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The Interaction Between Financial Integration, Financial Development, and Economic Growth: An ECOWAS Case Study

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Abstract

From 1995 to 2022, this study looked at the relationship between financial market integration and economic growth in the ECOWAS sub-region. The Pool Mean Group technique was used to analyze the data, which is an Auto Regressive Distributive Lag (ARDL) model that is good for panel data with cross-sectional dependencies and heterogeneities, the authors find the current level of financial integration among ECOWAS member to be extremely low, when integration was measured as the ratio of a country's financial assets to the regional pool, only four countries in the sub-region were found to be more integrated. The ECOWAS region should pursue a broad-based and all-encompassing integration strategy aimed at strengthening member countries' domestic institutions, further institutional changes are necessary in the ECOWAS sub-region, particularly in the legal processes. The deployment of broad-based financial markets integration through instruments that alter interest rates and central bank assets requires policy coordination to avoid potential detrimental consequences of financial integration on domestic financial development. The novelty of this research comes in the use of the Pool Mean Group technique to examine the interaction between financial integration, financial development, and economic growth in the context of the Economic Community of West African States.

Keywords: *Financial Integration, Financial Development, Economic Growth, ARDL*

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Background to the Study

In comparison to Europe, North America, and Asia, many African economies are experiencing slow growth. Why is Africa so poor in comparison to these continents? What are the constraints to Sub-Saharan Africa's economy, particularly those of the Economic Community of West African States (ECOWAS)? The low level of capital stock in most ECOWAS member nations, which can be attributed in part to the tying effect of disintegrating financial markets, may be a common cause. A quick assessment of various studies on the causes of slow growth in Sub-Saharan Africa reveals that insufficient capital, weak policies, geographical considerations, and institutions are all key contributors.

Iyoha (2004) argued that the poor growth of ECOWAS countries is linked primarily to a lack of or insufficient capital to begin with, as well as inefficient capital utilization. Why is capital so scarce? Why is available capital being used inefficiently? The structure of financial systems in place in ECOWAS countries, namely the design, organization, size, and evolution of financial systems, tends to provide answers to these concerns. While the majority of ECOWAS's financial markets are fragmented, independent, and underdeveloped, we believe that greater integration of the sub-financial region's markets could have a significant positive impact on financial development, and thus on saving mobilization, saving growth, investment, and capital stock. The fundamental lesson is that financial development is an inevitable byproduct of broader economic growth processes.

Greater integration of the ECOWAS financial markets is expected to assist the region's growth significantly. The goal of this study is to gather evidence of the benefits of ECOWAS financial market integration on financial development and economic growth. These findings could be used by policymakers in the region as a guide. Greater integration of ECOWAS financial markets is predicted to considerably aid the region's growth. The question that arises from this brief introduction is whether financial integration helps the sub-economy regions grow. As a result, we must investigate the impact of financial market integration on the development of ECOWAS financial markets and economic growth, as well as provide insight into this link. The remainder of the paper is organized in the following manner. The theoretical framework follows the introduction section, literature review is section 3. Section 4 examines the study's theoretical and methodological framework, while section 5 examines the actual findings. The work comes to a close with Section 6.

Theoretical Framework

This research is based on Rebelo's AK endogenous growth model (1991). However, the AK model was built on the foundation of the Solow neoclassical model. The AK-model extends the Solow growth model to include institutions and human capital in a simple and practical way that abstracts emerging country economic systems and appears to provide a better explanation for the existence and durability of cross-country income discrepancies. The AK model's projections are backed up by empirical studies on

developing country growth with relation to the capital. The model is based on the fact that capital has no diminishing returns. It is assumed that other determinants of aggregate output, such as technological knowledge, rise in lockstep with capital and so mitigate the effects of diminishing returns, allowing output to expand in lockstep with capital.

Technical knowledge is seen to be a type of capital good that may be combined with other components to achieve final output. It can be gathered through research and development and other knowledge generation activities, and it can be stored over time and not totally used up anytime it is placed into manufacturing process. In this process, current resources are sacrificed in exchange for future gains. Knowledge is a type of intangible capital asset. The technological knowledge is included in this aggregate since K is regarded broadly as an aggregate of various types of capital goods. The following is a description of the aggregate production function:

$y = Ak$, ……1

Where: $k = \frac{K}{L}$, but K is now interpreted as composite capital, which includes both physical and human capital, as opposed to earlier. A is a positive constant that depicts the factors that influence the technological level. Because k is viewed of as an increasing variety of high-quality inputs such as human capital, machinery, or intermediate inputs, the production function in question 1 is linear and demonstrates continuous returns to scale without producing diminishing returns to the composite input, capital. By substituting $f(k)/k = A$ into the Solow Model's equation of transitional dynamics and dividing by k, we get the growth rate of k as $gk = \frac{k}{k} = \frac{s.f(k)}{k} - (n+)$, and therefore the state growth rate of capital stock per worker:

$$gk = sA - (n+) \quad \ldots\ldots 2$$

Similarly, $g\_y = sA - (n+)$ gives the steady-state growth rate of income per capita……..3

Eqn. 3 implies that, as long as $sA > (n+)$, the growth rate of output per worker is always positive and constant throughout time, and that the amount of per capita income grows unboundedly.

