



Understanding the Impacts and Dynamics of Digital Finance and Globalization in Sub-Sahara Africa

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ABSTRACT

This paper sheds light on the impact and dynamics of digital finance and globalization in Sub-Sahara Africa using panel data collected from IMF FAS, KOHGI and the WDI, spanning from 2000 to 2022. The data was analyzed using the dynamic Driscoll-Kraay technique. The findings revealed that the lag of globalization exhibits an enhancement effect on the current level of globalization, indicating a positive feedback. Furthermore, the analysis reveals a negative effect of digital finance on globalization in Africa. This finding highlights the need for a nuanced understanding of the role of digital finance in shaping the globalization dynamics within the African context. Controlling for other factors, the study also finds positive and significant effects of trade openness, the log of gross fixed capital formation, and institutional quality index on globalization in Sub-Saharan Africa. To inform policy and foster sustainable development, the recommends that policymakers should develop a comprehensive digital finance framework that promotes responsible and inclusive financial technology adoption. This includes implementing regulations to mitigate potential negative effects on globalization while fostering innovation, ensuring data privacy and security, and enhancing financial literacy. Investments in digital infrastructure, such as broadband connectivity and mobile network coverage, should be prioritized to expand access to digital finance services. This will enhance the potential positive impact of digital finance on globalization, facilitating cross-border transactions, and fostering economic integration.

Key Words: *Digital Finance; Globalization; Dynamics*

1. Introduction

The digital revolution has had a profound impact on society, and its effects are particularly notable on globalisation in both developing and developed nations. This is supported by various studies such as those conducted by Gabor and Brooks (2017), Chatterjee (2020), Wellalage et al. (2020), Ozili (2020, 2018). The utilisation of digital technologies to create new business models and provide innovative avenues for generating value and revenue is commonly referred to as the digitalization of finance. Scholars such as Wellalage et al. (2020), Ozili (2018), and Gomber et al. (2017) have explored this concept and highlighted the transformative potential of digitalization in the financial sector. By leveraging digital technologies, financial institutions and fintech companies can reach previously underserved populations, enabling them to access financial services, make digital payments, and participate in the formal economy. This digital transformation of finance offers promising opportunities for societal advancement and economic growth and convergence in developing nations.

From the perspective of a practitioner, digital finance is seen when the excluded and underserved people are having digital access to and use of formal financial services. It is a type of financial service that can be obtained by using a card connected to a reputable digital payment system, a personal computer, a mobile device, or the internet (Manyika et al., 2016; Ozili, 2018). It involves a slew of brand-new financial services, enterprises, software, and methods of client contact and communication provided by Fintech firms and creative financial service providers (GSMA, 2014; CGAP, 2015; Gomber et al. 2017). For instance, in Africa, the Global Digital Payments Market was estimated to be worth USD 87.8 billion in 2021 and is anticipated to grow at a Compound Annual Growth Rate (CAGR) of 15.10% from 2021 to 2028 to reach USD 204.1 billion (FAS, 2022).

Digital financial services have grown recently throughout the continent of Africa via bank channels such as automated teller machines (ATMs), online banking, mobile devices (mobile banking), and point of sale (POS). The success of developing countries in utilizing digital financial services to promote financial progress, economic growth and convergence as in the cases of Nigeria, India, China, and many others, has been highlighted by a number of empirical studies (Babajide 2015; Kapoor 2014; Liu et al. 2021; Andrianaivo & Kpodar 2011). For instance, statistics show that around 18,672 automated teller machines (ATMs) were present in South Africa in 2021. This was a decrease of 24,740 ATMs from the previous year. The number of ATMs in the nation reached its peak in 2016 during the observed period.

The prevalence of digital financial services has grown recently, as was already mentioned. For instance, since 2010, the digital financial sector in Ghana has grown dramatically, with total financial sector assets rising from 53% of GDP in 2010 to 78% in 2017 (Geiger et al. 2019). The total number of mobile voice subscribers increased by 39% between 2012 and 2017. Between 2012 and 2017, the number of active agents increased by a factor of 25, from roughly 6,000 to more than 150,000. (Geiger et al. 2019; Kennedy 2019). The Ghana Interbank Payment Settlement System (GhIPSS), Africa's first interoperable mobile money switch, was introduced in 2018 by Ghana and other African countries.

