

The Empirical Relationship Between Economic Growth, ICT, Financial Globalization Uncertainty and Financial Development: Evidence from Selected Leading African Economies

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Abstract

The paper concentrated on six selected major African countries from 1990 to 2011 and describes the effect of ICT-driven institutional efficiency and knowledge exchange systems on economic growth, financial globalization, and economic growth on financial development. That is because the financial markets of both of those nations are underdeveloped. The article applied Larsson's co-integration, the dynamic common correlated effect, and PMG estimates. The findings indicate a positive long-term association for all parameters, which involves the interaction term. Nevertheless, it is worthy of note that financial globalization is inevitable, as its repercussions can only be ignored at the cost of growth in the country. Perhaps it guarantees that ICT-driven knowledge exchange and institutional quality frameworks contribute to the speeding up of the financial development of the six sampled leading African countries. Increasing knowledge sharing powered by ICT across countries could solve one of the major obstacles of African business activities: which is; lack of financial ease of access. Sampled nations can also optimize ICT-driven knowledge-sharing to decrease asymmetric information. The article provides a full set of recommendations for the sampled countries.

Keywords: Larsson, ICT, common correlated effect, mechanism.

Introduction

After Schumpeter's seminal paper (1911), wherein he empirically investigated how financial efficiency boosts economic growth, the intersection of financial sector development and economic growth has attracted increasing importance. When the financial sector builds up savings and ends up making investments, it stimulates economic development. Goldsmith (1969) subsequently reinforced the same approach. Among many other scholars to arrive at a similar conclusion includes Greenwood and Jovanovic (1990), Ghirmay (2004), Agbetsiafa (2004), Abu Bader and Abu Qarn (2008), Levine and Zervos (1993). Scholars also agree that the supply contributes to the positive influence of financial development on production. Whereas another group of scholars arguing that economic growth contributes to financial development because this is what they called demand pushing. The macroeconomic-indices display a rising trend as the domestic market rises, promoting huger growth in the financial market. Odhiambo (2008) and Robinson (1952) are among the top experts in the third category of Hussein and Demetriades (1996). Akinboade (1998) and Smith and Greenwood (1997) believe that the causal relationship between economic growth and financial development is reciprocal. Finally, there is yet another category of researchers who claim there can be no connection between the two. In their famous novel, theorists like Lucas (1988) observed that many economists overestimated the role of financial factors in any economic growth relationship. Atindehou *et al.* (2005) supported the same norelationship perspective among the parameters in their analysis.

Whereas the role of information technology, intended to strengthen development in a variety of ways, along with living standards (Chavula, 2013); reasonable standards for everyone (Kivuneki *et al.*, 2011; Holmner & Ponelis, 2013); apparent well-being (Carmody, 2013; Qureshi, 2013); economic growth (Lee & Levendis, 2013; Qureshi, 2013) in developing countries. Comparison to the majority of the globe, the potential of information and communication technology (ICT) in Africa is more significant. While the tough-end Asian economies, Europe, and North America economies are currently witnessing excess milestones in ICT growth (e.g. telephone penetration), there is considerable scope for enhancement in

Africa (Nwachukwu & Asongu, 2016), as recent papers indicate. This means decision-makers will reap the rewards of this capacity for penetration to address growth challenges, including limited access to finance.

Averagely, not up to 20 percent of families in Africa gain access to financial resources (IFAD, 2011). The majority of the population is dependent on unregulated financial institutions that are not integrated into the financial system's design and technical criteria. A fragmented infrastructure of information exchange, inadequate transit systems and low-density lead to a shortage of adequate financial services in broad areas around the continent. For areas where these structured services serve a need, small and medium-sized businesses, alongside low-income families, have issues with credit eligibility requirements, as well as the need to ensure collateral and robust authentication. While these requirements are met, significantly higher savings and cost burdens (e.g., higher transaction fees) could still significantly restrict access to finance.