The economic intuition underpinning equation 3 and the AK-model is that per capita growth is influenced by model behavioral parameters like saving rate and population. In contrast to the neoclassical paradigm, an increase in the saving rate, s, permanently promotes stronger long-run growth per capita. Unlike its neoclassical equivalent, the AK model predicts that a poor country with a similar level of technological development as a rich one will always grow at the same rate regardless of baseline income; it will never grow faster than rich countries.

The AK model does not forecast convergence even if countries have similar levels of technology and savings rates. As a result, the AK model provides a more complete view of

how production per worker is determined, and the theoretical results about convergence are strongly supported by actual evidence. Despite its robustness, the AK Model has a key flaw in its broad definition of capital, which includes both physical, human, and social capital (Lucas, 1988) and (Pesaran, Shin, and Smith, 2001). Even while certain broad and significant elements of reality are kept, this highly simplified assumption may be unrealistic in real-world settings. Accounting-style methodologies cannot be used to measure the effects of institutions on income due to this simplification; instead, statistical techniques are used, at the cost of less precision about the conclusion. Regardless of the aforementioned flaws, if the model's simplification resulted in significantly correct answers to the questions it was designed to answer, it would have aided us in isolating the variables of interest and making their effect more obvious. This quality influences our decision to choose the AK model as the foundation for this research. As shown in the analytical framework, this model is ideally suited to the overall goal of analyzing the influence of financial market integration on the economic growth of ECOWAS member nations.

Empirical Review

The study of (Akinlo, and Egbetunde, 2010) used vector error correction modeling (VECM) on data from 10 Sub-Saharan African nations from 1980 to 2005 and discovered that financial development and economic growth had a long-run link. For different countries, the causality result was mixed. Financial development Granger-causes economic growth in the Central African Republic (CAR), Congo, Gabon, and Nigeria, according to the study, but economic growth Granger-causes financial development in Zambia. The other nations studied, Chad, Kenya, Sierra Leone, South Africa, and Swaziland, demonstrated a bi-directional association between financial development and economic growth.

Between 1961 and 1995, (Roja, and Valey, 2004) investigated the routes via which financial development influences economic growth in a panel of 74 nations. Their findings suggest that financial development has a large beneficial influence on productivity and growth in developed countries, but that the benefit is mostly through capital accumulation in less developed countries. The work of (Mckinnon, 1973) and (Shaw, 1973) demonstrated in their research that financial development generated by financial reform policies has an impact on saving and investing decisions. They discovered that financial liberalization counteracts the harmful impacts of financial repression on economic growth. A more liberalized financial system may result in more efficient intermediation and a larger domestic savings pool.

The inference is that a country's development initiatives may not be successful without a well-developed financial sector. A well-developed financial sector not only aids in the pooling of individual savings and capital accumulation, both of which are necessary for stimulating economic growth, but it also has a significant impact on supporting economic growth in the country by facilitating trade in goods and services through direct and indirect funding, the transfer of resources from traditional (non-growth) sectors to modern growth-inducing sectors, risk management, clearing, and other means.

In his study, (Wurgler, 2000) found that financial sector development fosters economic growth by distributing current investment more efficiently, increasing the efficiency of ongoing projects by monitoring them, and cutting the cost of information acquisition for indigenous enterprises.

Financial development, according to (Rousseau, 2002), stimulates investment and business through reallocating money. In addition, research at the industry level, such as those by (Jayarante, and Strahan, 1996), suggest that financial development leads to economic growth. However, the Solow model, which emphasizes exogenous technical change as the primary predictor of an economy's output growth rate, may be insufficient to describe the mechanisms of growth in a developing country. According to the hypothesis, the pace of output growth is independent of the rate of saving. This is not supported by the evidence. According to research, high-growth emerging countries have significantly higher savings and investment rates than middle- and low-income countries. Thus, it appears that the neoclassical growth model's original form with a constant-returns-to-scale aggregate production function and competitive factor markets may be of limited empirical use for developing economies with shallow factor and financial market depth.