Although many definitions are made to clarify globalisation, one of the extensive one defines globalisation as an irrevocable power affecting the world through progressive free flow of capital, services, goods, people and opinions which results in unification of societies and economies (IMF, 2002). Economic dimension of the concept refers to expanding interdependence of countries all over the world due to the rapid and wide spread of technologies, flow of international capital and increasing scale of cross-border trade of services and commodities. It also demonstrates ongoing mutual unification and extension of market boundaries, and it is an irrevocable flow for the economic development in the entire world (Shangquan, 2000).

Sub-Saharan Africa, a diverse and resource-rich region, has been striving to achieve sustainable economic development and convergence. In this endeavor, the interplay between digital finance and globalization emerges as a critical area that demands thorough investigation. While digital finance holds the potential to revolutionize financial inclusion and drive economic growth, globalization presents both opportunities and challenges for African economies (Chen *et al.*, 2019). However, there is a lack of comprehensive understanding regarding the impacts and dynamics of digital finance and globalization in Sub-Saharan Africa. Existing studies often focus on individual factors in isolation, failing to capture the complex interactions and threshold effects that may exist between these phenomena (Atakli & Agbenyo 2020). As a result, policymakers, researchers, and stakeholders lack the necessary insights to develop effective strategies and policies that leverage the potential of digital finance while managing the risks associated with globalization. Therefore, there is a pressing need to conduct a rigorous and comprehensive study to understand the impacts and dynamics of digital finance and globalization in Sub-Saharan Africa. By examining the relationship between these factors, exploring the presence of effects, and investigating the role of globalization, we can gain valuable insights into how these dynamics shape the region. This study aims to fill the existing research gap by providing evidence-based analysis and empirical findings on the interplay between digital finance and globalization in Sub-Saharan Africa. By addressing this knowledge gap, we can generate valuable insights that will inform policy formulation, guide strategic decision-making, and foster sustainable economic development in the region.

2. Literature Review

A number of studies have investigated the role of digital finance on globalization. For instance, Claessens et al. (2002) investigated on a topic titled *Electronic Finance: Reshaping the Financial Landscape Around the World*. The study analysed the impact of electronic finance, including digital payment systems and online banking, on financial globalization. It highlights the role of digital finance in facilitating cross-border transactions, reducing information and transaction costs, and increasing financial access and inclusion. The study did not employ a specific estimation technique. Rather, the study can be categorized as a literature review and conceptual analysis that discusses the impact of digital finance on the globalisation. In recent years, the emergence of electronic finance—especially online banking and brokerage services, and new trading systems—has reshaped the financial landscape around the world. The study reviewed these developments and found that they are greatly impacting the structure of and competition in financial services industries and will have a large impact on incumbents. Its assessment of how digital finance or e-finance, and globalization more generally, affects countries highlights the need for changes in four financial sector policy areas namely, safety and soundness, competition policy, consumer and investor protection, and global public policies, to mitigate risks and reap as much as possible the potential benefits of e-finance.

Qureshi et al. (2020) carried out a study titled *Digital Finance and Globalization: Evidence from Panel Data*. In this study, the authors investigated the relationship between digital finance and globalization using panel data analysis. They analysed the impact of digital finance, including mobile banking, electronic payments, and financial technology, on various indicators of globalization such as trade openness, foreign direct investment, and international capital flows. The authors employed panel data analysis, which allows for the inclusion of both cross-sectional and time-series dimensions in the analysis. This technique helps to capture the dynamics and relationships between digital finance and globalization over time.

Cull et al. (2018) investigated into *Digital Financial Inclusion and Development: Recent Impact Evidence*. Although the study primarily focuses on financial inclusion, it also explores the relationship between digital finance and globalization. It examines how digital financial services, such as mobile money and digital payments, contribute to financial inclusion and development, which in turn can have implications for global economic integration. No specific estimation technique was used for this study. Fang & Qian (2013) investigated on *International Monetary System and China's Monetary System Reform*. The study investigated the impact of digital financial technologies, including electronic payment systems and digital currencies, on China's monetary system reform. It explores how digital finance can influence global monetary systems (globalisation) and reshape international financial relationships.

