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**FINANCIAL DEVELOPMENT AND AGRICULTURAL SECTOR PERFORMANCE: EVIDENCE FROM  
SUB-SAHARAN AFRICAN ECONOMIES**

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***Abstract***

*Propelled by the need to promote diversification exercise of the African nations amidst limited financial resources, the study evaluates the effects of Financial Development on agricultural sector performance in Sub-Saharan African Countries over the period 1994 - 2019. Secondary data were sourced from the World Bank Report. Financial Development is captured using indicators such as financial inter-relation ratio, Finance ratio, ratio of money to national income, financial accessibility ratio, and net-interest margin, while the sectoral contribution of the agricultural sector to gross domestic product in Nigeria constituted the measure of the sector's performance. This study employed the Panel Stationarity Test, Panel ARDL/Bounds Test and the error correction model in evaluating the nature of the prevailing relationship between the underlying variables. The result revealed that the ratio of money to national income, financial accessibility ratio and net interest margin are viable predictors of the performance of the agricultural sector in the sampled 45 Sub Saharan African countries, while financial Inter-relation ratio and finance ratio display adverse influence on agricultural sector performance in the sample countries. In light of this, it is recommended that financial institutions should endeavor to mobilize credits at favorable rates to local farmers. This credits should be given with a reasonable tenure such as two to five years. Operations of financial institutions must be properly management to avoid lopsided disbursement to other sectors at the detriment of the agricultural sector.*

*Keywords: Financial Development, Agriculture, Sub-Saharan African Countries, Financial Depth.*

## **Introduction**

Financial stability and economic growth has been the topic of growing literature in both industrialized and developing economies in recent years. The absence of successful financial intermediation in developed countries is primarily shown by the disparity between institutional savings and expenditure (Aminu, Raifu, & Oloyede, 2019; Aiyedogbon & Anyanwu, 2016). According to Aizenman,, Jinjarak, & Park, (2015), it is evident that the need for investment in these countries' actual industries is incontrovertible, especially the agricultural sector. In the past, this has been dealt with through the introduction of agricultural schemes and other similar vehicles that offer loans for small, medium, and scale farmers/farming at lower market prices. The consequence was the introduction of closely controlled financial regimes by African countries after independence, which was motivated in theory by prudential concerns until the 1980s.

The agriculture industries are the most resilient and deserving of the real sectors. Any agriculture sector has a critical position in broadening the economies productive and export base through job creation, supplies of industrial raw materials, food security, production growth and economic growth as a whole. This is especially relevant for an economy like Nigeria that relies on a primary product, oil, because the world market vagaries in primary products (Atalo, 2015). Therefore, agricultural sector and activities are key drivers of fast and key driver of longer-term growth (Christiaensen & Demery, 2007). In low-income nations, it employs not only a significant 70% of the population but also a big contribution to the Gross Domestic Product (GDP) estimated to be around 30 thousand (The World Bank, 2007). The advent of the development and sale of crude oil has dramatically changed the nature of the Nigerian economy and the economy is controlled by oil-based resources (Iwayemi, 2006). Overtime the non-oil industry, especially agriculture, has become less competitive with its production and exports and familiar Netherlands diseases have been consolidated into the Nigerian economy (Atalo, 2015).

Today, the absence of access to financial resources remains a significant impediment to agricultural modernisation sector. The rationale and the instruments upon which this new strategy is centered need to be understood in order to split the deadlock, to construct financial arrangements suited to the specificities of agriculture and in keeping with the rural financial sector background as observed by Aminu, Raifu and Oloyede (2019). This also draws fresh focus to the topic of agricultural funding, which is already at the top of the international development agenda. These are the highest issues in African nations.