In a related study, (Ogbeide, and Igbinedion, 2016) used the traditional panel, dynamic panel, and causality test to investigate the impact of financial sector reform on human development in Sub-Saharan Africa, using data from 1980 to 2012 on a sample of fourteen (14) African countries and the IMF's financial reform index 2010. The researchers discovered that financial changes had a beneficial and considerable impact on human development and, as a result, inclusive growth in the SSA countries as a whole. Financial changes lead to human growth in over a third of the nations studied, according to the causality test. Reforms appear to have resulted in financial sector restructuring, easing credit access for the great majority of impoverished households and small businesses, hence enhancing general welfare. The coefficient test's significance was stronger for nations in the high-income group. "A fundamental method to boost human development and inclusive growth in SSA is through education, as well as by removing the disruptive impacts of wasteful fiscal operations,". They advise policymakers to expand access to a wider range of financial services and strengthen institutions in SSA by achieving better levels of human development.

Using dynamic panel data methodologies, (Asiama, and Mobolaji, 2012) investigated the impact of trade and financial openness, as well as the quality of institutions, on financial development. They defined and estimated the panel model using three separate metrics of financial development: private-sector credit, wide money, and liquidity to GDP. They put the Rajan-Zingales hypothesis to the test and discovered that trade and financial openness increase financial development across the board. They discovered evidence that poor institutional quality has a detrimental influence on SSA's finance sector development. Their research revealed little support for the theory that simultaneous liberalization of the trade and finance sectors (also known as the Rajan-Zingales

hypothesis) is required for financial development. This evidence demonstrates that the development of the financial system not only has a positive correlation with growth, but also has a causal effect.

Again, (Egwaikhide, Omisakin, Oyinlola, and Adeniyi, 2016) investigated the link between financial system development and economic growth in Sub-Saharan Africa (SSA) by calculating the potential impact of monetary policy on economic growth. They developed the fixed effects estimating model and method Generalized Method of Moments Estimators using annual time series data from 28 countries from 1996 to 2014. In the sample, the analysis discovered a pretty broad negative relationship between finance and economic growth. For different definitions of financial development, the same submission was strong. In the finance-growth area, monetary policy played a little influence as an intervening player. Weak growth predictors were found in monetary policy variables and their relationships with financial development markers.

Also, in a related study, (Aziakpono, 2012) examines the extent of interest rate pass-through and measures the degree of financial integration across countries in the South African Customs Union using co-integration and error correction techniques, as well as impulse response analysis (SACU). The author discovered that each member state's financial systems had tiers of integration, with South Africa's having a major role in SACU. The study revealed the existence of modest arbitrage opportunities across member nations, implying that current financial system integration is mostly a result of policy convergence rather than market convergence. When compared to South Africa, a lack of arbitrage opportunities is linked to low institutional development and limited investment options in Botswana, Lesotho, Namibia, and Swaziland (BLNS countries).

Methodology

The study's empirical analysis relies on panel data containing annual values for all 15 ECOWAS countries. The information came from the World Bank's World Development Indicators, the IMF's Financial Structure database, the UNCTAD World Investment Report Database, and the West African Monetary Agency's (WAMA) panel database for ECOWAS countries. Financial integration and economic growth are seen to have a parallel relationship. The long-term effect of financial integration on financial development is stated in a model that adjusts for the level of macroeconomic, legal, and institutional development, according to (Mckinnon, 1973). As a result, the model for determining the influence of financial integration on the development of the financial sector and economic growth is as follows:

$$fdit = \gamma_0 + \rho fdi, t-1 + \gamma_1 finti, t + \gamma_2 Ii + \gamma_3 (Ii \times fint.t) + X_{i,t}\beta + \nu_{i,t} \ldots\ldots 4$$

$$\begin{aligned}\Delta fd_t = \alpha_0 + \phi fd_{t-1} + \delta_1 fint1_{t-1} + \delta_2 fint2_{t-1} + \delta_3 open_{t-1} + \delta_4 I \times fint_{t-1} \\ + \sum_{i=1}^{p-1} \psi_i \Delta fd_{t-i} + \sum_{i=1}^{q_1-1} \varphi_1 \Delta fint1_{t-i} + \sum_{i=1}^{q_1-1} \varphi_2 \Delta fint2_{t-i} + \sum_{i=1}^{q_1-1} \varphi_3 \Delta I_{t-i} \\ + \sum_{i=1}^{q_1-1} \varphi_4 \Delta (I \times fint)_{t-i} + \xi_t \Bigg\} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 5\end{aligned}$$

Where fd denotes financial development, $fint$ denotes financial integration, X is a vector of economic control variables (such as per capita income growth (pcyg) and trade openness (open)), and I denotes a measure of institutional quality. The ratio of broad money to GDP (M2GDP), stock market capitalization to GDP, and domestic credit to private sector/GDP ratio are the financial development variables used (CGDP). The variable ($I \times fint$) is an interactive variable that shows how institutional quality interacts with financial integration to determine the level of financial development. The use of this variable is based on the fact that issues of and capital account liberalization are primarily political and institutional.