While there is a growing body of literature exploring the individual effects of digital finance and globalization in Sub-Saharan Africa, there remains a significant gap in the understanding of their combined impacts and dynamics. Through our comprehensive analysis, we aim to shed light on the complex relationships that may exist between digital finance and globalization in Sub-Saharan Africa. By filling this gap in the literature, our study will provide valuable insights that can inform evidence-based policymaking, guide strategic decision-making, and promote inclusive and sustainable economic development in the region.

3. Methodology

3.1 The Model and Estimation Strategy

Digital finance has a significant theoretical link to globalization, particularly in terms of facilitating cross-border financial flows, expanding market access, and promoting financial integration. The concept of a "borderless economy" enabled by digital finance aligns with the principles of globalization, which emphasize the free movement of goods, services, capital, and information across national boundaries. Digital finance, through technologies such as mobile banking, online payment systems, and blockchain, reduces transaction costs, enhances financial efficiency, and enables seamless cross-border financial transactions, thereby promoting global economic integration (Kshetri, 2017). The theoretical framework highlights how digital finance can act as a catalyst for globalization by removing traditional barriers and enabling financial connectivity on a global scale. This study therefore asked a fundamental question, what is this effect in SSA countries? On the basis of this, we specify the following functional link between globalization and digital financial inclusion

From the functional link, we specify the following econometric model on the link between globalization and financial inclusion.

In the above model, globalization is expected to have a positive effect on digital financial inclusion in SSA countries. To carry out this investigation, we note that a threshold model is introduced by Hansen (1999), which can be used to examine how a shock affects the connection between variables in a panel setting. The shock (or targeted) variable used in the digital financial inclusion regression in this study is the KOF globalization index (*kofgi*). We specifically estimated the short run and long run effects of globalization on digital financial inclusion by specifying the following short run and long run econometric equation:

The Dynamic Driscoll-Kraay (1998) model is what we employ. The Dynamic Driscoll-Kraay model is an econometric technique designed for analyzing panel data that accounts for both temporal dynamics and cross-sectional dependence among entities. It incorporates lagged dependent variables to understand how past outcomes influence current results, while also providing robust standard errors that remain reliable despite potential correlations and variations in error terms across different entities and time periods. This model is particularly useful for the study because it allows for the examination of how historical economic conditions and globalization impacts current economic convergence trends. By using this technique, the paper can more accurately capture the intricate relationships among variables across multiple countries, ensuring that the findings are robust and reflective of the complex dynamics at play in Sub-Saharan Africa. The reliable standard error panel regression with cross-sectional dependence Driscoll-Kraay (1998) model. Relying on resilient standard errors is a frequent practice to guarantee correct statistical inference when some of the underlying regression model's assumptions are broken. Huber, Eicker, and White (1967, 1980) created the alternative covariance matrix estimator that is most likely the most well-known. Standard errors computed with the aid of this estimator are consistent even if the residuals are heteroskedastic as long as they are independently distributed. Huber (1967), Arellano (1987), Froot (1989), and Rogers (1993) demonstrate that the assumption of independently distributed residuals can be somewhat relaxed by building on the work of White (1980, 1984). If the residuals are associated inside but uncorrelated outside of the clusters, their generalized estimator generates consistent standard errors. By using a different method, Newey & West (1987) were able to produce standard errors that were consistent with heteroskedasticity and autocorrelation (up to a certain lag). It can be demonstrated that the Newey-West estimator with lag length zero is equal to the White estimator, making their expanded method of moments-based covariance matrix estimator an extension of White's estimator. Although panel versions of the Newey-West standard errors are available, they were originally intended to only be used with time-series data.