According to Atalo (2015), the financial structure is majority of African economies are observed to be relatively shallow and their perceived diversity is suspicious when compared to industrialized countries. These issues are linked to the political climate which are usually afflicted by frequent reversals (Aiyedogbon, & Anyanwu, 2016). The shortage of access to financial resources is still a big barrier to agricultural modernisation (Dhrifi, 2014). Overall, Raju (2020) observed that the growth and widening of markets for agricultural finance is constrained by a variety of factors including:: (i) insufficient or unsuccessful policies; (ii) high transaction costs to enter remote rural populations; (iii) covariance between development, supply and price risks; (iv) lack of appropriate risk management mechanisms; and (v) low demand fragmentation and incipient de; (Raju, 2020).

In light of the aforementioned, the study seeks to determine how much development in Africa's financial sector will increase the performance of the agricultural sector. More especially, the objectives of this paper are to evaluate the different indicators of financial development as proposed by Bhole (2004) such as; the ratio of money to national income, financial accessibility ratio, net interest margin, financial Inter-relation ratio, and finance ratio and their various implication on the contribution of the agricultural sector to gross domestic product. The theoretical and empirical clarifications are presented in the next section.

## **Literature Review**

### **Theoretical Framework**

This section presents the baseline theory of the financial development and sectoral performance effect as presented as follows;

#### **Finance Growth Theory**

Early theoretical scholars on financial development and growth theory (Schumpeter, 1911; Kuznets, 1955; Patrick, 1966) indicate varying perceptions of the relationship between financial and sectoral performance. The groundbreaking Finance Nexus work of Schumpeter (1911) suggests that a well-developed financial framework drives technical advances to evolve through the transfer of capital from less efficient to more productive. Kuznets (1955) proposes that financial markets such as the capital markets only start to expand as an economy is entering the middle stage of development and evolving until the economy matures. Lewis (1956) nevertheless finds that first the capital markets evolve as a part of the mechanism of economic development and before actual economic operation is driven. These disparities in opinion can be divided into the theories of "supply-leading" and "demand-after." The supply-leading view, as Patrick (1966) points out that the creation of a healthy financial sector leads to economic growth which ripples to various sectors. This is backed by various scholars such as Bencivenga and Smith (1991), Rioja and Valev (2004), Levine et al., (2000), Hassan et al., (2011) who all argues that financial development manifests in the form of sufficient liquidity which leads to bolstered economic performance in various classified sectors.

#### **Financial Development Theory**

In his ground breaking contribution Goldsmith (1969) has recorded in a survey of 35 countries that there is a strong connection between sectoral performance and financial development. This is supported by, Roubini and Sala-i-Martin (1992) in a cross-country context. Theoretical models conjectures that financial sector development is important for sectoral performance growth, but there is still no agreement on the course of causality. This is because economists deeply disagree with the economic development position of the financial sector. This is similarly supported by Schumpeter (1912), Mckinnon (1973), Shaw (1973), Fry (1988), Pagano (1993) and Levine (2004); on the one side, and Robinson (1952), Lucas (1988), Greenwood and Jovanovic (1990) who all suggest that financial development coincides with growth. In terms of agriculture, the Theory of Economic Growth proposed that agricultural-based economic development policy needs an overhaul of technological, structural and financial incentives to improve the output of farmers. It was added that the maximum benefits of agricultural production cannot be achieved unless there are sufficient incentives, economic

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opportunities and, most important, access to appropriate credit and inputs to allow agro-allied operators to increase their output and productivity.

### **Empirical Framework**

Sare, Aboagye, and Mensah (2019) evaluated the implication of financial development on various sectors. This study addresses these gaps in the literature relying on panel data from 46 countries in Africa spanning 1980–2016. Our evidence based on the pooled mean group estimations suggest that, for both the long and short run, although the impact of sectoral value additions is contingent on the proxy of trade, financial sector development does not have a significant effect on international trade. This holds irrespective of the measure of finance and international trade. However, after controlling for the transmission channels, a coexistence of a negative long run relationship between finance and trade is found, and this is invariant of the indicator of finance and trade. On the mediation role, we find that higher sectoral value additions dampen the deleterious effect of finance on trade with huge impact emanating from the service sector. We discuss some key implications for policy.

