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FINANCIAL SYSTEM DEVELOPMENT AND ECONOMIC GROWTH IN SUB-SAHARAN AFRICA

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Abstract

This paper contributes to the age-old debate on the link between financial development and economic growth by examining the role of monetary policy. There is a possibility that monetary policy enhances financial system performance with attendant impact on growth. To unveil this influence, this paper employs fixed effects and System GMM on data from 28 sub-Saharan African countries over the period 1996 to 2014. Results from the baseline estimation using fixed effects indicate that financial development indicators are negatively and significantly associated with growth for two of the three measures used (LGDP and PGDP), while money growth is positively related albeit insignificantly. The results largely remain the same on interaction with money growth. The coefficients of the interactive terms though largely negative are, however, not significant. The results from System GMM presents a different outcome. First, all measures of financial development turn out positive (except BBD) and insignificant. Financial development equally turns negative but insignificant after interacting with money growth. Overall, monetary policy measures, together with their interactions with financial development indicators, show up as weak growth predictors if not dampening, suggestive of the plausible independence of the nexus on the actions of monetary authorities in these countries.

Keywords: *Financial development; Economic growth; Monetary policy; System generalized method of moments; Sub-Saharan Africa*

JEL codes: *E44; G10; O16*

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1. INTRODUCTION

Understanding the role of financial development in the process of economic growth has been the focus of vast studies in the finance literature. Earlier studies have argued for finance as the engine of growth [Schumpeter (1911); McKinnon (1973); Shaw (1973); and Levine (1997)]. Yet, this role has become controversial because of the contrasting empirical findings. Four distinctive arguments have emerged. First, findings have shown that finance lead to growth. The category of studies that follow this line of thinking are classified as supply-led hypothesis [Schumpeter (1911), McKinnon (1973), Shaw (1973)]. The second category is studies which posit that finance is a

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product of the growth process; that is, growth leads to finance. This category is often referred to as demand-led hypothesis [See De Gregorio and Guidotti (1995)]. A third argument submits that a feedback relationship exists between finance and growth [See Mohammed (2008)]; while the fourth category downplays the "overstressed" role of finance in the growth process. Specifically, this strand argues that finance has no significant impact on growth [See Anderson and Tarp (2003)]. These contrasting views have given rise to a lengthy debate about growth effects of financial sector development in the literature. Several explanations ranging from the role of intermediate variables, financial development measurement concerns and data quality have been proffered.

Studies on sub-Saharan Africa have employed different methods of analysis to understand the relationship. Some studies employ vector autoregressive model and come up with mixed results [See for instance, Ghirmay (2004)]. The shortcomings and mixed results of different methodologies have brought to bear the need for new insights to clarify the relationship between finance and growth. Hence, some pundits argue for the role of some other intermediate variables and threshold analysis to provide better insights into the link [See Adeniyi *et al.* (2015)] eliciting some interesting results.

An elaborate review of evidence documented in Levine (2005) suggests that the bourgeoning mass of empirical evidence eliciting different methods of analysis and data sets produces results that are consistently in support of supply-led hypothesis. Specifically, economies with better-developed financial systems tend to grow faster. In addition, better-functioning financial systems accentuate access to external capital, easing financial liquidity of firms and thereby enhancing the growth potential of the firm. The need to ease this constraint hinges largely on financial liquidity in the system. An important domestic instrument often used by government to moderate liquidity is monetary policy. The stock and growth of money supply in an economy alter the dynamics of a gamut of variables that could influence flows of capital and performance of the financial system. For instance, the growth of money could influence the dynamics of interest rate and exchange rate with subsequent impact on returns on investments and capital inflows. The extent to which monetary policy has defined the finance-growth nexus, especially in Sub-Saharan Africa, remains an area that pundits have not beamed their searchlight upon. This is therefore the gap which this study seeks to fill.

Following this introduction, Section 2 undertakes a survey of is literature while section 3 highlights the methodology and data issues. Discussion of the results is in section 4, while the fifth and final section contains the conclusion.