With most of this context, the liquidity surplus issues have significantly impeded African access to financial services (Asongu, 2014). The African terrain intermediary witnessed the decade-long implementation of public and private credit registers as an exchange of knowledge structures for reducing asymmetric information between creditors and debtors (Triki & Gajigo, 2014). Asymmetric awareness, challenges the study of mutual decision-making, where one person is more informed than another. This information discrepancy or imperfection creates a tremendous difference in payments such that one participant can easily fall into the trap of the additional details that it possesses and even command a higher rate for a specific transaction to make up for the lack of accurate transaction details. Mostly in the former scenario, a party is prone to moral attack, where a side appears to have more excellent knowledge: this might be to use the details given against the other party's interests.

Meanwhile, the study publication also documented the doubtful economics of financial integration, suggesting that the trend promotes global financial uncertainty with substantial adverse side impact on growth (Bhagwati, 1998; Rodrik, 1998; Stiglitz, 2000). Whereas in Farouq (2020), the other interpretation, obeys the notion that financial globalization's volatility is a hidden advantage to the economy's financial sector that understands it and maintains its financial structure for the threat of the shocks.

Despite these challenges, most of all, the benefits for developing nations on financial globalization continue to be an open discussion, although there has been a sufficient consensus on trade opportunities for globalization (Asongu, 2014). The importance of international globalization continues to remain conflicting with a world financial crisis study dimension after 2007-2008, representing the drawback of full capital (Kose et al., 2011). Significantly, on the challenge of financial integration, without sound political stability, Prasad and Rsjan (2008) assert on the need to incorporate country-specific characteristics. While Asongu and De Moor (2015) stress on the importance of financial capital flow thresholds for positive residential development outcomes.

Hence, exploiting the capacity for ICT-driven knowledge exchange to improve financial accessibility and prepare for the essential wealth generation necessities. The financial systems of these nations are undeveloped, despite the report of the International Monetary Fund (2018) and the World Bank (2017). Such issues brought in the inspirational dimension of the current study.

Considering the divergent views of financial growth and the contradictory findings concerning the existence of the ties between financial globalization instability, financial sector development and the lack of scholarly attention mostly on the African continent, it is experiencing severe problems of restricted access to financial services due to backwardness of the sector. The current study examines how GDP, FGU and ICT can assess the performance of such sampled financial markets and how institutional efficiency is integrated into the model as a control determinant, given the recently designed econometrics approaches.

Literature Review

Economic Growth and Financial Development

Within the debate, is the complex impact of the intersection of growth-finance. Several areas of studies in this segment of the study yield contradictory results in demand, supply, and feedback. Auto-regressive distributed lag (ARDL) method employed by Iheanacho (2016) in the study to explore the connections between Nigeria 's financial-growth relations empirically. The findings indicate a negative impact between financial stability and economic growth over the long and short term. While Ahmed *et al.* (2016), who used the same method in a similar region, established a causal bidirectional association between financial development and economic growth. Similarly, Baye and Achamoh (2016) employed Autoregressive Distributive Lag (ARDL), binding analysis, and Johansen techniques to examine the effect on Cameroon's economic growth of the real exchange rate (RER), FDI and financial development.

The results indicate a unidirectional link between financial stability and economic growth with the implementation of ARDL and VECM by Nasiri *et al.* (2017). While Ananzeh and Othman (2019) covered 1993 until 2017 period and deployed the long-term correlation test, Johansen and the Granger causality test the research methods to determine the effect of the growth of financial sector development on the economic growth of Jordan. The study findings revealed the presence of a long-run association between the parameters using the Johansen test of co-integration. The causality test, however, demonstrates a one-way causal relationship between the financial sector and economic growth. Besides, the panel analysis of Rateiwa (2017) through the use of the Johansen test shows that there is indeed a definite correlation between economic growth and financial sector development in South Africa and Egypt, whereas a nation with a far more established financial sector has a positive effect on economic growth while Nigeria has an antagonistic relationship to parameters.

Financial Globalization Uncertainty and Economic Growth

The present thesis primarily focuses on discovering how financial globalization volatility interacts with economic growth in financial market development. The fact that researches on financial globalization volatility on financial development are few, just a few past studies about the level of financial globalization volatility. Therefore, we review financial globalization studies that have been conducted.

