks pose a threat to Africa's financial stability. Inadequate oversight allows for fraudulent activities such as money laundering and tax evasion to thrive, further hindering economic development.

Furthermore, Bourguignon, (2012) argued that Africa's heavy reliance on commodity exports leaves its economies vulnerable to global market fluctuations. Price volatility can have severe consequences for countries heavily dependent on commodities like oil or minerals.

While there have been positive developments in Africa's financial economy, significant challenges persist. Access to finance, corruption, weak regulatory frameworks, illicit funds flow, debt mismanagement and overreliance on commodities all hinder sustainable growth.

### 2.2 Review of selected countries

#### 2.2.1 The case of Angola

International Monetary Fund (2022) observed that Angola, a country located in Southern Africa, has experienced significant economic growth over the past two decades. This growth can be attributed to its vast natural resources, particularly oil and diamonds. However, despite this economic progress, Angola still faces numerous challenges in its financial economy.

Angola heavily relies on oil exports for its revenue, making it vulnerable to fluctuations in global oil prices. This dependence on



a single commodity leaves the country exposed to economic shocks and limits its ability to withstand external pressures, (Prabhu, K. Seeta, and Sandhya S. Iyer, 2019).

Furthermore, United Nations (2020) argued that corruption and mismanagement have hindered Angola's financial development. The country has been plagued by high levels of corruption, which has resulted in a significant portion of its wealth being siphoned off by corrupt officials. This not only undermines public trust but also hampers foreign investment and impedes economic growth.

Additionally, World Bank (2017) buttressed that inadequate infrastructure and limited access to finance pose significant barriers to Angola's financial economy. Poor roads, unreliable electricity supply, and limited banking services make it difficult for businesses to operate efficiently and attract investment.

### 2.2.2 The case of Algeria

Algeria, a country located in North Africa, has emerged as one of the leading economies on the continent. With its vast reserves of oil and natural gas, Algeria has been able to establish a strong financial economy that has contributed to its overall development.

However, Gupta, (2021) expressed concerns about the sustainability and inclusivity of this economic growth. One argument in favor of Algeria's financial economy is its ability to generate substantial revenue through oil exports. This has allowed the government to invest in infrastructure development, education, and healthcare. Additionally, it has created job opportunities for Algerians and reduced poverty levels.

On the other hand, Eichengreen and Gupta, 2021 argue that Algeria's heavy reliance on oil exports makes it vulnerable to fluctuations in global oil prices. This over-dependence on a single sector can hinder diversification efforts and limit economic growth potential. Moreover, the benefits of this economic growth have not been evenly distributed among all segments of society. Income inequality remains a significant challenge in Algeria

### 2.2.3 The case of Equatorial Guinea

Allen, Otchere, Senbet, (2011) reported that Equatorial Guinea, a small country on the west coast of Africa, has experienced significant economic growth in recent years. However, this growth has not translated into improved living conditions for the majority of its population. Instead, it has been concentrated in the hands of a few elites, leaving the rest of the country impoverished.

Gyimah-Brempong, Kwabena, (2022) believes that One of the main reasons for this disparity is corruption. Equatorial Guinea is known for its high levels of corruption, with government officials embezzling public funds and engaging in nepotism. This has hindered economic development and prevented equitable distribution of wealth.

Another factor according to Ologunde, Kapingura, Sibanda (2020) contributing to the country's financial woes is its heavy reliance on oil exports. While oil revenues have fueled economic growth, they have also made Equatorial Guinea vulnerable to fluctuations in global oil prices. When prices are high, the government spends lavishly on infrastructure projects and luxury goods instead of investing in education and healthcare.

Furthermore, Moran, Wackernagel, Kitzes, Goldfinger, & Boutaud (2018) opined that lack of diversification in Equatorial Guinea's economy has left it vulnerable to external shocks. The COVID-19

pandemic highlighted this vulnerability as oil prices plummeted and tourism came to a standstill.

### 2.2.4 The case of Nigeria

Chanchangi, Ghosh, Sundaram, Mallick and Dust (2020) describe Nigeria as the "Giant of Africa," that has a significant impact on the continent's financial economy. With a population of over 200 million people and abundant natural resources, Nigeria has the potential to become an economic powerhouse. However, several challenges hinder its progress.

One major obstacle according to Anyaogu (2021) is corruption. Despite efforts to combat it, corruption remains pervasive in Nigeria's financial system. This not only undermines investor confidence but also hampers economic growth and development. Additionally, weak institutions and inadequate regulatory frameworks contribute to the country's financial instability.