2. REVIEW OF THE LITERATURE

Economic theory provides little guidance on the precise nature of the relationship between financial development and economic growth. Schumpeter (1911) initially argues that improvements in the quality and quantity of financial services – such as risk pooling, efficient project identification, better corporate governance and better firm monitoring, among others – would be growth promoting. Mckinnon (1973) and Shaw (1973) present further refinements to this idea with the key message that the repressed financial systems which are prevalent at the time need to be made freer. According to them, interest rate ceilings and directed credit policies constitute significant drag on growth. At the other side of the divide, the notion that *where enterprise leads, finance follows* hit the limelight in the wake of Robinson's (1952) seminal publication. The main message is that the process of financial development is a necessary fallout of the broader dynamics of economic growth. Patrick (1966) provides a synthesis in the spirit of the chicken and egg perspective. While Patrick argues that causation could run from either finance to growth or from economic growth to financial sector development, the economy's stage of development is essentially influential in determining the exact causal sequence. He explaines that in the earlier stages of development, supply-leading hypothesis holds dominantly, while this order is reversed as the economy attains advanced levels of development.

On the empirical side, the evidence especially from single country assessments is mixed. For instance, Chang and Caudill (2005) find evidence of finance driven growth using Taiwanese data covering the three plus decades spanning 1962 to 1998. In corroboration of this also is the study by Acaravci *et al.* (2007) for Turkey covering a shorter horizon, viz 1986-2006. For the flip demand-following hypothesis, Demetriades and Hussein (1996) employ causality tests to arrive at partitioned results. While about half of the 16 countries in their sample report bidirectional causality, the studies for most of the remaining countries in SSA show growth-led financial development.

However, cross-sectional studies relatively appear to be the exception in this literature particularly for SSA economies. Nonetheless, a key study found with this orientation is highlighted. Precisely, Ogun (1986) using data for 20 African countries over 1969-1983 finds insignificant coefficients for the included financial intermediation measures, implying no meaningful influence on economic growth. The key downside with such investigations, as also with single country studies, is that the estimates obtained could be biased as an upshot of the far less number of available observations. In some cases, this concern is further accentuated by the appreciable loss of degrees of freedom typical of the adopted lag consuming time-series methods, such as vector autoregression

(VAR), used. Hence, except the cross-sectional dimension is significantly large estimates are prone to comparable bias fears.

While panel data studies are not immune to concerns, they attract some merits. First, the information gap reflecting loss in degrees of freedom loss is circumvented by a larger pool of useful observations. Second, the enhanced data pool implies that coefficients and the corresponding reliability diagnostics are far more credible. Finally, the allure of looking at economic phenomena both the snapshot across countries and within given countries over time is irresistible. Therefore, the study turns next to panel studies on the finance-growth nexus albeit those with sole focus on SSA economies. The foregoing discussions follow the direction of arguments along the supply-demand hypotheses in the empirical casuality analysis earlier alluded to.[2]

First, on the supply-led hypothesis, an efficient financial sector is thought to be a conduit through which growth improvements can be achieved. In support of this proposition, Seck and El Nil (1993), conclude using data on 21 African countries that financial system sophistication – proxied by the real interest rate – significantly and positively impacts on economic growth. Also, Charlier and Oguie (2002) – taking a relatively larger time series and cross-section on board – pitch their tent with causality running in the finance-growth direction. Again, Allen and Ndikumana's (2000) robust analysis deploy 3 indicators of financial deepening alongside an index constructed using these measures. They find, for their sample of 8 African countries, a positive and statistically significant effect of finance on the growth of real GDP per capita.

Meanwhile, the theoretical argument for a plausible reversal of the foregoing causal ordering has not been a closed case either. Robinson's (1952) opinion that growth on a fairly sustained basis is a forerunner of demand for more financial services birth generates a flurry of empirical attempts favourably disposed to her opposing view. While the results do not appear as convincing, particularly true if judgment is based solely on the number of published works, Agbetsiafa (2003) makes a significant contribution to the demand-following hypothesis using data on SSA countries. Finally, a more recent study by Fowowe (2011) tilts towards Patrick's (1966) theoretical exposition on bi-directionality. Fowowe's paper engages the finance-growth debate using annual time-series data (1975-2005) observed on 17 SSA countries. By employing heterogenous panel cointegration and causality tests, the paper finds that causality runs either way between financial development and economic growth irrespective of how the former is gauged. The conclusion, in his view, therefore is one of

[2] Akinlo and Egbetunde (2010) also classified studies along these distinct lines

complementarity between the real and financial sectors in the selected SSA economies.