Okuma, Nwoko, Festus, and Sebastine (2019) examined the causality between financial development and Nigeria's agricultural sector output (AOG). Ex-post facto research design was used and the annual time series data for various years were obtained from the Central Bank of Nigeria's (CBN) Statistical Bulletin. The Unit Root Test, Engle-Granger Co-integration Test, Error correction Model (ECM) Test and Granger Causality Tests were used to analyse the data. Financial development was proxied by the prime lending rate, the deposit rate, the agricultural credit guarantee scheme fund, the demand for deposits from rural areas and the deposits of bank loans to small scale enterprises as a percentage of total loan. The results revealed that financial development explains 41% of the changes in the Nigerian agricultural sector output. Prob. (F-statistics) co-efficient of 0.070531 proved that the explanatory variables have an insignificant effect on the dependent variable and Granger Causality Test showed more support for the non-existence of a causal relationship between the variables of explanatory variables and the dependent variables. Hence, the study recommends that the agricultural and financial sectors operators be sensitized on the benefits of their services to each other through symposiums, lectures, seminars and workshops. The two sectors should be encouraged to depend on each other with the agricultural sector relying more on the services of conventional financial institutions than on unorganized or traditional financial bodies. Financial institutions should also concentrate more on rendering services to the agricultural sector.

Zakaria, Jun, and Khan (2019) examined the impact of financial development on agricultural productivity in South Asia using data for the period 1973–2015. The other variables included are physical capital, human capital, trade openness and income level. It is found that all variables have cross-section dependence and they are stationary at first differences. It is found that long-run cointegration holds among variables. The estimated results show that financial development has an inverted U-shaped effect on agricultural productivity, which implies that agricultural productivity increases with the increase in financial development and then it declines when financial development further increases. Agricultural productivity increases with the increase in both physical and human capitals. Agricultural productivity also improves with trade openness and income level. e results of the robustness analysis show that terms of trade has a negative e ect on agricultural productivity. Further, industrialisation has

positive while carbon emission and rural labour force have negative effect on agricultural productivity in the region.

Medugu, Musa, & Abalis, (2019) empirically examined the impact of Commercial Banks' credit on Agricultural output in Nigeria, covering the period 1980 to 2018. Annual time series data was employed, which was sourced from Central Bank (CBN) publications such as Statistical Bulletins and Bullions, and National Bureau of Statistics (NBS) publications. Stationary test was conducted on variables to ascertain whether they have unit roots. It was discovered that they were all stationary at first difference. Co-integration test however, revealed that long run relationship exists among the variables, also ECM model result showed that the model returns to short run equilibrium after an exogenous shock, with speed of adjustment of negative one (-1), this implies that 100% of all the deviations in the past will adjust to equilibrium. Ordinary least square Method was employed to estimate the relationships among the variables and the result showed positive and significant relationship exists between commercial banks' credit and Agricultural output in Nigeria, the same relationship also exists between Expenditure made on Agriculture by Government and Agricultural output in Nigeria. Interest rate was negatively related to Agricultural output in Nigeria, the results are all according to a priori expectations. However, commercial banks' credit performs better than Government Expenditure on Agricultural output in Nigeria.

Yakubu, Aboagye, Mensah, and Bokpin (2018) examine the impact of financial development on international trade in 46 African countries over the period 1980–2015. Evidence from their study shows differential effects of finance on trade. For instance, whereas private credit inhibits trade, domestic credit significantly spurs international trade flows. Further findings from their study reveal a U-shaped relationship between private credit and trade measures. This suggests that financial sector development may be detrimental (helpful) to trade for economies with low (high) level of private credit.