To begin with, the study of Mendoza and Quadrini (2019) presented empirical research to evaluate the role of financial intermediaries and the global effect on financial firms and asset transfers. Economic globalization has become the financially developed nation's net credit increase and unstable flows of asset prices from nation-specific disruptions through bank resources. Similarly, Epifanova *et al.* (2016) demonstrate the effect of financial globalization on the growth of Russia's financial sector. The study represents a reform of the Russian banking industry institutional structure to normalize the stability of the financial and economic sectors. Fetai (2015) also examines the impact of financial sector development and capital flows on economic growth in 89 developed and transition nations, with a focus on measuring threshold effects on the financial market scale. Secondly, the local financial system has a more significant impact on development in less developed economies. The impact can disappear as developed nations enter finance development. However, financial integration might not have a favourable effect on prices, because, its effects depend on institutional performance, stable macroeconomic and financial sector growth.

Also, Fetai (2015) applied 89 research-set data from developing and emerging economies to analyse the effect of financial market development and financial integration on economic growth. This also helps to model threshold effects on the growth of financial markets. The results suggest that, unlike emerging economies, financial progress and financial integration have beneficial effects on economic growth. Nonetheless, the data analysis of 82 nations is implemented using pooled OLS. Hermes *et al.* (2018) noted that post-Washington General Agreement, economies with a steady rise in social capital, could bring about positive capital inflows reforms to regulate financial development, even with the inadequately-standard quality of institutions which seem to be organized.

Studies on underdeveloped nations, the likes of Tchamyou *et al.* (2017), analysed the impact on financial development in 53 African nations from 2000 to 2011 of the new financial globalization instability. The study showed that confusion related to financial integration had no significant impact on the supply of money, deposits in the financial market and industrial scale. In the same way, volatility increased the stability of the banking system, the process for the banking system and the growth of the financial system. It concluded that volatility in capital flows could become a concealed benefit to domestic financial growth, particularly in reaching the prevalent problem of surplus liquidity of African financial firms.

Furthermore, in their research on the impact of financial uncertainty on global financial crises, Mendoza *et al.* (2017) reported that these variations arising from financial integration as nations differ amid financial markets and arise from the potential effects of integration on financial development, deregulation contributes to significant increases in advantages for the wealthier nations and setbacks for other economies.

Altuğ *et al.* (2016) also examined the link between financial integration, financial development and the economic growth of income-classified nations. The research examined the connection between financial development, economic growth and other contributing factors to growth. The empirical evidence indicated that the functional implementation of policies differs according to national classifies. Balcilar *et al.* (2019) investigated how globalization influenced financial development by offering incentives for structural transformations, promoting economic growth by more significant financial development for such a panel of 36 emerging economies. The results indicated that all strategies of integration considerably boosted the financial performance of the firms. Also, in 41 African countries, Batuo *et al.* (2017) explored the relationship between financial instability, financial liberalization, financial stability and economic growth. The results also suggested that financial development decreased financial uncertainty and also that the rate of the downturn in the pre-liberalization period was higher than in the post-liberalization process.

Furthermore, Law *et al.* (2015) article explored the combined impacts of integration in East Asian countries on financial sector development and institutions. Evidence showed that globalization had a significant effect on institutional quality and that institutional reforms, in turn, stimulated and encouraged financial growth, in particular the growth of the East Asian banking sector. Similarly, Nwakoby *et al.* (2015) evaluated the globalization and development of Nigerian commercial banks. Results from the study were collected from questionnaires and calculated on a scale of 5. The researchers found that integration had a positive impact on the growth processes of Nigerian banking systems.

Information Sharing and Financial Development

According to Claus and Grimes (2003), the literature contains two main components that record the philosophical foundation for a connection between information sharing and the existence of financial institutions. First, the provision of liquidity by financial institutions and secondly the ability of financial institutions to transform asset credit risk. All components draw on the essential role of financial intermediaries in improving efficiency and effectiveness by cutting the cost of harnessing gathered capital from lenders to creditors. Accompanying theories about the financial intermediaries' position depend on insufficient market knowledge research. The crucial role of financial mediators is primarily to lower the costs of contact and transactions arising from information asymmetry between debtors and creditors. Consequently, the value of knowledge sharing offices is based on the need for mechanisms to boost the elimination of asymmetric information about the financial sector. It is fair to assume that ICT naturally makes the running of information sharing offices easier. The relationship between ICT-driven knowledge exchange and financial market development could be seen in the perspective of systemic risk on the portion of debtors and information asymmetry on the side of creditors. ICT-driven information-sharing offers credit history to lenders/banks and borrowers with data that helps lower a high-interest rate due to unequal bank selection.