The discussion so far buttresses the depth and width of not only the theoretical but also the empirical finance-growth literature. However, a key question which has received far less attention is "What are the channels through which financial development exerts its influence, if any, on economic growth?" The paper argues specifically for a role for monetary policy stance as an intervening factor and thus seeks to add value to the literature on the subject for Sub-Saharan Africa.

3. METHODOLOGY AND DATA ISSUES

The study proceeds with the standard tests for unit roots and cointegration in panel settings for the usual statistical inference reasons. It then shows the estimable model as well as offer an in-depth exposition of one of the estimation techniques – the Generalized Method of Moments (GMM) – used for the estimates. Finally, matters in the domain of data description, financial index construction and sources of data are equally treated.

The Im *et al.* (2003) and Maddala and Wu (1999) panel stationarity tests are first conducted to avoid reporting coefficients that are devoid of economic and statistical meaning.[3] Thereafter, the class of panel cointegration tests suggested by Pedroni (1999) follows. This is with a view to ascertaining the existence of an equilibrium finance-growth relationship.

The fixed effect model (FEM) is then used to gauge both the impact of financial sector deepening on economic growth and the intervening influence of monetary policy actions in the SSA sample. The major drawbacks to FEM have included fears about endogeneity and possible doses of bias in regression estimates. Therefore, to circumvent the influence of potential endogeneity, mainly between finance and growth, the GMM estimator is used in the spirit of Arellano and Bond (1991), Blundell and Bond (1998), among others. The basic intuition is that correlations between the lagged regression and the regressors, $\{E(\Delta y_{i,t-1}, \Delta x_{i,t}) \neq 0\}$ on one hand, and more importantly, that between the one-period backcast of the dependent variable and the error term, $\{E(\Delta y_{i,t-1}, \Delta \varepsilon_{i,t}) \neq 0\}$, on the other, could lead to bias in regression estimates. These authors, therefore, suggest the use of instruments, while taking account of the available moment restrictions. They propose moment conditions of the following form:

[3] The study deliberately refrains from grinding out the mechanics of these panel stationarity tests as they are essentially well documented in the originating papers namely Im et al. (2003) and Maddala and Wu (1999). For details in an empirical set up, Oyinlola et al. (2011) present an insightful discussion.

$$E\{y_{i,t-s},(\Delta\varepsilon_{i,t})\}=0,\ for\ s\geq 1;t=2,3,\ldots,T \quad (1)$$

$$E\{x_{i,t-s},(\Delta\varepsilon_{i,t})\}=0,for\ s\geq 1;t=2,3,\ldots,T \quad (2)$$

These representations implicitly indicate that the error terms ($\varepsilon_{i,t}$) are not auto-correlated and the explanatory variables are orthogonal (weakly exogenous or independent).[4] In terms of the estimation in a GMM world *per se*, endogenous variables are instrumented by lags from at least two periods, while exogenous factors are instrumented with lags beginning from one period. Moreover, to ascertain the validity of the key assumptions underlying the consistency of this GMM estimator, two important diagnostics are typically deployed. One, is the Lagrange Multiplier (LM) test to ensure that second-order serial correlation is absent. Two, a Sargan test of over-identifying restrictions which gauges the overall validity of the instrument set is also typical. Both tests are conventionally conducted and the statistics they return are reported alongside the concerned regressions.