Rizwan-ul-Hassan (2017) examined the impact of financial sector development on agricultural growth in Pakistan. A Cobb-Douglas production function was used with two proxies for financial sector development, i.e. broad money M3 as proportion of GDP and agricultural loan disbursement. The study utilized annual data for the period 1981-2015. A VAR model was applied to explore the relationship between the performance of agricultural sector and improvement in financial services in the country. The results of the Johansen co integration test and VECM model reveals a significant positive relationship between agricultural growth and capital formation, farm credit disbursement and liquid liability in the financial sector. The relationship with rural labor force was mixed which may be attributed to the over employment of labor in the agricultural sector. The study is unique as it uses farm credit disbursement as an important dimension of financial services. The study recommends that for improving agricultural productivity, financial services have to be made more efficient.

Olaniyi (2017) evaluated how financial development influenced agricultural growth in Nigeria using annual data over the period 1981-2014 and the ARDL bounds testing approach, captures the long run as well as the short-run dynamics of the relationship between financial development and agriculture in Nigeria. The results show that usage of financial services has significant impacts on agriculture both in the short and the long run, meaning that for sustainable agricultural development in rural areas, improving financial development is critical. On the contrary, access to finance has insignificant impacts on agricultural growth. The message

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is: While provision of access to finance to rural farmers could have many benefits, it is more important to consider the usage of the finance in the rural settings and its impact on rural outcomes that we care about. There is a need for more traditional and non-traditional financial service providers to go back to the land and innovate in the Nigerian agricultural space in order to boost financial development in Nigeria while also substantially reducing poverty and stimulating agricultural growth.

Oliynyk-Dunn (2017) provides evidence regarding the importance of financial development for agricultural growth in Ukraine. The used non-integrated and integral indicators, time series and regression analysis to investigate the link between the financial development and agricultural growth. The results based on integral indicators shows that the financial development does not affect agricultural growth in Ukraine. The study based on non-integrated indicators, which characterizes various aspects of the financial system's banking component and agricultural growth, provided a significant link between the financial system and agriculture growth. The regression models revealed if bank deposits to GDP (%) increases the value added per worker in agriculture increases exponentially. The results of the study indicate that, agriculture is more sensitive to lending changes than the vast majority of other sectors of the economy. The increasing lending of one UAH (Ukrainian hryvnia) resulted in retail turnover growth of 1.62 UAH, while agricultural gross output, growth was UAH 5.06. Our results reveal a positive relationship between financial system's banking component and agriculture growth in Ukraine. The results indicate the necessity for continued research into further developing universal methodological approaches of appraising the nexus of the financial system's banking component on agriculture growth in general as well separate farm groups. The results of our study has important implications on policy making authorities efforts to stimulate agricultural growth by improving the efficiency of the financial system's banking component.

Onoja, (2017) examine the role of financial sector development as a catalyst to agricultural productivity from 1991-2013, we employ panel data and advances fixed-effects econometrics approach to empirically investigate the linkage between agricultural productivity and financial sector development. Results from the analysis suggests that while financial sector development contributes positively to agricultural productivity, the magnitude of the effect is however statistically insignificant. This result is robust to multiple specifications and controls for institutional quality, economic size, agro-environmental factors, level of infrastructure, human capital, as well as year and country fixed effects. Additionally, agriculture credit has a positive and significant effect on productivity across sample of 75 developing countries, but positive and insignificant for developed economies. In view of the foregoing, it is imperative that policies targeted at boosting agricultural productivity are predicated upon creating incentive system that channels greater credit to boost agricultural investment. In this sense, financial sector development is not an end itself, but a means to an end.

## **Methodology**

### **Data and Employed Variable Description**

The study employing the Ex-post Factor Research Design adopted secondary panel data for forty-eight (48) countries in Sub Saharan Africa (SSA) which was gotten from the World Bank Report. Of all SSA countries, the study adopts a non-random sample of forty five (45) countries

in SSA which are; Angola, Burundi, Benin, Burkina Faso, Botswana, Central African Republic, Cote d'ivoire, Cameroon, Congo, Dem. Rep., Congo, Rep, Comoros, Cabo Verde, Eritrea, Ethiopia, Gabon, Ghana, Guinea, The Gambia, The Republic, Equatorial Guinea, Kenya, Liberia, Lesotho, Madagascar, Mali, Mozambique, Mauritania, Mauritius, Malawi, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Sudan, Sao Tome and Principe, Eswatini, Seychelles, Chad, Togo, Tanzania, Uganda, South Africa, Zambia, Zimbabwe. The sample period cover 26 years and spans from 1994 to 2019.