Asongu *et al.* (2016) postulates that a significant number of empirical work on asymmetric knowledge has disrupted the knowledge exchange status of creditors and the impact of creditors' rights on more data. The latter concentrated on the effects of greater shareholder rights in, among many others: bank danger by

Houston *et al.* (2010) and Acharya *et al.* (2011); consolidation with the most exceptional work by market situation (Brockman & Unlu, 2009; Djankov *et al.* 2007; El Ghouli *et al.*, 2012; Klapper & Claessens, 2006). The former side was concerned with minimizing information asymmetry: enhancing credit access (Brown *et al.*, 2009; Djankov *et al.*, 2007, Triki & Gajigo, 2014) and mitigating interest rates as in (Jappelli & Pagano, 2002), reducing credit costs as in (Brown *et al.*, 2009), influencing regulatory intervention as in (Coccorese, 2012), impacting fraudulent loans as in (Barth *et al.*, 2009) and impacting syndicated bank loans (Ivash *et al.*, 2009).

Methodology Data

The research uses a data collection from the World Bank's Financial Development and Structure Database and African Development Indicators to analyse a sample of six leading African economies for the 1990-2011 period. Data access restrains start- and finished-years. Data on the World Bank information-sharing (mobile phone penetration) process driven by ICT can only be accessible from 1990. Of the Financial Design and Structure Databases, the most up to date year is 2011. In the introduction, the justification for setting up the inquiry on Africa is discussed. The timeline is chosen to give more recent policy feedback and to handle short-term or economic cycle variability that is appropriate for evaluating uncertainty.

Financial Development proxy is measured through the application of principal component analysis. Five components were used in the composition of the index, namely: domestic credit by financial institutions, Broad Money Supply, market capitalization, lending rate, and domestic credit by banks. Meanwhile, GDP annual percentage growth measures economic growth. Moreover, financial globalization volatility is calculated as a standard error referring to the first auto-regressive cycle of Net FDI inflows, the residual values (Index) is obtained by reducing the vector to its lagged value with a time-trend. The fluctuation rate in the residual prices over the years shows the volatility of foreign direct investment inflows. While the ICT-driven knowledge exchange system is indexed by mobile phone penetration (Tchamyou, 2016; Asongu *et al.*, 2017). In the meantime, the institutional consistency has also been measured with the aid of PCA with the use of six elements such as speech and transparency, political stability and lack of abuse, policy efficiency, legislative consistency, the rule of law, and corruption regulation implemented by Kim, Lee and Minsoo (2015).

List of Abbreviations

FD	Financial Development
FDI	Foreign Direct Investment
CADF	Cross-sectional Augmented Dickey-Fuller
FGU	Financial Globalization Uncertainty
DCCE	Dynamic Common Correlated Estimator
CIPS	Cross Sectional ImPesaran
IQ	Institutional Quality
GDP	Economic Growth

Empirical approach

Larsson et al. (2001) Co-integration Test

The research uses the method of Larsson *et al.* (2001) as a replication of the Johansen (1988) cointegration evaluation in the Vector Error Correction (VECM) model to evaluate the co-integration among the variables. This has more advantages than a residual-based technique, such as Pedroni (1999, 2004). Larsson *et al.* (2001) account for a minimum of more than one co-integration parameter, but Pedroni (1999, 2004) enables only one co-integration matrix. In turn, this would help one to validate the co-integration of parameters at the country level as well.

Furthermore, provided that long-term relationships are restricted to each cross-section, the model solution must also be uncontrolled, making it possible to focus on categories in the short term, the most advantageous being the cross-section dependency of the error conditions. With the central restriction theorem in the cross-nation sense, the right mean and variance-controlled variables are shown to be null:

$LLS^s(l/x) = \frac{\sqrt{N^2 \sum_{i=1}^N \left(QZ_i^v(l/x) - E(QZ_i^v(l/x)) \right)^2}}{\sqrt{Var(QZ_i^v(k/x))}}$ $\rightarrow N(0, 1)$	5
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In the serial limit $Q \rightarrow \infty$ tailed by $N \rightarrow \infty$. $E(QZ_i^v(l/x))$ and $Var(QZ_i^v(l/x))$ represents exponential statistics trace mean and variance, the figure from a limited probability (Johansen, 1995). For $Q \rightarrow \infty$ the expressions $E(QZ_i^v(l/x))$ and $Var(QZ_i^v(l/x))$ summarize the estimated value threshold and the statistical variance of the trail evidence v, accordingly. The null hypothesis, $r=0$, For each nation in the panel, the trace statistics extracted are verified. If we reject the null hypothesis, the null hypothesis, $r = 1$, is tested. This serial evaluation approach stops when the outcome reached is null, $r = r_i$ is not dismissed as deciding the rating assessment of r.

To assess the panel trace check, however, the statistic $\mathcal{M}Z_i^v(l/x)$, as shown in Eq. (13), is derived by optimizing the average trace statistics of the N nations. If there is co-integration, the method allows for testing whether the co-integrating function is the same across nations. The Larsson et al. (2001) technique also offers a robust test of the co-integration presence, which can be performed with cross-sectional dependence on the error of the panel without arbitrary normalization assumptions.

Dynamic Common Correlated Estimator (DCCE)

In this analysis, the influence of economic growth, the ICT-driven knowledge exchange process, and financial globalization uncertainty on financial development are evaluated empirically with the aid of the DCCE (Dynamic Panel on Specific Associated Effects) system developed by Chudik and Pesaran (2015). The emerging approach of Pesaran (2006) suggests that the variables are exogenous and include feedback loops around the visible spectrum.

The latest approach of Chudik & Pesaran (2015) took into account three fundamental problems, the very first of which were cross-sectional dependencies, which can be overcome by integrating and putting cross-sectional dependent variables on the right side of the equation with the response variable. The second problem is the heterogeneity factor that can be tackled using Presbitero & Eberhardt 's mean party model (2015). The third problem is the assumptions that can be solved by integrating the exact time latency of the dependent variable into the model.

$FD_{it} = l_i + \beta FD_{it-1} + \alpha_1 GDP_{it} + \alpha_2 FGU_{it} + \alpha_3 MP_{it} + \alpha_3 IQ_{it} + \alpha_4 (GDP * FGU)_{it} + m_{it}$	6
$m_{it} = \Phi'_i r_t + u_{it}$	7
$D_{it} = \frac{EV_{it}}{z_{it}} = l h_i + \gamma_i FD_{it} + z_t r_t + e_{it}$	8

where FD_{it} is the independent vector that stands for financial development; GDP_{it} is the index of economic growth; FGU_{it} represent financial globalization uncertainty, and EV_{it} denotes the different explanatory

vectors for the expanded endogenous growth model, including financial globalization uncertainty and economic growth interaction with financial globalization uncertainty.

Discussion of Results

Tables 1 and 2 demonstrate the concise figures and the description of the correlation. Pending on the outcomes, it was evident that the data is normally collected because the GDP and MP mean are considerably higher than their standard deviation, While the existence of the results was supposed to vary with the other variables, seeing as we have calculated all the two variables as stated in the calculation of the variables, while the outcome for the matrix of the correlations shows that neither of the variables is correlated.

Table 1

Descriptive Statistics

	FD	LFGU	ICT	LGDP	LIQ
Mean	9.18E-09	-7.48E-08	3.103	1.364	1.438
Std. Dev.	1.000001	1.068618	0.027	0.803	0.987
Skewness	-0.983362	-0.448850	-4.154	-1.998	-1.674
Kurtosis	6.001823	9.581368	25.599	12.001	13.762
Jarque-Bera	157.7670	540.4734	7102.102	1188.228	2143.432
Probability	0.000	0.000	0.000	0.000	0.000

Table 2

Correlation Analysis

Correlation Probability	LFD _{it}	LMP _{it}	LFGU _{it}	LGDP _{it}	LIQ _{it}
LFD _{it}	1.000000 -----				
LMP _{it}	0.029 0.624	1.000000 -----			
LFGU _{it}	0.038 0.503	-0.124 0.034	1.000000 -----		
LGDP _{it}	0.256 0.000	-0.132 0.023	0.097 0.098	1.000000 -----	
LIQ _{it}	0.321 0.000	0.293 0.000	0.402 0.000	0.213 0.002	1.000000 -----

Cross-section Dependence Test

This research uses an empirical approach that discusses the question of cross-sectional dependency. Table 3 shows the results of cross-sectional dependence evaluations and indicates that financial trends, financial globalization of economic growth risks, and ICT-driven knowledge exchange structures are strictly interdependent in this analysis of the six leading African markets. However, the likelihood values underscored that the null predictive Hypothesis had gradually fallen to 1%, as such cross-sectional dependency must be considered when calculating the figures of this panel in order to prevent prejudice the findings.