Ultimately, the empirical modeling framework adopted in the study follows, albeit, with key modifications, the ones in Beck *et al.* (2000), Fowowe (2008) and Rousseau and Wachtel (2011). Leaning on these papers the study comes up with an implicit model of the form:

$$GRW = f(FDV, EXS) \quad (3)$$

Where GRW is the proxy for economic growth as measured by the real GDP per capita, FDV connotes the set of financial development indicators – bank-based, market-based and their composite index – and EXS is the vector of additional control variables including the monetary policy instruments are incorporated in the analysis.

Alternatively, this time in panel format, the mathematical model in equation (3) is :

$$GRW_{i,t} = \varphi_0 + \varphi_t FDV_{i,t} + \varphi_k EXS_{ki,t} + \varepsilon_{i,t} \quad (4)$$

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[4] For the purpose of illustration, with s = 1 and t = 3 for example, $E\{y_{i,2},(\Delta\varepsilon_3)\}=0$, $for\ \ s\geq 1;t=2,3,\ldots,T$ implying that explanatory factors are assumed unrelated to the future realisations of the disturbance term.

The only additions, of course, are ε, i and t which represent the spherical error components and the cross-section and time indexes respectively. Also k = 1,...,n stands for the N additional correlates of economic growth.

The explicit specification of the estimating equation is given below as:

$$GRW_{i,t} = \psi_0 + \psi_1 INV_{i,t} + \psi_2 OPN_{i,t} + \psi_3 GVE_{i,t} + \psi_4 FDV_{i,t} + \psi_5 MPD_{i,t} + \upsilon_{i,t} \quad (5)$$

Where INV is the investment to GDP ratio, OPN is the degree of trade openness, GVE denotes the share of government expenditures in GDP and MPD is the acronym for the two monetary policy stance indicators namely money supply growth and the real interest rate. υ is the error term.

Furthermore, the model with interaction terms deployed to weigh the influence of monetary policy decisions on the finance-growth nexus is expressed as follows:

$$GRW_{i,t} = \psi_0 + \psi_1 INV_{i,t} + \psi_2 OPN_{i,t} + \psi_3 GVE_{i,t} + \psi_4 FDV_{i,t} + \psi_5 MPD_{i,t} + \psi_6 (FDV * MPD)_{i,t} + \upsilon_{i,t} \quad (6)$$

To obtain estimates from equations (5) and (6), the study uses the fixed effects that corrects for possible influence of important omitted variables. To complement the fixed effects and also mitigate the undesirable consequences of ignored endogeneity, the system-GMM of Blundell and Bond (1998)[5] is used.

With regard to the financial development indicators, and relying on bank-based measures, in line with Adeniyi *et al.* (2012), the study elects to use three alternatives, namely, the ratio of M3/GDP, domestic credit to the private sector as a share of GDP and total domestic credit provided by the banking sector as a percentage of GDP. These indicators of financial development are used in order to capture the diverse aspects of bank-denominated financial sector development. The ratio of M3/GDP is the total liquid liabilities of the financial system by broadly including key financial institutions such as the central bank, deposit money banks and other non-bank financial institutions (NBFIs)as a proportion of GDP. It is thus an encompassing measure of the overall size of the financial sector. The second indicator, domestic credit to the private sector, distinguishes between the end users of the claims of financial intermediaries. Therefore, it includes only the claims on the private sector. Total banking sector credit as a percentage of GDP, the third measure, excludes non-bank credit to the private sector and may be less comprehensive than the second measure (claims on the private sector as a ratio of GDP). The two stock market variables are market capitalization as a share of GDP and total value traded as a

[5] The bulk of the earlier algebraic representation is largely from this widely cited panel-theoretic contribution.

percentage of GDP. While the latter equals the value of the trade in domestic equities on the stock exchange divided by GDP, the former scales the value of these equities relative to -the size of the economy- GDP.

Moreover, in order to address the stock-flow problem, the study aligns with Calderon and Liu (2003) by using deflated financial indicators in the now customary fashion.[6] The composite index of financial sector development is then constructed á la Burnside and Dollar (2000).[7] The rationale for this stems from the well-known difficulty with measuring financial development. To avert the foregoing, an index which summarises the combined information across the major constituents is first computed and later introduced in the empirical framework. The analysis covers the period 1996-2014, dictated by data availability. An Update of Beck *et al.*'s (2011) financial Indicators database provides the data on the bank- and stock market- based indicators, while the World Bank's *World Development Indicators* (WDI) 2012 and 2015 databases are the sources for data on the other variables.