Anyanwu and Salami (2021) pointed out another issue - income inequality. In their submission, they argued that while Nigeria boasts a growing middle class, poverty levels remain high, with millions living below the poverty line. This disparity limits domestic consumption and restricts economic expansion.

Furthermore, Magaji and Eke (2013) reported that Nigeria heavily relies on oil exports for revenue generation. This overdependence on a single commodity makes its economy vulnerable to fluctuations in global oil prices. Diversification is crucial for long-term stability and resilience against external shocks.

One common problem faced by all four countries is corruption. Corruption, *whose proceeds are syphoned abroad as illicit financial flows*, has hindered economic growth and development in these nations. In Angola, for example, the ruling elite has been accused of embezzling billions of dollars from the country's oil revenues. Similarly, in Nigeria, corruption is widespread and has led to a lack of investment in critical sectors such as infrastructure and healthcare.

Another shared challenge is over-reliance on natural resources. Angola, Algeria, Equatorial Guinea, and Nigeria are all heavily dependent on oil exports for revenue. This dependence makes their economies vulnerable to fluctuations in global oil prices. Additionally, it hampers diversification efforts that could lead to sustainable economic growth.

However, there are also differences among these countries' financial economies. For instance, while Angola and Nigeria have experienced significant economic growth in recent years due to their oil reserves, Algeria has struggled to diversify its economy beyond hydrocarbons. Equatorial Guinea faces similar challenges but has also been plagued by political instability.

Corruption proceeds used to fund illicit financial transfers and over-reliance on natural resources are common problems faced by Angola, Algeria, Equatorial Guinea, and Nigeria. However, there are also notable differences among these countries' financial economies that contribute to their varying levels of success or failure in addressing these challenges.

## 2.3 Conceptual Framework

The connection between Africa's financial economy, financial technologies, illicit flows, and debt management is a complex and multifaceted issue that requires careful analysis. Africa's financial economy has been growing steadily in recent years, with increased access to banking services and the rise of mobile money platforms.

However, this growth has also been accompanied by challenges such as illicit financial flows and unsustainable levels of debt.

Illicit flows refer to the movement of funds across borders in ways that are illegal or unethical. This includes activities such as money laundering, tax evasion, and corruption. These illicit flows have a detrimental impact on Africa's financial economy as they drain valuable resources from the continent. According to a report by the African Union, Africa loses an estimated \$50 billion annually due to illicit financial flows.

Financial technologies have played a significant role in facilitating these illicit flows. The use of digital platforms for transactions makes it easier for individuals and organizations to move funds discreetly across borders without detection. Additionally, the lack of regulatory frameworks and oversight for these technologies further exacerbates the problem.

Debt management is another critical aspect that is closely linked to Africa's financial economy. Many African countries have accumulated substantial amounts of debt over the years through loans from international lenders. While these loans were intended to promote development and economic growth, they often come with high interest rates and strict repayment terms.

The combination of high levels of debt and illicit outflows creates a vicious cycle that hampers Africa's economic progress. The funds lost through illicit flows could have been used for essential investments in infrastructure development, education, healthcare, or poverty alleviation programs.

## **2.4 Theoretical Review**

### **2.4.1 Klitgaard-Ackerman's Theory of Corruption**

Klitgaard (1991) presents Klitgaard's theory, known as the "corruption formula," which suggests that corruption occurs when there is a monopoly of power, limited accountability, and ample discretion. According to the author, these three factors create an environment conducive to corrupt practices.

On the other hand, Rose-Ackerman's theory in Ackerman (1978) focuses on the role of institutions in combating corruption. She posits that strong institutions with effective checks and balances can deter corrupt behavior. Additionally, she emphasizes the importance of economic development and social norms in reducing corruption.

While Klitgaard's theory highlights the need for structural reforms to combat corruption, Rose-Ackerman emphasizes the significance of institutional frameworks. Both theories recognize that addressing corruption requires a multi-faceted approach involving legal reforms, institutional strengthening, economic development, and changes in societal attitudes towards corrupt practices.

### **2.4.2 Baker's Theory of Illicit financial flows**

According to The Economist. (2014); Corruption Watch, UK (2013) and Kar (2012) building on the works of Baker (2005), who researched illicit financial flows, provides a comprehensive analysis of how corrupt practices such as money laundering and tax evasion contribute to illicit financial flows.