Parks (1967) suggests a workable generic least-squares (FGLS)-based technique, which Kmenta (1986) popularized, as an early attempt to account for heteroskedasticity as well as for temporal and spatial dependency in the residuals of time-series cross-section models. However, for at least two reasons, the Parks-Kmenta approach is often not suitable for use with medium- and large-scale microeconomic panels. First, for microeconomic panels, nearly often, the time dimension, T , is smaller than the cross-sectional dimension, N , rendering this method infeasible. Second, Beck & Katz (1995) demonstrate that the Parks-Kmenta technique frequently yields standard error estimates that are too small. Beck & Katz (1995) recommend using OLS coefficient estimates with panel-corrected standard errors (PCSEs) to reduce the drawbacks of the Parks-Kmenta technique.

Beck and Katz's (1995) PCSE method estimates the full $N \times N$ cross-sectional covariance matrix, and this estimate will be rather imprecise if the ratio T/N is small. However, it must be expected that the finite sample properties of the PCSE estimator are rather poor when the panel's cross-sectional dimension N is large compared to the time dimension. Therefore, it seems attractive to use parametric corrections for spatial dependency when working with medium- and large-scale microeconomic panels. Although the number of cross-sectional correlations rises with rate N , whereas the number of observations only grows by rate N , large- N asymptotics necessitate strong assumptions about the shape of the corrections. Therefore, empirical researchers frequently assume that the cross-sectional correlations are the same for every pair of cross-sectional units so that the addition of time dummies eliminates the spatial dependency in order to retain the model's viability.

Implementing nonparametric adjustments for the cross-sectional dependence is preferable since restricting the cross-sectional correlation matrix is prone to misspecification. Driscoll & Kraay (1998) show that the nonparametric time-series covariance matrix estimator may be changed to be resistant to most types of cross-sectional and temporal dependence by depending on large- T asymptotics. The method used by Driscoll and Kraay approximates a Newey-West type adjustment for the cross-sectional averages of the moment conditions. The covariance matrix estimator is guaranteed to be consistent, regardless of the cross-sectional dimension N (i.e., also for N), by adjusting the standard error estimates in this manner. The shortcomings of alternative large- T - consistent covariance matrix estimators, such as the Parks-Kmenta and the PCSE technique, are thereby eliminated by Driscoll & Kraay's method. These estimators often become incorrect when the cross-sectional dimension N of a microeconomic panel increases.

This method estimates standard errors that are consistent regardless of the cross-sectional dimension of the panel by using cross-sectional averages. This consistency result holds true even for the limited case of N, as demonstrated by N. Driscoll & Kraay (1998). Additionally, using this method to estimate the covariance matrix results in standard errors that are resistant to common types of cross-sectional and temporal dependency.

3.2 Data and Stylized facts

This study made use of secondary data. The data used for this study came from four main source. That is, IMF Financial Access survey (FAS), KOFGI, World Governance Indicators, and the World Bank's world development indicators (WDI). Specifically, the data points for digital finance was obtained from the IMF Financial Access survey (FAS), data for globalisation was obtained from the KOH globalization Index database, data for institutional quality was obtained from the World Governance Indicators (WGI, 2022). Finally, data points for control variables such as Inflation (INFL) as measured in terms of consumer prices (annual %), Unemployment (Un) is measured in % of total labour force, and trade openness (OPEN) is measured in terms of exports plus imports divided by GDP, are obtained from the world bank development indicator (WDI, 2022).

Table 1: Summary Statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|-------------------|-----|-----------|-----------|-----------|----------|
| DFI | 648 | -1.108229 | 1.588548 | -4.666229 | 1.246435 |
| KOFGI | 612 | 49.03758 | 7.720796 | 29 | 72 |
| OPEN | 612 | .6897996 | .353316 | 0 | 3.113541 |
| INFLA | 586 | 6.151782 | 6.071003 | -8.97474 | 44.39128 |
| LGFKF | 575 | 21.69986 | 1.515168 | 17.65196 | 25.54222 |
| Health spend | 534 | 5.539571 | 2.425417 | 1.782399 | 20.41341 |
| Resource rents | 576 | 11.40839 | 10.48516 | .0011713 | 58.65016 |
| Population growth | 612 | 2.478675 | .850809 | -.6163564 | 4.380945 |
| IQ Index | 609 | .0413879 | 2.233529 | -4.105796 | 5.51898 |

Source: Author(s), 2024

For our key variables of interest, the data presented show that on the average, digital finance on the average stands at -1.108 percent with a deviation of 1.588 percent from the average. Globalisation on the average stands at 49.0376 percent with a deviation of 7.721 percent from the average. This reveals that our key variables of interest present low deviations from their average values suggesting that the data points are well behaved for further econometric estimations.