### Operational Measures of Variables:

The study conceives Agriculture Contribution to Gross Domestic Product (AP) as the ratio of value of Agricultural output to gross domestic product and it is measured in millions of dollars. Financial inter-relation ratio, which is the ratio of financial assets, is captured by credit to the private sector as a ratio to total assets as measured by gross domestic product and it is measured in millions of dollars. Finance Ratio is measured using gross domestic product and it is measured in millions of dollars. The ratio of money to national income captures the rate of the broad money supply in the underlying countries as a ratio to aggregate gross domestic product and it is measured in millions of dollars. Financial accessibility ratio (FAC) encompasses; the number of bank accounts per 1,000 adults, number of bank branches per 100,000 adults, the percentage of firms with line of credit (large and small firms). While the Net interest margin (NIM) is measured as the difference between the interest income generated by banks or other financial institutions and the amount of interest paid out to their lenders (for example, deposits), relative to the amount of their (interest-earning) assets. The study expects a negative relationship between net interest margin and the various observed sectors.

### Model Specifications:

Following Bholes (2004) proposition, the study presents its model as follows;

AP	=	$\alpha_0 + \alpha_1 \text{FIR} + \alpha_2 \text{FRT} + \alpha_3 \text{MNI} + \alpha_4 \text{FAC} + \alpha_4 \text{NIM} + \mu$
AP	=	Agricultural sector contribution to gross domestic product
FIR	=	Financial Inter-relation ratio
FRT	=	Finance Ratio
MNI	=	The ratio of money to national income
FAC	=	Financial accessibility ratio
NIM	=	Net interest margin
$\alpha_0$	=	Constant Parameters
$\alpha_{1-4}$	=	Estimation parameters
$\mu$	=	Error term

On apriori, the study expects a positive relationship between the employed measures of financial development and agricultural sector output within the relevant range.

### Specification of Data Analytical Tools

#### Panel Stationarity Test:

Stationarity test is the first step of testing the Stationarity of succession or the order of integration of data by means of augmented dickey Fuller test in the level and the first difference.

#### Panel Cointegration test

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This test was established to observe if there is a long run connection amongst variables in the population.

**Panel Autoregressive Distributive Lag and ARDL Error Correction Model:**

The ARDL cointegration technique is used in determining the long run relationship between series with different order of integration (Pesaran and Shin, 1999, and Pesaran et al. 2001).

**Presentation of Results**

This section is presented under the following subheads for clarity;

**Stationarity Test Output**

The study employed the annual values of 48 sampled Sub-Saharan African countries data, which covers; Agricultural sector contribution to gross domestic product (AP), Financial Inter-relation ratio (FIR), Finance Ratio (FRT), The ratio of money to national income (MNI), Financial accessibility ratio (FAC), and Net interest margin (NIM);