According to Kar (2012) the Baker model explains illicit financial flows as a function of corruption. However, Oxfam (2015) observed that Illicit financial flows have become a significant concern in the global economy, with estimates suggesting that trillions of dollars are being siphoned out of developing countries each year.

The Economist. (2014) maintains that several factors contribute to the occurrence of illicit financial flows. Weak governance structures, lack of transparency in financial systems, and inadequate regulation provide fertile ground for such activities. Additionally, multinational corporations engaging in aggressive tax planning strategies further exacerbate the problem. Kar (2012) argues that the wide prevalence of IFFs recently appears to be inconsistent with Baker (2005)'s theory.

### **2.4.3 The Structural Theory of Illicit Financial Flows**

Netshisaulu, Van der Poll, & Van der Poll (2022) introduced the structural theory of illicit financial flows and argued that it is a compelling framework that explains the complex dynamics behind the global issue of money laundering and illicit financial activities. This theory posits that these flows are not merely the result of individual actions, but rather a consequence of systemic flaws within the global financial architecture.

One key aspect of this theory as indicated by Bohoslavsky (2018) is the recognition that illicit financial flows thrive due to weak regulatory frameworks and inadequate enforcement mechanisms. The ease with which individuals and corporations can move money across borders without detection or accountability allows for the perpetuation of illegal activities. Moreover, it highlights how certain countries or regions serve as safe havens for these illicit funds, providing a conducive environment for their growth.

According to Barasa (2018), another important element of this theory is its emphasis on inequality and economic disparities as drivers of illicit financial flows. It argues that corruption, tax evasion, and other forms of illegal capital flight are often fueled by socioeconomic inequalities within and between nations. The wealthy elite exploit loopholes in the system to accumulate wealth at the expense of society's most vulnerable members.

Some other authors may argue that focusing solely on structural factors neglects individual responsibility. However, understanding these structural flaws does not absolve individuals from accountability; rather, it provides a more comprehensive understanding of how systemic issues enable and perpetuate illicit financial activities.

### **2.4.4 The Structural model of Illicit Financial Flows demand and supply framework**

The structural model of illicit financial flows demand and supply framework is a crucial concept in understanding the global issue of illicit financial activities. Illicit financial flows refer to the movement of money or capital from one country to another, which is illegally obtained, transferred, or utilized. Netshisaulu, Van der Poll, & Van der Poll (2022)'s submission indicates that this framework provides a comprehensive understanding of the factors that drive both the demand and supply sides of these illicit flows.

On the demand side, Cobham (2018) argues that various factors contribute to the high demand for illicit financial activities. The author believes one key factor is corruption within governments and institutions, which creates an environment conducive to illegal transactions. Additionally, Forstater (2018) postulations recognizes that tax evasion and money laundering are major drivers of illicit financial flows as individuals and corporations seek ways to avoid paying taxes or hide their wealth.

On the supply side, the arguments advanced by Desalegn (2020) and Diantini, Ayu, Ho, and Zhong (2022) reveal several factors contribute to the availability of opportunities for illicit financial

activities. Weak regulatory frameworks in many countries allow for loopholes that can be exploited by criminals. Furthermore, globalization has facilitated cross-border transactions, making it easier for criminals to move money undetected.

Understanding this structural model is essential because it helps policymakers develop effective strategies to combat illicit financial flows. By addressing both the demand and supply sides simultaneously, governments can implement measures such as strengthening anti-corruption efforts, improving regulatory frameworks, and enhancing international cooperation.

### 2.5 Empirical Review

Over the past decades, dozens of scholars such as Marous (2021); Jones and Tonetti (2020) and Alexopoulos (2020) provides valuable insights into the potential of financial technologies (fintech) to transform Africa's economy. They explored the relationship between fintech, financial flows, debt management in developed and developing economies. Different methods of analysis yielded different results, sometimes sharply different, sometimes modestly. This section presents various studies that have examined the effect of these variables.

Focusing on Nigeria's economy, Ekong and Ekong (2022) assesses empirically its effect on the economy. The variables used were automated teller machine, ATM, point of sale machines, POS, Web pay, and mobile pay on the economy. The methodology used were high-frequency quarterly data for the analysis from 2006:1 to 2020:4 in a weighted stepwise forward regression. They argued that their model was similar to the one used by Demir *et al.* (2020) and Altunbas and Thornton (2019) with some modifications was developed. The study finds that fintech offers innovative solutions for combating illicit financial flows.