The consequence of cross-sectional dependency is that all factors are cross-sectionally dependent across nations. This makes the use of second-generation approaches to interpret the data of the current study.

Table 3

Cross-sectional Dependency Test

Variables	Pesaran's CD test	Breush-Pagan (LM) test
LFD _{it}	10.491* (0.000)	72.465* (0.000)
LFGU _{it}	2.450* (0.0142)	28.424* (0.019)
LMP _{it}	42.565* (0.000)	248.142* (0.000)
LEG _{it}	6.811* (0.000)	52.309* (0.000)
LIQ _{it}	32.871* (0.000)	45.721* (0.000)

Note: ** and * denotes in 5% and 1% levels. the *p*-values are in the brackets.

Panel Unit Root Test

The article examined the existence of non-stationary stochastic forces. We employed Pesaran (2006) CADF (cross-sectional augmented dicky fuller) and CIPS (cross-sectional ImPesaran) developed by Pesaran (2007) as the second-generation root test unit. Table 4 displays the stationary results of all the variables used, demonstrating mixed stationary properties of the different unit-root solutions used. As the tests of CIPS and CADF indicate mixed stability at a 1% point of significance.

Table 4

Panel Unit Root Test

		CADF		CIPS	
		At level	At first diff	At level	At first diff
LFD _{it}	-4.530** (0.000)	-7.154* (0.000)	-4.936* (-3.06)	-6.410* (-3.06)	
LFGU _{it}	-4.423* (0.000)	-7.386* (0.000)	-5.764* (-3.06)	-6.410* (-3.06)	
LMP _{it}	-4.641 (0.000)	-6.955 (0.000)	-4.615* (-3.06)	-6.255* (-3.06)	
LGDP _{it}	-3.932* (0.001)	-6.567* (0.000)	-5.254* (-3.06)	-6.224* (-3.06)	
LIQ _{it}	-4.650* (0.000)	-6.754* (0.000)	-5.320* (0.000)	-6.254* (0.000)	

Note: ** and * denotes in 5% and 1% levels. The *p*-values are in the brackets, but as for the CIPS, those in brackets represent the critical values.

Co-integration Result

Co-integration Table 5.5 applies to the co-integration of all factors at the panel and regional level.

Whereas, in the light of the LR Trace statistics and the LR-test, the significance level can be seen at 1%. While the significance given the *p*-value indicates a degree 1% significance concerning each nation.

Table 5

Larsson's Heterogeneous Panel Co-integration

Countries	r=0	r=1	r=2	r=3
NIGERIA	79.82580*	43.18850	22.08330	10.67460
ALGERIA	71.09130*	40.86980	15.82300	3.033600
EGYPT	82.23230*	48.87440	26.46810	9.758600
S-AFRICA	80.46910*	48.23720	29.13220	11.42260
GHANA	97.04360*	51.35020	24.99820	10.40710
MORROCO	97.02510*	34.97370	11.43340	2.262000
LR-NT	84.62770*	44.55563	21.65370	7.940083
LR-test	20.70951	14.53428	11.76330	11.20205
$E(Z_k)$	27.739	14.935	6.060	1.138
$Var(Z_k)$	45.364	24.723	10.545	2.213

Note: The values of $E(Z_k)$ and $Var(Z_k)$ are from Larsson *et al.*, (2001). LR-NT=Average Trace statistics and LR-test is the Larsson test statistics. * denote statistically significant at 1%. Critical value based on Larsson's *et al.* (2001)

Long-run and Short-run Estimate

The two separate estimation results, as seen in Table 6. The first calculation is a long-term estimation from the Dynamic Panel Specific Correlated Effects (DDCE) calculation, which implies the long-term association between the factors in question. The results suggest that a 1-unit rise in financial globalization instability would contribute to a 43% increase in financial growth. Meanwhile, there is a 43% rise in financial development with a 1-unit improvement in economic growth. Moreover, the 1-unit rise in mobile phone penetration is contributing to 48 percent upward growth in the financial sectors of these African economies. Likewise, the interaction term also implies a positive relationship with regards to financial development, with an increase of 34%. Besides, the institutional quality further indicates a proper and statistically significant at 42% concerning financial development.