The control variables such as openness of the economy to foreign trade, the inflation rate, the log of gross fixed capital formation, health spending, resource rents, population growth, and the index for institutional quality all averaged at 0.689 percent, 6.151 percent, 21.699 percent, 5.539 percent, 11.408 percent, 2.478 percent, and 0.0413 points respectively. These variables equally show signs of being within close range as their deviations from their mean values are low levels. The only exception is the index for institutional quality which is not well behaved as its deviation from the mean is high. This variable shows high variables between the upper bound and its lower bound. As such, suitable econometric approaches are needed to estimate data with the inclusion of such variable other than the traditional fixed effect and random effect models. We proceed to conduct other econometric tests such as unit root test and cross sectional dependence test to validate the data for econometric estimations.

Table 2: Second Generation Unit Root test

| Variable | Z | P-value | Z | P-value | Order |
|--------------|--------|---------|--------|---------|-------|
| DFI | -5.309 | 0.000 | | | I(0) |
| KOFGI | -4.103 | 0.000 | | | I(0) |
| OPEN | 3.737 | 1.000 | -1.451 | 0.073 | I(1) |
| INFLA | -5.836 | 0.000 | | | I(0) |
| LGFKF | -0.139 | 0.445 | -5.004 | 0.000 | I(1) |
| Health spend | 3.248 | 0.999 | -2.495 | 0.006 | I(1) |

| | | | | | |
|-------------------|---------|-------|--------|-------|------|
| Resource rents | -0.205 | 0.419 | -2.630 | 0.004 | I(1) |
| Population growth | -11.646 | 0.000 | | | |
| IQ Index | -0.729 | 0.233 | -5.235 | 0.000 | I(1) |

Source: Author(s), 2024

Non-stationary data constitutes a fundamental problem in econometric analysis. When data is not stationary, it therefore insinuates unit root problems. Such data are rendered stationary after differencing a number of times to render stationary. The unit root test results presented on table 4.2 show that the openness of the economy to foreign trade, the log of gross fixed capital formation, health spending, natural resource rents, and the institutional quality index are stationary after first difference while digital finance, globalisation, the inflation rate, and population growth rate are stationary at levels. With this in mind, we reject the null hypothesis and conclude that all variables are stationary.

Table 3: Second Generation Cross sectional dependence test

| Variable | CD-test | P-value |
|-------------------|-----------|---------|
| DFI | 106.49*** | 0.000 |
| KOFGI | 79.12*** | 0.000 |
| OPEN | 15.65*** | 0.000 |
| INFLA | 25.04*** | 0.000 |
| LGFKF | 62.88*** | 0.000 |
| Health spend | 0.21 | 0.836 |
| Resource rents | 24.87*** | 0.000 |
| Population growth | 5.57*** | 0.000 |
| IQ Index | 1.21 | 0.225 |

Source: Author(s), 2024

The CD test statistics reveal that digital finance, globalisation, the openness of the economy to foreign trade, the inflation rate, the log of gross fixed capital formation, natural resource rents and population growth rate rejects the null hypothesis of cross-section independence while only health spending and the index for institutional quality fails to reject the null hypothesis of cross-section independence. As such, most of the variables are faced with problems of cross sectional dependence. This calls for econometric estimation approaches that takes care of the problem of cross sectional dependence such as Driscoll-Kraay.

Figure 1: Fitted scatter Plots on the Expected relationships

The scatter plots on the relationship between globalisation and digital finance show that the relationship is again non-linear. As such econometric estimations are needed to unmask the exact direction and magnitude of the relationship. We therefore unmask this relationship with the Dynamic Driscoll-Kraay estimator, verifying from the Dynamic Feasible Generalized Least Squares, and the Dynamic Panel Corrected Standard Errors procedure for robustness checks.