For the analysis, which incorporates the estimate of ARDL models and their error corrections representation for the estimation of long-run connections. This approach is well suited to models in which the variables in the sample have mixed stationary features. It also allows for long-run estimations to be inferred, which is not achievable with other co-integration methods. To put it another way, the process works whether the series are integrated to order zero I(0) or integrated to order one I(1). When the orders of integration of the underlying regressors are not known with certainty, (Pesaran, Shin and Smith, 2001) employ the limits testing approach to test for the existence of a linear long-run relationship. However, as recommended by (Westerlund, 2007), the study addressed the difficulties of cross-section dependency that can occur in panel datasets like the ones used in this study before applying it.

This cross-section dependence test was divided into four categories: the first two, which were determined using group mean statistics, are as follows: $G_\tau = \frac{1}{N}\sum_{i=1}^{N}\frac{a_i}{SE(a_i)}$ and $G_a = \frac{1}{N}$; the last two statistics are given as $P_\tau = \frac{a}{SE(a_i)}$ and $Pa = Ta$. In non-stationary panel data, the Group Mean statistics can help with cross-section dependency difficulties. Recognizing the problem of cross-section dependency, is a bridge between first- and second-generation unit root and cointegration tests in Panel data (Baltagi, 2013) and (Eugene, Gnoudentiho, Oluyele, and Jean, 2017). As a result, we used the average pairwise correlation coefficient to verify for the presence of cross-section dependence in our data set:

$$\bar{\rho} = \frac{2}{N(N-1)}\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\rho_{ij} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 6$$

Where ρ_{ij} is given as: $\rho_{ij} = \frac{\sum_{t=1}^{T} e_{it}e_{jt}}{\sqrt{\sum_{t=1}^{T} e^2{}_{it}}\sqrt{\sum_{t=1}^{T} e^2{}_{jt}}}$. The e_{it}s are regression residuals.

Finally, the CDLM diagnostic test was performed using the above pair-wise correlation coefficients, as proposed by Frees, 1995. The test is administered by:

$$CD_{LM} = \sqrt{\frac{1}{N(N-1)}\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\left(T\rho^2{}_{ij} - 1\right)} \ldots\ldots\ldots\ldots\ldots\ldots\ldots 7$$

As T and N get arbitrarily large (i.e., T and N), the CDLM tends to a purely random distribution N (0, 1) under the null hypothesis of no cross-section dependency.

Results and discussion

Unit Root Test

The data used for this analysis reflects both country specific (individual heterogeneity) and common (homogeneous) characteristics of ECOWAS member countries. In order to avoid the occurrence of "spurious" inference, panel unit root tests should be used to verify for data stationarity. To investigate the homogeneous panel's stationarity properties, we used the tests developed by Levin, Lin, and Chu (LLC) and Breitung. These tests assume that the countries' cointegration vectors are identical. However, because ECOWAS member countries are likely to differ in economic, policy, institutional, and other unobserved space, the shared unit root assumption may not be feasible. We use the (Im, Pesaran, and Shin, 2003) and Augmented Dickey-Fuller tests, which account for heterogeneity in the panel's cross-section and assume a null hypothesis of no cointegration in the panel data, to overcome this seemingly implausible assumption for the ECOWAS sub-region. The results of the tests are shown in table 1 below.

Table I: Panel Data Unit Root Tests Results

Variable	Intercept and Trend								Remarks
	Homogenous unit root process				Heterogeneous unit root process				
	LLC		Breitung		IPS		ADF-Fisher		
	I(0)	*I*(1)	*I*(0)	*I*(1)	*I*(0)	*I*(1)	*I*(0)	*I*(1)	
RGDPGR	−16.33*	−31.83**	−11.17*	−20.59*	−15.68**	−32.09*	252.36**	899.45**	Stationary
CPI	10.44	12.18**	14.69	−8.30**	8.45	−12.06*	12.92	177.97**	Stationary
GDPPC	−2.04*	−16.95*	5.26	−9.25**	−2.61	−16.44*	35.76	259.07**	Stationary
SAVR	5.39**	−25.98*	−2.62**	−14.43*	−6.59**	−23.13*	100.55**	481.75**	Stationary
EXRT	4.30	−10.35*	6.26	−9.00**	4.40	−11.93*	11.36	174.41**	Stationary
MYR	0.94	−13.46*	3.67	−1.57**	3.97	−11.96*	7.04	169.92**	Stationary
CREYR	0.78	−18.01*	3.63	−4.35**	3.87	−17.09*	10.31	264.47**	Stationary
ASSET	0.70	−13.43*	1.99	−1.39**	0.24	−15.80*	26.22	235.66**	Stationary
KAOPEN	0.65	−16.57*	−0.62	−4.45**	0.29	−16.54*	27.55	256.31**	Stationary
INT_GAP	−0.84	−17.55*	−1.67*	−13.70*	−1.06	−16.93*	31.78	257.06**	Stationary
CRITERIA	−8.82**	−26.69*	−9.09**	−16.71*	−11.86**	−30.34*	176.62**	666.27**	Stationary
L_ORDER	−0.06	−13.83*	−0.88	−9.62**	0.23	−11.88*	33.91	172.56**	Stationary
GOVSTAB	1.32	−12.47*	−0.25	−13.76*	3.20	−11.13*	6.92	152.29**	Stationary
INV_PROF	0.11	−15.53*	−1.71*	−13.85*	−0.53	−12.72*	22.82	184.17**	Stationary