Conversely, since the DCCE calculation lacks an error correction term, the analysis thus considers PMG for the speed of adjustment and combined with the fact that many past studies do such a mixture, such as Alam & Murad (2020). On that basis, this study uses the Pool Mean Group (PMG) for a short-term comparison, and the findings indicate that in the short-term, 1-unit rise in financial globalization instability results in a 2% increase in financial growth. Likewise, both the ICT-driven knowledge exchange system and economic activity are strictly related to financial progress. Instead, the institutional quality as well indicates that there is a strong relationship between the vectors. The interaction term is also strongly related to financial market development, with such a 3% rise in the short-term. Eventually, the error correction term which signifies the level of change is significant, and the coefficient is negative as predicted. This shows that if there is some divergence from the equilibrium, it will take 52% of the pace to return to its usual equilibrium in the long term, and this shows a simple change.

Table 6

DCCE and PMG Estimates Results

Variabes	Coefficients	Standard error	p-value
Long-run estimates LFGU _{it}			
	.43835*	.0681	0.000
LGDP _{it}	.43805*	.1378	0.001
LMP _{it}	48.610*	8.216	0.000
INT _{it}	.34354*	.1148	0.003
LIQ _{it}	.42762	.2165	0.000
Short-run estimates LFGU _{it}			
	.0391*	.0487	0.462
LMP _{it}	23.202*	8.219	0.000
LGDP _{it}	.1738*	.0643	0.000
INT _{it}	.0304	.0612	0.617
LIQ _{it}	.424*	3.231	0.000
ect _{t-1}	-.524*	.0834	0.000
Optimal lag length	(1,1,1,1,1)		

Conclusion

The study takes into consideration six leading African countries, namely Nigeria, Algeria, Egypt, South Africa, Ghana, and Morocco from 1990 to 2011, and discusses the effects of economic growth, financial globalization instability and the ICT-driven knowledge sharing process on financial progress, As well as integrating financial globalization volatility with economic development, as well as introducing institutional quality as a control variable in order to prevent a measurement error of the variables.

The results indicate that all variables are strongly linked in the longer run, including the interaction term. However, the co-integration indicates that the factors are indeed related at the panel level as well as at the individual national level. However, this article states that financial convergence is unavoidable because its effects can only be avoided at the cost of the country's growth, this analysis can be because Fisher and Dornbush were still correct in their pre-21st century position, such as that the report suggests that these countries could benefit from such uncertainty.

However, Kose *et al.* (2011) noted that developed countries that are less dependent on international capital (due to a no limited amount of local capital savings mobilization) seem to have done reasonably better than their counterparts, and the findings of this analysis can be confirmed. It is indeed worth noting that the ICT-driven knowledge exchange process is a critical factor in driving the financial sector development of these eight leading African countries. Rising ICT-driven knowledge exchange across nations could tackle one of the main problems in African business activities: lack of access to finance.

Sampled banking networks should also automate ICT-driven knowledge sharing to decrease information asymmetry following the post-2015 African Growth Policy barriers, not just access to knowledge but as well as financial access.

Another significant policy impact of this study would be that the sharing of information enhances the scope of financial system deposits, financial market loans, and the efficiency of financial distribution by converting first mobile deposits into credit for economic actors. ICT-driven knowledge sharing can also be intended to decrease liquidity surplus problems on the continent by increasing the productivity of financial delivery in countries with low initial rates of financial growth with more equitable involvement. Similarly, policy-makers should both adopt policies aimed at stimulating economic development and, at the same time, be highly cautious about financial shocks, both internally and externally, to strengthen and expand the financial markets of these eight leading African countries so that they can fulfill their duties efficiently and effectively.

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