4. Econometric Findings and Discussions

The regression results reveal that across the different estimation techniques, the lag of globalisation has an enhancement effect on globalisation of the current period. Therefore, a percentage increase in globalisation of the previous year will enhance globalisation of the current year by 0.943 percentage points, significant at 1 percent. Digital finance is seen to have a negative effect on globalisation in Africa. An increase in digital finance will decrease globalisation in Africa by 0.106 percentage points, significant at 1 percent. we therefore reject the null hypothesis and conclude that digital finance has a significant effect on globalisation in Africa. Control variables such as trade openness, the log of gross fixed capital formation, and institutional quality index are seen to have positive and significant effects on globalisation in sub Saharan Africa. A percentage increase in trade openness, the log of gross fixed capital formation, and institutional quality index will increase globalisation in sub Saharan Africa by 0.336 percent, 0.121 percent, and 0.0754 percent, significant at 5 percent, 1 percent, and 10 percent respectively.

Table 4: The Effects of Digital Finance on Globalisation in SSA

| VARIABLES | (FGL) | (PCSE) | (Driscoll-Kraay) |
|----------------|----------------------|----------------------|-----------------------|
| | KOFGI | KOFGI | KOFGI |
| L.KOFGI | 0.943*** (0.0132) | 0.943*** (0.0227) | 0.943*** (0.00775) |
| DFI | -0.106** (0.0498) | -0.106** (0.0468) | -0.106*** (0.0332) |
| OPEN | 0.336 (0.219) | 0.336 (0.291) | 0.336** (0.155) |
| INFLA | 0.00595 (0.0108) | 0.00595 (0.0223) | 0.00595 (0.0104) |
| LOGGFKF | 0.121** (0.0567) | 0.121** (0.0560) | 0.121*** (0.0297) |
| HEALTH_SPEND | -0.0101 (0.0254) | -0.0101 (0.0507) | -0.0101 (0.0284) |
| RESOURCE_RENTS | -0.0133 (0.00833) | -0.0133 (0.0186) | -0.0133 (0.00850) |
| POPGROWTH | -0.0891 (0.0914) | -0.0891* (0.0533) | -0.0891 (0.0742) |
| IQ_INDEX | 0.0754* (0.0420) | 0.0754 (0.0727) | 0.0754* (0.0433) |
| Constant | 0.701 (1.073) | 0.701 (0.839) | 0.701 (0.588) |
| Observations | 473 | 473 | 473 |
| R-squared | | 0.974 | 0.974 |
| Number of id | 36 | 36 | 36 |

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The findings show that, the lag of globalisation has an enhancement effect on globalisation of the current period. This is so because positive globalization in the previous year can create a feedback loop that bolsters globalization in the current period. When countries or regions experience the benefits of globalization, such as increased trade, investment, and economic growth, it can generate positive outcomes that further drive globalization. For example, successful international collaborations and partnerships established in the previous year can lead to new opportunities and expansions in the current period, contributing to the overall momentum of globalization (WTO, 2019).

In addition, positive globalization in the previous year can foster confidence and trust among countries and stakeholders, which can have a positive effect on globalization in the current period. When countries witness the benefits of cooperation and collaboration through globalization, it can build trust among nations and facilitate the formation of alliances and partnerships. This increased trust can lead to greater openness, cooperation, and engagement in international trade, investment, and other forms of global exchange (UNCTAD, 2018). Also, positive globalization in the previous year can influence policy continuity and alignment, which can promote globalization in the current period. When countries experience positive outcomes from their globalization efforts, there is often an incentive to maintain and build upon those achievements. This can lead to policy continuity and alignment in areas such as trade liberalization, investment promotion, and regulatory cooperation, creating an enabling environment for continued globalization (IMF, 2016).

Again, positive globalization in the previous year can contribute to knowledge and learning that fuels further globalization in the current period. As countries or regions engage in global interactions, they gain insights into best practices, technological advancements, and innovative approaches from other parts of the world. This knowledge exchange can inspire and inform domestic policies and practices, leading to increased participation in global networks and furthering globalization (World Bank, 2017). Still in line, positive globalization in the previous year can generate network effects that amplify globalization in the current period. As countries or regions integrate into global networks, they become part of interconnected systems that facilitate the flow of goods, services, capital, and ideas. The expansion of these networks can create synergies and positive spillover effects, attracting more participants and reinforcing the globalization process in the current period (Hausmann and Klinger, 2007).