Chang , Baudier , Zhang, Xu, Zhang, and Arami (2020) invested the impact and revolution of FinTech and Blockchain in the financial industry using descriptive statistics and argued that leveraging blockchain, cloud technology and digital currencies, transactions can be made more transparent and secure. This reduces the opportunities for corruption, money laundering, and tax evasion. Moreover, fintech platforms enable real-time monitoring of financial transactions, making it easier to detect suspicious activities.

Sampat, Mogaji and Nguyen (2023) examined the FinTech industry vis-a-vis financial flows in digitized ecosystem. The study among other conclusions stated that economies powered by fintech can enhance debt management in Africa. With access to mobile banking services and digital payment platforms, individuals and businesses can better manage their finances. This includes tracking expenses, budgeting effectively, and accessing credit facilities when needed. Consequently, improved financial literacy combined with efficient debt management tools can reduce the risk of default on loans.

However, it is important to acknowledge potential challenges associated with adopting fintech in Africa. Limited internet connectivity and technological infrastructure may hinder widespread adoption initially. Additionally, regulatory frameworks need to be established to ensure consumer protection and prevent cybercrime.

### 2.6 Gaps in literature

The inability of African economies to grapple with the challenges posed by illicit financial flows and debt mis-management is further

compounded with the advent of digital economic financial tools that are widespread and readily available is increasingly being recognized as a barrier to development. The stakeholders are hampered by a variety of algorithmic, and procedural restrictions. There is also a lack of consensus among researchers about whether or not these digital platforms and systems are able to live up to their full potential in Nigeria. Research on financial inclusion for the bottom of the pyramid (B.O.P.) in Nigeria also needs to change, and attention needs to be placed on the creation of technological solutions for this huge economic and financial challenge. Therefore, it is currently a critical concern to create innovative means of providing financial services industry the necessary insight to checking illicit activities and super-imposing transparency in debt management.

## 3. Methodology

### 3.1 Introduction

The hypotheses were tested using inferential statistics in the quantitative method. The study deployed confirmatory factor analysis to identify the most important contributing or driving factors and structural equation modeling to analyze the data. Confirmatory factor analysis was a crucial part of this study's early phases in order to find variables for the prevalence of illicit financial flows and secrecy in debt management. At this step of the study process, statistical tests were used to determine whether or not the association exists and, if so, how strong it is. Structural equation modeling was the key statistical method used to test the hypotheses and analyze the effect of illicit financial flows via digital platforms and services.

### 3.2 Design

According to Nigerian Bureau of Statistics, NBS (2022) there are 94.641 tenured staff in the banking industry. It is impossible to obtain the opinions of the whole population. As a result, the sampling approach was institutionalized. Using a method known as stratified judgmental sampling, the sample frame consisted of respondents from three states (based on responses that came in), namely, Abia, Abuja, and Lagos on a random basis. The total number of respondents that participated in the survey was 347. They were given closed-ended questionnaires, and data were collected by one of researchers himself between March 2023 to July 2023 as respondents were aware about Google Forms but were pressed for time as all were.

### 3.3 Data Collection

Primary data was mainly used, including the use of surveys for gathering information. The primary data came from bankers who were gracious to take the online survey, and it was acquired using stratified sampling methods. Using responses from a pilot study of people who use mobile money and other financial technologies, a structured questionnaire was put through its paces. A Likert rating scale and nominal and rank-order scales were used in the preparation of the questionnaire in order to facilitate data scaling.

## 4. Results

Table 1. Model information

| Number of Observations | Number of Observations                         |
|------------------------|--|
| Free parameters        | 45   |
| Model                  | Illicit financial flows = IFF1 + IFF2 + IFF3 + |

|  |   |
|--|---|
|  | IFF4  |
|  | Financial technologies = FT1 + FT2 + FT3                                  |
|  | Credibility = CR2 + CR3   |
|  | Debt management = DM1 + DM2 + DM3   |
|  | Fintech for combating IFFs = FTCIFF1 + FTCIFF2 + FTCIFF3                  |
|  | Fintech for combating IFFs IFFs + FinTech + Credibility + Debt management |

Note. Variables (IFF1 + IFF2 + IFF3 + IFF4, FT1 + FT2 + FT3, UB2, UB3, DM1 + DM2 + DM3, FTCIFF1 + FTCIFF2 + FTCIFF3) have been coerced to ordered type.

The indicated variables have been coerced, (Table 1). Both CFI and TLI need to be at least 0.90 for the model to be considered valid, and both conditions were met in this study. The values of CFI and TLI were found to be 0.997 and 0.996, respectively, (Table 2).