**Table 1: Panel Stationarity Test Summary of Employed Variables At Level (0)**

Variable		Levin, Lin & Chu t*	Im, Pesaran and Shin W-stat	ADF - Fisher Chi-square	PP - Fisher Chi-square	Decision
<b>AP</b>	Stat	-2.72081	-4.78852	114.601	95.1732	Stationary at Level (0)
	Prob	(0.0033)	(0.0052)	(0.0011)	(0.0044)	
<b>FIR</b>	Prob	0.11373	3.54888	63.1462	79.0582	Presence of Unit Root at Level (0)
		(0.5453)	(0.9998)	(0.9859)	(0.7884)	
<b>FRT</b>	Stat	-3.30726	-2.49991	130.758	179.786	Stationary at Level (0)
		(0.0056)	(0.0062)	(0.0021)	(0.0000)	
<b>MNI</b>	Prob	1.72476	3.98066	45.0934	51.6896	Presence of Unit Root at Level (0)
		(0.9577)	(1.0000)	(1.0000)	(0.9996)	
<b>FAC</b>	Stat	8.45104	15.6229	8.04273	6.51031	Presence of Unit Root at Level (0)
		(1.0000)	(1.0000)	(1.0000)	(1.0000)	
<b>NIM</b>	Prob	-8.18935	-4.54177	168.391	149.921	Stationary at Level (0)
		(0.0000)	(0.0000)	(0.0000)	(0.0001)	

**Source:** Extracts from *Eviews 11*.

The probability values shows that; Agricultural sector contribution to gross domestic product (AP), Finance Ratio (FRT) and Net interest margin (NIM) were observed to be stationary at level as they showed probability levels lower than 0.05 across the various employed T-statistics. This shows that they could be used at level for estimation purposes. As for Financial Inter-relation ratio (FIR), the ratio of money to national income (MNI), and financial accessibility ratio (FAC), there is no significant stationary trend in this data. In light of this, the study proceeds to estimate stationarity at first level (1).

**Table 2: Panel Stationarity Test Summary of Employed Variables AT First Difference (1)**

Variable		Levin, Lin & Chu t*	Im, Pesaran and Shin	ADF - Fisher	PP - Fisher Chi-	Decision
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			W-stat	Chi-square	square	
<b>D(AP)</b>	Stat	-	-	-	-	-
	Prob					
<b>D(FIR)</b>	Stat	-10.8537	-14.0820	375.297	627.057	Stationary at First
	Prob	(0.0000)	(0.000)	(0.0000)	(0.0000)	Difference (1)
<b>D(FRT)</b>	Stat	-	-	-	-	-
	Prob					
<b>D(MNI)</b>	Stat	-12.6097	-14.6909	386.760	677.962	Stationary at First
	Prob	(0.0000)	(0.0000)	(0.0000)	(0.0000)	Difference (1)
<b>D(FAC)</b>	Stat	-9.39871	-12.7774	354.942	745.752	Stationary at First
	Prob	(0.0000)	(0.0000)	(0.0000)	(0.0000)	Difference (1)
<b>D(NIM)</b>	Stat	-	-	-	-	-
	Prob					

Source: Extracts from Eviews 11.

Due to the lack of stationarity at level in terms of Financial Inter-relation ratio (FIR), the ratio of money to national income (MNI) and financial accessibility ratio (FAC), there stationarity test is estimated at the first difference.

### Lag Length Selection

To determine the suitable lag for subsequent estimations in the study, the Lag length selection criteria are employed and presented as follows;

### Table 3: Lag length selection criteria output

VAR Lag Order Selection Criteria

Endogenous variables: AP FIR FRT MNI FAC NIM

Exogenous variables: C

Date: 01/20/21 Time: 14:25

Sample: 1994 2019

Included observations: 809

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-21731.97	12813.23*	8.80e+15*	53.74034*	53.77517*	53.75371*
1	-14780.49	13782.67	3.31e+08	36.64397	36.88776	36.73757
2	-14665.82	225.6416	2.72e+08	36.44950	36.90225	36.62333
3	-14564.57	197.7499	2.32e+08	36.28818	36.94989	36.54224
4	-14523.21	80.15354	2.29e+08	36.27494	37.14561	36.60924
5	-14497.62	49.22657	2.35e+08	36.30067	37.38030	36.71519
6	-14473.69	45.67316	2.42e+08	36.33051	37.61909	36.82526
7	-14379.14	179.0410	2.09e+08	36.18577	37.68332	36.76076
8	-14342.00	69.79062	2.09e+08	36.18294	37.88945	36.83815

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

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FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

**Source:** *Extracts from Eviews 11.*

From table 3, shows that the best lag to employ are lag 0, considering the elasticity of the data. In light of this, the study would be employed for subsequent estimations using their current values (i.e. using 0 lag).