*Note: ** and * indicate significant at 1% and 5 % levels respectively; IPS = Im, Pesaran& Shin; LLC = Levin, Lin & Chu*

Source: Estimated by the Author.

The coefficient of the test for the variables in levels suggests that only the coefficients of real GDP growth, GDPPC, SAVR, and CRITERIA are significant, as shown in the unit root results in Table I. For both homogeneous and heterogeneous tests, these are the only variables that are stationary in levels. After the first difference, all of the other variables become stationary. The level of integration of the variables in the model – either I [0] or I [1] – has no bearing on the ARDL estimation technique because the estimator compensates for the various integration levels.

Cointegration Tests

The unit root results clearly suggest that the variables' stationarity status is mixed, with some variables at I [1] and others at I [0]. The long run conditions of the variable interactions, on the other hand, can be established in order to provide a more solid foundation for a dynamic relationship between the variables. The results of the Pedroni and Kao panel cointegration tests on both the panel and group assumptions, as well as the respective variance ratios and rho statistics, are shown in Table II. (Non-parametric tests). To see if the panel data are cointegrated, we apply both within-group and between-group dimension tests. For both the panel and group assumptions, the coefficients of the Phillips and Perron and Augmented Dickey Fuller test statistics are significant at the 0.05 percent significant level. According to both the ADF-t and non-parametric-t statistics, there is substantial evidence of panel cointegration. Another residual-based (Kao) panel cointegration test adds to these findings. Table 2 shows that the null hypothesis of no cointegration can be rejected at the 0.05 significant level for each of the equations using the Kao residual cointegration test.

Table 2: Panel Cointegration Test Result

Growth-Myr (liquidity) equation	Panel Statistics	Group Statistics	Kao (ADF)
Variance ratio	-0.500	--	-1.941*
Rho	1.637	1.038	
PP	-0.093*	-2.234*	
ADF	0.043*	-2.485*	
Growth-Creyr (credit) equation	Panel Statistics	Group Statistics	Kao (ADF)
Variance ratio	0.636	--	-2.440*
Rho	1.259	1.014	
PP	-0.304*	-2.130*	
ADF	0.133*	-1.548*	
Financial development and Financial interacting equation (myr), with control for Institutional Quality	Panel Statistics	Group Statistics	Kao (ADF)
Variance ratio	0.152	--	-1.671*
Rho	0.415	0.916	
PP	-0.248*	-0.281	
ADF	-0.162*	-0.579	
Financial development and Financial interacting equation (creyr), with control for Institution Quality	Panel Statistics	Group Statistics	Kao (ADF)
Variance ratio	6.042	--	2.772**
Rho	3.929	4.954	
PP	2.586	2.490	
ADF	-3.618*	-1.757*	

Note: **, * indicates the rejection of the null hypothesis of no cointegration at the 0.01 and 0.05 level of significance respectively