**Table 2.** User model versus baseline model

|                             | Model |
|-----------------------------|-------|
| Comparative fit index (CFI) | 0.997 |
| Tucker–Lewis index (TLI)    | 0.996 |

Judging from the parameter estimations in Table 3, including the four predictors (illicit financial flow, fintech, credibility, and debt management) and their impact on curbing illicit activities due to systematic innovations created by the fintech companies. It was estimated and observed that FinTech (0.3823) was the most prominent factor as it had a significant impact on combating illicit financial flows. This means the respondents do believe that fintech services are trustworthy and they can be combat IFFs. Debt management (0.2304) was the second most significant indicator for FinTech combating IFFs, although the value was not found to be significant. The demand for IFFs was the third prominent reason, and the value was also found to be significant. Credibility (0.0839) was also found to be most significant in having an impact on the subject matter. Except for debt management, the threshold value of all the constructs was found significant.

**Table 3.** Parameter estimates

| Dep                        | Pred            | Estimate | SE     | 95% Confidence Intervals |       |         |      |        |
|----------------------------|-----------------|----------|--------|--------------------------|-------|---------|------|--------|
|                            |                 |          |        | Lower                    | Upper | $\beta$ | z    | p      |
| Fintech for combating IFFs | Demand for IFFs | 0.2221   | 0.0860 | 0.0535                   | 0.391 | 0.0902  | 2.58 | 0.010  |
| Fintech for combating IFFs | IFFs            | 0.3823   | 0.1560 | 0.0764                   | 0.688 | 0.3968  | 2.45 | 0.014  |
| Fintech for combating IFFs | Credibility     | 0.0839   | 0.0247 | 0.0355                   | 0.132 | 0.0721  | 3.40 | <0.001 |
| Fintech for combating IFFs | Debt management | 0.2304   | 0.1795 | -0.1215                  | 0.582 | 0.1794  | 1.28 | 0.199  |

The structural equation model is made up of two models - measurement and structural models. The nexus between the observable data and the latent variables are captured by the measuring instruments. The structural model shows how the latent variables are connected. In this study, we used the measurement model. We measured the association of latent and observed variables. As far as demand for IFFs is concerned, it was found that IFF4 (3.030) was strongly associated with the latent observed variable, while IFF2 (0.814) was found to be the least associated.

**Table 4.** Measurement model

| Latent                 | Observed | Estimate | SE      | 95% Confidence Intervals |       |         |        |        |
|------------------------|----------|----------|---------|--------------------------|-------|---------|--------|--------|
|                        |          |          |         | Lower                    | Upper | $\beta$ | z      | p      |
| Illicit financial flow | IFF1     | 1.000    | 0.00000 | 1.000                    | 1.000 | 0.187   |        |        |
|                        | IFF2     | 0.814    | 0.12667 | 0.566                    | 1.062 | 0.152   | 6.43   | <0.001 |
|                        | IFF3     | 2.988    | 0.35217 | 2.297                    | 3.678 | 0.557   | 8.48   | <0.001 |
|                        | IFF4     | 3.030    | 0.35601 | 2.333                    | 3.728 | 0.565   | 8.51   | <0.001 |
| FinTech                | FT1      | 1.000    | 0.00000 | 1.000                    | 1.000 | 0.477   |        |        |
|                        | FT2      | 1.183    | 0.23975 | 0.713                    | 1.653 | 0.564   | 4.94   | <0.001 |
|                        | FT3      | 0.915    | 0.16722 | 0.588                    | 1.243 | 0.437   | 5.47   | <0.001 |
| Credibility            | CR1      | 1.000    | 0.00000 | 1.000                    | 1.000 | 0.395   |        |        |
|                        | CR2      | 0.983    | 0.00503 | 0.973                    | 0.993 | 0.389   | 195.42 | <0.001 |



|                                  |        |       |         |       |       |       |      |        |
|----------------------------------|--------|-------|---------|-------|-------|-------|------|--------|
| <b>Debt Management</b>           | DM1    | 1.000 | 0.00000 | 1.000 | 1.000 | 0.358 |      |        |
|                                  | DM2    | 1.307 | 0.37785 | 0.566 | 2.048 | 0.468 | 3.46 | <0.001 |
|                                  | DM3    | 1.313 | 0.37914 | 0.570 | 2.056 | 0.470 | 3.46 | <0.001 |
| <b>Fintech for combating IFF</b> | FTIFF1 | 1.000 | 0.00000 | 1.000 | 1.000 | 0.460 |      |        |
|                                  | FTIFF2 | 1.148 | 0.24792 | 0.662 | 1.634 | 0.528 | 4.63 | <0.001 |
|                                  | FTIFF3 | 0.592 | 0.16694 | 0.265 | 0.919 | 0.272 | 3.55 | <0.001 |