**Panel ARDL/Bounds Test**

**Table 4: Panel ARDL/Bounds Test output for model – Agricultural sector contribution to gross domestic product (AP).**

Dependent Variable: D(AP)

Method: ARDL

Date: 01/20/21 Time: 06:35

Sample: 1995 2019

Included observations: 1124

Dependent lags: 1 (Fixed)

Dynamic regressors (1 lag, fixed): FIR FRT MNI FAC NIM

Fixed regressors: C

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long Run Equation				
COINTEQ01	-0.187876	0.030285	-6.203680	0.0000
D(FIR)	-0.169541	0.055767	-3.040196	0.0024
D(FRT)	-0.003385	0.000881	-3.841571	0.0001
D(MNI)	0.078729	0.035797	2.199287	0.0281
D(FAC)	0.008972	0.002393	3.749543	0.0002
D(NIM)	2.575981	0.289546	8.896635	0.0000
Short Run Equation				
FIR	0.113525	0.110718	1.025349	0.3055
FRT	0.017840	0.012276	1.453201	0.1464
MNI	-0.144174	0.102137	-1.411582	0.1584
FAC	0.001733	0.013769	0.125881	0.8999
NIM	-0.300345	0.495747	-0.605844	0.5448
C	2.970814	0.700104	4.243392	0.0000
Mean dependent var	-0.215142	S.D. dependent var	2.829468	
S.E. of regression	2.536609	Akaike info criterion	3.695936	
Sum squared resid	5758.775	Schwarz criterion	4.882856	
Log likelihood	-1886.275	Hannan-Quinn criter.	4.143617	

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\*Note: p-values and any subsequent tests do not account for model selection.

**Source:** *Extracts from Eviews 11.*

From the above ARDL output in table 4, it can be observed that, in the short run, only the ratio of money supply to national income (MNI) and net interest margin (NIM) had negative influence on agricultural productivity, while all other variables showed positive influence which is in line with the apriori expectation. In the short run, all employed indices of financial development are seen to have no significant influence on agricultural sectors contribution to gross domestic product.

In the long run, financial inter-relation ratio (FIR) and financial ratio (FRT) show negative coefficient values of -0.169541 and -0.003385 fails the apriori expectation test as a result of their negative influence on agricultural sector contribution to gross domestic product (AP), while all other variables showed positive influence on the contribution of this underlying sector to gross domestic product. All variables show significant long run influence on agricultural sector contribution to gross domestic product (AP). This shows a large level of influence on the level of financial development on their economies.

### **Discussion, Conclusion, and Recommendations**

Financial Inter-relation ratio (FIR) as measures using the credit to the private sector as a ratio to total assets as measured by gross domestic product shows a negative and significant influence on the sectoral contribution of agricultural sector to gross domestic product. These findings shows that, the level of credit mobilization has a counterproductive effect on sectoral contribution of the agricultural sector. This could be resulting from crowding out effect of government, who leave little for the private sector at very high interest rate. This could also be linked to improper mobilization of funds by the private sector to productive endeavors which leads to abandoned projects, value destruction caused by projects with negative present values and absolute misappropriation of funds to personal activities with little to no economic value added. From the sectoral angle, the Agricultural sector has been overtaken by the search for blue-collar projects by fund seekers, who rather mobilize funds to other sectors apart from the agricultural sector. This varies sharply from theoretical postulations of Goldsmith (1969), Roubini and Sala-i-Martin (1992), Schumpeter (1912), Mckinnon (1973), Shaw (1973), Fry (1988), Pagano (1993) and Levine (2004) among others who observed a positive relationship between financial inter-relation ratio and sectoral performance. This therefore show the Theory of Economic Backwardness in play as can be seen from the negative influence of FIR. Gerschenkron (1962) observes that the structure of the economy determines significantly how well the financial institutions and their mobilized resources affect the economy. This therefore shows that a bulk of the SSA economies has an economic structure which limits the ability of the FIR from having the desired effect.