Table 3: Financial Integration and Financial Development

	Without control for institutional quality			*With control for institutional quality*		
	Financial integration variable (Dependent variable is log of real GDP per capita)					
Variables	*criteria*	*interest rate gap*	*Assets*	*Criteria*	*interest rate gap*	*Assets*
	Long Run Equation					
FINT	-0.338***	0.001	-4.450	1.947***	-0.181***	1.863***
FINT*I	--	--	--	-0.225***	0.026***	-0.529***
LGDPPC	-1.430**	1.477**	-9.398	-1.244	1.230***	1.341
OPEN	0.051	-0.247	-1.853	-0.871***	0.060	-0.950***
GOVSTAB	0.304***	0.283***	-0.949	1.331***	0.068**	0.276**
INVST_PROF	-0.081**	0.075	3.846	0.162**	-0.052**	0.292*
	Short Run Equation					
ECM_{t-1}	-0.053***	-0.050***	-0.002	-0.040***	-0.055*	-0.025*
ΔFINT	-0.028	-0.001	0.111	-0.068**	-0.003	0.152*
$\Delta FINT_{t-1}$	-0.018	-0.011	0.135	-0.001		0.129
ΔFINT*I	--	--	--	0.009*	0.001	-0.007
$\Delta FINT*I_{t-1}$	--	--	--	0.000		0.001
ΔLGDPPC	-0.082	0.320	-0.182	-0.031	0.008	-0.259*
$\Delta LGDPPC_{t-1}$	0.027	0.458	0.156	0.131		-0.035
ΔOPEN	0.030	-0.116	0.008	0.085	-0.029	0.058
$\Delta OPEN_{t-1}$	0.097	0.046	-0.050	0.152*		-0.023
ΔGOVSTAB	-0.028	-0.002	-0.003	-0.067*	-0.011	-0.029
$\Delta GOVSTAB_{t-1}$	-0.008	-0.009	-0.009	0.001		0.012
ΔINVST_PROF	0.035	-0.007	-0.012	0.021	0.010	-0.005
$\Delta INVST\_PROF_{t-1}$	-0.004	0.005	-0.013	-0.028*		-0.019
Constant	0.612***	-0.512***	0.117	-0.012	-0.316*	-0.290
Mean dep. Var	0.029	0.029	0.029	0.029	0.031	0.029
S.E. of regression	0.218	0.198	0.147	0.220	0.211	0.134

Source: Authors' computation

For each of the estimates in the Table III the error correction term (ECM) coefficients have the predicted negative sign and are largely significant at the 1% level (except that of the equation with asset shares). The significant and negative coefficients suggest that the financial sectors have the potential to restore long-term stability after a short-term system divergence from equilibrium. The coefficient of the ECM term, on the other hand, is low for each estimate, with the maximum value being -0.055, indicating that for each equation, less than 5% of long run adjustments to equilibrium are completed during the first year. This demonstrates that financial integration has only a minor impact on the long-term stability of ECOWAS financial markets. More importantly, we concentrate on the long-term forecasts presented in the upper portion of Table III. Because integration initiatives are more long-term conditional for any set of countries, the long-run results have more complicated implications for the relationship (Adegboye, Arodoye, and Irughe, 2019).

The findings reveal that in the long run, the number of criteria met at any given time has a large negative impact on financial depth among countries (when institutional factors are not accounted for). This suggests that financial integration that examines a broad range of convergence across ECOWAS economies without taking into consideration domestic

institutional support is detrimental to the sub-long-term region's financial sector development. The significance tests for the other financial integration variables in the non-controlled estimates fail even at the 10% level, implying that such integration patterns have no effect on financial development without taking the function of institutions into account. When the data are combined with the control for institutional quality, it is clear that the coefficient of financial integration, as assessed by the number of criteria met, now has a considerable positive impact on financial depth for the sub-region, with a coefficient of 1.947.

This result clearly demonstrates that when domestic institutional arrangements are taken into account, the influence of a broad-based and well-encompassing integration effort for a country on the financial sector may only be favorable. In another light, the findings show that institutional quality actually boosts the effects of financial integration on ECOWAS countries' domestic financial markets. The coefficient of the interaction term, on the other hand, is negative, indicating that institutions have a moderating effect on the desire for greater integration within a country. The coefficients of both interest rate gap and asset shares in the region become considerable as institutional quality influences, though the coefficient of interest rate gap is negative. This suggests that smoothing interest rates across countries has negative long-term consequences for each country's financial industry.

Given the huge disparity that exists between the financial markets of different countries in the sub-region, this result is simply explained and analyzed. Interest rate management, it should be mentioned, is a measure of the financial markets' efficiency. Smaller markets (of which there are many in ECOWAS) appear to be less efficient, making interest rate-based integration a less desirable consequence on larger states' financial markets. However, the results suggest that the interplay of interest rate differentials with institutional quality has long-term detrimental effects on a country's financial depth. Given that a diminishing gap is projected for financial integration, this is actually a positive consequence. As a result, robust adjustment mechanisms supplied by domestic institutions are definitely required in order to accommodate interest rate smoothing across the entire sub-region.

The coefficient of share of assets in the regional pool is significant and positive, indicating that asset-based integration has a significant beneficial impact on financial depth when institutions are under control. The findings demonstrate that a one percent increase in a country's asset share can lead to a 1.8 percent boost in financial development in the long run. Table III further shows that a high GDP per capita encourages financial development (as expected). Improvements in economic performance tend to promote aggregate demand, which is closely linked to the economy's monetary basis. As a result, when the economies of ECOWAS function well, even the difficulty of informality in the financial markets becomes more manageable. Surprisingly, financial openness has been found to have a negative impact on financial depth, implying that greater overall openness hurts local financial markets. Institutional quality, on the other hand, has mostly positive coefficients, indicating that better institutions help the sub-financial region's development.