In the case of FinTech, FT2 (1.183) was found to be most significant, while FT3 (0.915) was found to have less association. In the case of Credibility, there were only two variables, and both were found to be associated, although CR1 had stronger association compared to CR2. Debt management was the third latent variable, and DM1 (1.313) was found to be associated with its construct, while DM3 was found to be the most correlated. The last latent variable was fintech for financial inclusion, where FTIFF2 was found to be strongly associated, while FTIFF was less associated.

## 5. Summary, Conclusion and Recommendation

It is generally agreed that FinTech is necessary for combating IFFs, the promotion of fair and inclusive economic growth, and the maintenance of economic stability. In underdeveloped nations, such as Nigeria, a significant portion of the population do not have a say in the management of the country's debt nor understand its dynamics. The vast majority of them are concerned about daily bread. It is necessary to strengthen the regulatory fabrics for financial technology and services related to mobile money in order to combat IFFs and to improve one's standard of living. Despite this, research on the field of fintech vis-à-vis illicit financial flows is still in its infant phases. In most nations that are still developing, policy-makers see combating IFFs as a top objective for development.

This work is a contribution to the body of research that deals with drivers associated with IFFs and how to exploit them using FinTech, particularly for economically disadvantaged nations such as Nigeria despite their vast amount of natural resources. The model that incorporated the input of non-experts into financial decision-making such as debt management emerged as the most important finding from this empirical investigation. In addition, findings from the structural equation modeling and route analysis led the researchers to the conclusion that Nigerians, who are meant to participate in national financial decision-making via the use of social media services, should always make an effort to engage the government.

Most respondents believe that enthronement of transparency via FinTech is simple and straightforward to grasp. The people around the corridors of power, particularly the experts, must key in. A number of respondents shared the opinion that making use of FinTech services to combat financial crimes is welcome development but doubt the sincerity of policy makers and implementers to allow for maximum use. Respondents have the impression that the service platforms have been comprised to mask and protect big perpetrators. They also showed faith in the system when it came to the strengthening of fintech services. However, they concur that it is essential to exercise extreme caution when dealing with combating IFFs that are facilitated through on

FinTech. The results of this research indicate that FinTech is playing a significant role in sanitizing the financial system of the Nigerian economy. In reality, demand for IFFs, FinTech, Credibility, and Debt management have a significant impact on the economy (Sampat, Mogaji and Nguyen, 2023).

Trust in Nigeria's financial has since been eroded with the advent of FinTech especially with the myriad stories of account hacks. Efficient national debt management services are directly tied to their financial welfare. Therefore, trust is crucial, and fintech is delivering it, no doubt, with a double-edged sword. The results of this study are aligned with earlier literature.

**This study was confined to demand for IFFs, FinTech, Credibility, and debt management.**

This study fresh insights on best practices for policy-makers, regulators, and investors to use in drivers or demand factors as regards IFFs. It provides empirical data to determine the crucial success component and another platform to properly harness FinTech services. The findings of this research give critical inputs to decision-makers so that they may design a plan to manage the present impediments to curbing IFFs. Taking into account the findings of the research, policy-makers and other industry players may leverage FinTech to develop new policies with the goal of curbing IFFs, boosting income, and the general wellbeing of Nigerians. This research contributes to the process of developing a cloud technology enabled dataset.

The results of this research contribute to the betterment of Nigeria in two different ways. To begin with, people will be more knowledgeable of the dark side of FinTech services that can be easily manipulated. The second benefit is that it gives formerly marginalized people a voice and access to national economic matters such as public debt management. The creation of a transparent financial sector offers complementary contributions to the economy by drawing in a greater number of participants to governance issues, which, in the long run, aids the growth of the digital economy.

### Future Research

FinTech has seen explosive growth in recent years as new businesses and technologies have transformed the way we think about banking and money. In the same vein, the future of FinTech vis-à-vis IFFs and debt management, according to experts, will entail even more innovative strategies to combat criminal infrastructure, with an increasing emphasis on offering seamless, 360-degree financial services and leveraging conventional international best practices. Therefore, in a future perspective, researchers can explore how commercial banks understand their role in creating this new regulatory environment.

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