Finance Ratio (FRT) shows a negative and significant influence on Agricultural sector contribution to gross domestic product (AP). This shows that market capitalization and the capital market activities and operations has an adverse influence on the sectoral contribution of the agricultural sector. This could be linked to poor fundamental performance of quoted companies, especially those in the agro-allied sector which has rippled into the returns of

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investors and must have affected their earnings and potential investments, hence the adverse influence of the sectoral contribution of the agricultural sector. This points to Kuznets (1955) postulation that financial markets only begin to grow as the economy approaches the intermediate stage of the growth process and develop once the economy matures. This therefore shows the possibility that the capital markets of the SSA economies is yet to be matured and hence has affected the stimulus of the FRT on the sectoral contribution of the agricultural sector. This also tallies with the findings of Herwartz and Walle (2014) found that low-income economies obtain the least benefit from financial development. Shaw (1973) corroborates this view and added that developing economies are characterized by financial repression.

The ratio of money to national income (MNI) as measured using the ratio of broad money supply to gross domestic product shows a positive and significant relationship with Agricultural sector contribution to gross domestic product (AP). This shows that the level of money supply has been able to facilitate resource mobilization and has triggered the influence and sector contribution of the agricultural sector. This shows therefore that the agricultural sector thrives on the demand for money (Schumpeter, 1911; Kuznets, 1955; Patrick, 1966). This therefore points to the Supply-Leading hypothesis by Patrick who observes that the mobilization or availability of money for transitional purpose is a key stimulus to growing an economy or its sectors. These points to the nature and structure of the SSA countries as being reliant on liquid cash for transactionary purposes. It was also observe that the depth of the money system is largely in the M2 stage for majority of the SSA countries.

Financial accessibility ratio (FAC) displays a positive and significant relationship with Agricultural sector contribution to gross domestic product (AP). This simply shows that, the level in which adults and individuals who demand funds have access to financial institutions has sufficiently helped to grow the contribution of the agricultural sector contribution to gross domestic product. This therefore shows that SSA countries' banks have great expansionary potential which is growing their agricultural sector. This therefore also points to the supply-leading nature of banks, who stimulate economic performance by providing timely funds to depositors etc.

Net interest margin (NIM) showcases a positive and significant relationship with Agricultural sector contribution to gross domestic product (AP). This variable measures the ability of banks to make sufficient profit (profitability function of banks) and shows that, the performance of these financial institutions stimulates the agricultural sector. This shows that, the more profitable banks are, the more they give to agricultural loan seekers.

### **Conclusions**

In conclusion, the study observes that financial development in the various SSA is mediocre and imbalanced; this can be seen from the lopsided effect it has on the agricultural sectors despite its significant implication on the sectoral contribution of the agricultural. This is most noticeable as it was observed that the Financial Inter-relation ratio (FIR) and Finance Ratio (FRT) had alternating effect on sectoral performance shows a negative and significant influence on the sectoral contribution of agricultural sector to gross domestic product. The ratio of money to national income (MNI) as measured using the ratio of broad money supply to gross domestic product shows a positive and significant relationship with Agricultural. Financial

accessibility ratio (FAC) displays a positive and significant relationship with Agricultural. Net interest margin (NIM) showcases a positive and significant relationship with Agricultural sector contribution to gross domestic product (AP). Conclusively, it can be seen overall that the level of financial development is mediocre in terms of the focus of the financial sector and the nature of the financial development.

### Recommendations

In light of the observed findings, the study recommends that financial institutions should endeavor to mobilize credits at favorable rates to local farmers. This credits should be given with a reasonable tenure such as two to five years. Operations of financial institutions must be properly management to avoid lopsided disbursement to other sectors at the detriment of the agricultural sector.

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