The financial integration impacts of domestic private credit are described in Table IV. In the short run, the results imply that financial integration does not have a major short-term relevance for the development of the financial sector in ECOWAS countries. Only the equation with the number of criteria met is primarily relevant in the short-term estimations, just as it is in the money supply estimates. In the short run, the criterion coefficient has a large negative impact on credit ratio, however the effect is favorable when interactions with institutions are included. The proportion of regional assets has a strong favorable impact on financial development, both independently and in combination with institutional quality. As a result, there is evidence that financial integration in the form of asset sharing and convergence criteria has a short-term impact on a country's credit supply.

The result demonstrates that each of the coefficients has the predicted negative sign and is statistically different from zero at the 1% level in terms of the error correction component. Because these values are both substantial and negative, it may be concluded that the estimates have long-run stability and that any short-term deviation from equilibrium will be restored over time. Given the low values of the coefficients of the ECM term in each equation, the capability for restoring long run equilibrium is equally minimal. They claim that for each equation, up to 25% of long-run changes to equilibrium are achieved during the first year. However, the values are larger (in absolute terms) than those found in the money supply equations. This demonstrates that among ECOWAS countries, financial integration tends to give better long-term stability for loan availability than for overall financial market depth.

Table 4: Financial Integration and Financial Development

Variable	*Without interaction*			*With interaction*		
	Criteria	interest rate gap	Assets	Criteria	interest rate gap	Assets
	Long Run Equation					
FINT	0.077**	-0.003	-0.672***	0.281***	0.409***	-0.041***
FINT*I	--	--	--	-0.030***	-0.066***	0.010***
LGDPPC	1.379***	2.152***	3.036***	1.408***	1.570***	1.669***
KAOPEN	-0.097	-0.035	-0.119**	-0.134***	-0.240***	-0.007
GOVSTAB	0.040*	0.117***	0.139***	0.153***	0.084***	0.023
INVST_PROF	-0.080***	0.087***	0.063*	-0.066***	-0.083***	0.021
	Short Run Equation					
ECM_{t-1}	-0.198***	-0.206**	-0.198***	-0.239***	-0.251***	-0.198***
ΔFINT	0.002	-0.014***	0.161***	-0.065**	0.097	-0.024
$\Delta FINT_{t-1}$	-0.099	0.002	0.130***	--	0.175	0.024
ΔFINT*I	--	--	--	0.009*	-0.009	0.002
$\Delta FINT*I_{t-1}$	--	--	--	--	-0.019	-0.004
Δ(LGDPPC)	0.074	-0.131	-0.186	-0.124	-0.195	-0.111
$\Delta LGDPPC_{t-1}$	-0.028*	0.159	0.044	--	0.131	0.314
ΔOPEN	0.008	0.120	0.038	0.098*	0.109*	0.090*
$\Delta OPEN_{t-1}$	-1.566***	-0.039	-0.052	--	-0.125	-0.055
ΔGOVSTAB	0.009	-0.019*	-0.008	-0.063**	0.016	-0.014
$\Delta GOVSTAB_{t-1}$	0.239	0.006	-0.003	--	0.025	0.008
ΔINVST_PROF		-0.015	-0.034	0.004	-0.017	-0.033
$\Delta INVST\_PROF_{t-1}$	24.497	-0.003	-0.011	--	0.023	-0.023
Constant	184.025	-3.174**	-4.289***	-2.151***	-2.366***	-2.000***
Mean dep. Var		0.009	0.009	0.009		
S.E. of regression		0.224	0.213	0.237		

Source: Authors' computation

When institutional quality is not taken into account, both the number of criteria met and regional asset shares have considerable impacts on financial development as measured by loan supply, as seen in the long run results in the upper panel of Table IV. Meeting convergence conditions, then, tends to benefit the local financial industry in terms of loan provision and access. On the other hand, the greater a country's percentage of external financial assets held within the sub-region, the lower its credit supply. As a result, the results imply that the impacts of financial integration on the economy are uneven, and that the indicator used to measure integration is crucial. When policy interactions with integration variables are included in the estimates, each of the coefficients becomes significant at the 1% level, though the share of assets becomes negative and institutional quality becomes positive – indicating that interest rate alignment has the potential to reduce credit supply.

Incorporating institutional interaction, on the other hand, increases the size of the positive coefficient of criteria met. This demonstrates that better institutions boost a country's credit supply by enhancing the beneficial effects of convergence conditions the coefficient

of per capita income is definitely positive and significant for the other variables in the model, demonstrating that economic performance considerably improves credit supply in the economy. Financial openness has a major negative influence on loan supply, whereas institutional characteristics have been proven to have a predominantly beneficial impact on credit supply. Better institutions, in general, tend to encourage either credit availability or credit assessment methods among ECOWAS countries.