Within the ambits of this study, digital finance is seen to have a negative effect on globalisation in Africa. This can be explained from different pathways. Firstly, one potential negative effect of digital finance on globalization is the exacerbation of the digital divide. The digital divide refers to the gap between those who have access to digital technologies and those who do not. In many parts of the world, especially in developing countries, there are significant disparities in access to digital infrastructure and internet connectivity. The uneven distribution of digital finance capabilities can deepen existing inequalities and hinder the participation of marginalized populations in global financial systems (ITU, 2020).

The expansion of digital finance can amplify cyber-security risks. As financial transactions increasingly occur online and through digital platforms, the vulnerability to cyber threats, such as hacking, data breaches, and identity theft, also increases. These risks not only pose challenges to individual consumers but also have the potential to disrupt financial systems and cross-border transactions, undermining trust and confidence in global financial networks (World Economic Forum, 2020). Paradoxically, digital finance can contribute to financial exclusion for certain segments of the population. While digital platforms offer convenience and efficiency, they can also create barriers for those who lack digital literacy or access to digital devices. Moreover, the shift towards digital finance may lead to the closure of physical branches and reduce financial services in remote or underserved areas. This exclusionary effect can hinder financial inclusion efforts and limit the potential benefits of globalization for marginalized groups (World Bank, 2017).

The rise of digital finance can lead to a concentration of power in the hands of a few dominant players. Large technology companies and fintech firms that control digital financial platforms may accumulate vast amounts of data and exert significant influence over global financial systems. This concentration of power can raise concerns related to market competition, data privacy, and fair access to financial services, potentially undermining the principles of openness and inclusivity that underpin globalization (UNCTAD, 2020). The rapid evolution of digital finance poses challenges for regulatory frameworks. Regulators may struggle to keep pace with technological advancements and the complex nature of digital financial systems. Inadequate or inconsistent regulations can create risks, such as money laundering, fraud, and systemic vulnerabilities, which can have negative consequences for global financial stability. Balancing innovation and consumer protection in the digital finance space requires robust regulatory frameworks that can adapt to the changing landscape (Financial Stability Board, 2019).

5. Conclusion and Policy Suggestion

Based on the regression results, several key findings emerge regarding the relationship between digital finance, globalization, and control variables in Sub-Saharan Africa. Firstly, the lag of globalization exhibits an enhancement effect on the current level of globalization, indicating a positive feedback loop. Furthermore, the analysis reveals a negative effect of digital finance on globalization in Africa. This finding highlights the need for a nuanced understanding of the role of digital finance in shaping the globalization dynamics within the African context. Controlling for other factors, the study also finds positive and significant effects of trade openness, the log of gross fixed capital formation, and institutional quality index on globalization in Sub-Saharan Africa. These control variables underscore the importance of factors such as openness to international trade, investment in physical capital, and institutional quality in driving globalization processes in the region.

The findings highlight the complex dynamics at play in the relationship between digital finance, globalization, and control variables in Sub-Saharan Africa. While the lag of globalization exhibits an enhancement effect, digital finance demonstrates a negative impact on globalization. This suggests the presence of intricate interactions and potential trade-offs between these factors. To inform policy and foster sustainable development, the recommends that policymakers should develop a comprehensive digital finance framework that promotes responsible and inclusive financial technology adoption. This includes implementing regulations to mitigate potential negative effects on globalization while fostering innovation, ensuring data privacy and security, and enhancing financial literacy. Investments in digital infrastructure, such as broadband connectivity and mobile network coverage, should be prioritized to expand access to digital finance services. This will enhance the potential positive impact of digital finance on globalization, facilitating cross-border transactions, and fostering economic integration. By adopting these policy recommendations, Sub-Saharan African countries can navigate the complex dynamics of digital finance, globalization, and control variables to foster sustainable economic growth, enhance globalization, and promote inclusive development in the region.

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