Conclusion and Recommendations

The study investigated the dynamic effect of financial market integration in the Economic Community of West African States (ECOWAS) and obtained estimates of the potential growth benefits of integration, based on empirical findings, given the significance of economic growth and the critical role played by the financial services sector in the linkage. The Interaction between Financial Integration and Financial Development on Economic Growth in ECOWAS Countries is considerable, according to the study. Financial integration is linked to financial development rather than overall economic progress. Furthermore, the importance of institutional quality in successful interactions was established. As a result, a key takeaway from the study is that financial integration must be appropriately directed by effective institutions that can ensure that financial integration is not pursued in the same way as financial sector expansion among the sub-economies. This is an intriguing policy relationship. First, the existing structural and financial realities in many ECOWAS countries point to the need for additional financial system reform and repositioning as a powerful weapon for boosting long-term growth. According to the research, the ECOWAS region should adopt a broad-based and all-encompassing integration policy that aims to develop member nations' domestic institutions. Further institutional improvements in the ECOWAS sub-region are recommended, particularly in the legal processes. Policy coordination is required to avoid potential negative effects of financial integration on domestic financial development as a result of the deployment of broad-based financial markets integration through instruments that affect interest rates and central bank assets.

References

Adegboye, A. C., Arodoye, N. L. & Irughe, I. R. (2019). Tax performance, institutions and fiscal convergence in the Economic Community of West Africa States. *West African Financial and Economic Review*, 16(1), 27-47

Agenor, P. R., & Montiel, P. J. (2008). *Development macro-economics*. (3rd ed.). New Jersey: Princeton University Press.

Akinlo, E. A., & Egbetunde, T. (2010). Financial development and economic growth: The experience of 10 Sub-Saharan African countries revisited. *The Review of Finance and Banking,* 2(1), 17-28,

Asiama, J. P., & Mobolaji, H. (2012). Openness, institutional quality and financial development in Sub-Saharan Africa. *West African Financial and Economic Review*, 9(1), 25-55

Aziakpono, M. J. (2012). Financial integration amongst the SACU Countries: Evidence from interest rate pass-through analysis, *New frontiers in econometrics*, Proceedings of the 10th Annual Conference of the African Econometric Society. Nairobi, Kenya: African Economic Research Consortium (AERC) & African Econometric Society (AES), 60-81

Baltagi, B. (2013). *Econometric Analysis of Panel Data*' (*5th ed.),* Chichester: John Wiley and Sons. 2013.

Egwaikhide, F. O., Omisakin O., Oyinlola, A., & Adeniyi, O. (2016). Financial system development and economic growth in Sub-Saharan Africa, *West African Financial and Economic Review*, 15(2), 135-151

Eugene, K. Gnoudentiho, G. S. Oluyele, A. & Jean, M. B. (2017). Health expenditures and Income with Nonstationary Panel Data: Evidence from ECOWAS member countries, *Economics Bulletin*, 37(3), 2198-2218

Im, K., Pesaran, M; & Shin, Y. (2003). Testing for unit roots in heterogeneous panels, *Journal of Econometrics*, 53-74

Iyoha, M. A. (2004). *Macroeconomics: Theory and policy* (rev. ed.), Benin city- Nigeria: Mindex Publishers.

Jayarante, J. & Strahan, P. (1996). The finance-growth nexus: Evidence from Bank branch deregulation. *Quarterly Journal of Economics*, 111, 639-709

Lucas, R. (1988). On the mechanics of economic growth, *Journal of Monetary Economics*, 22, 3-42

Mckinnon, R. (1973). *Money and capital in development*, Washington DC: The Brookings Institution,

Ogbeide, F. I. & Igbinedion, S. O. (2016). Does financial sector reform influence inclusive growth in Sub-Saharan Africa? *West African Financial and Economic Review (WAFER)*, 15(2), 23-49

Pesaran, M., Shin, Y. & Smith, R. (2001). Bounds testing approaches to the analysis of level of relationship, *Journal of Applied Economics*, 289-326

Rebelo, S. (1991). Long-Run Policy Analysis and Long-Run Growth, *Journal of Political Economy*, 500-521,

Roja, F., & Valey, N. (2004). Finance and the sources of growth at various stages of economic development, *Economic Inquiry*, 42(1), 127-140

Rousseau, P. (2002). *Historical perspectives on financial development and economic grow*th, *NBER Working Paper* No.9333

Shaw, E; (1973). *Financial deepening in economic development,* New York: Oxford University Press,

Westerlund, J. (2007). Testing for error correction in panel data, *Oxford Bulletin of Economics and Statistics*. 69, 709-748

Wurgler, J. (2000). Financial markets and the allocation of capital, *Journal of Financial Economics,* 58, 187-214