4. RESULTS AND DISCUSSION

In this section the results of the estimation of the econometric models of finance and growth are presented and then discussed. The findings on both the basic and augmented models of the finance-growth nexus are presented. This is done, in turn, for both the fixed effects (FE) and system generalized method of moments (SYS-GMM) estimators. In Table 1, all financial development indicators appear to have negative growth effects. This impact is, however, somewhat weaker for total banking sector credit / total banking deposit ratio (BBD)[8] with respect to magnitude and it is statistically insignificant.

[6] Following Calderon and Liu (2003), the formal expression for the deflation of our financial variables is given as:

$$FDV = \frac{\frac{1}{2}\left\{ FDV_t / CPI_t^e + FDV_{t-1} / CPI_{t-1}^e \right\}}{GDP_t / CPI_t^a}$$

where CPI^e and CPI^a represent the end-of-year and annual mean consumer price indices for each of the countries in our sample. GDP is the gross domestic product in local currency unit. To reiterate, we compute distinct FDV measures for both the three bank-based and the two market-based measures of financial development.

[7] The procedure for index construction, precise details can be looked-up in Burnside and Dollar (2000), used here weights each financial development variable according to the extent of their influence on economic growth.

[8] For ease of appreciation, the precise meanings of the acronyms used throughout this results section are detailed viz: BBD is total banking credit as a share of total bank deposit, PGDP is private sector credit to GDP ratio, LGDP represents total liquid liabilities to GDP ratio, while MPOL is used to designate the measures of monetary policy stance. It is noteworthy to reiterate that money growth is the alternative MPOL indicators deployed in this study.

Table 1: Fixed Effects (FE) Estimates

Variable	(1)	(2)	(3)	(4)	(5)	(6)
CONS	4.838(1.83)***	5.068 (2.07)**	5.497 (2.22)**	3.494 (1.26)	4.636 (1,.86)***	5.082(2.03)**
GEXP	-0.052(-2.07)**	-0.047(-1.89)***	-0.053(-2.13)**	-0.047(-1.88)***	-0.044(-1.78)***	-0.049(-1.99)**
INFL	-0.048(-1.81)***	-0.054(-2.05)**	-0.053(-2.01)**	-0.054(-2.02)**	-0.057(-2.16)**	-0.054(-2.04)**
INV	0.099(3.25)*	0.111(3.64)*	0.117(3.77)*	0.099(3.24)*	0.110(3.55)*	0.115(3.73)*
OPN	0.006(0.50)	0.014(1.23)	0.008(0.70)	0.006(0.55)	0.013(1.16)	0.006(0.57)
BBD	-0.007(-0.68)			0.001(0.08)		
LGDP		-0.065(-2.87)*			-0.066(-2.67)*	
PGDP			-0.089(-2.81)*			-0.096(-2.87)*
MPOL				0.053(1.28)	-0.014(0.48)	0.004(0.22)
BBD×MPOL				-0.0004(-0.83)		
LGDP× MPOL					-0.0003(0.26)	
PGDP×MPOL						0.001(0.97)
Diagnostic Tests						
R^2	0.048	0.012	0.015	0.058	0.018	0.022
Wald joint significance	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Number of Cross-sections	28	28	28	28	28	28
Number of Observations	532	532	532	532	532	532

Notes: The dependent variable is the growth of real GDP per capita. Figures in parentheses are t-ratios, while those in brackets are probability values. The t-ratios are computed with standard errors which are heteroscedasticity consistent. All estimates have been rounded to three decimal places. *,** and *** designate statistical significance at the 1,5 and 10 per cent levels in that order.

Also in Table 1, investment is positively linked to growth in Models (1) to (6) and statistically significant, with the weights in LGDP and PGDP considerably higher than BBD. Also, only LGDP and PGDP are statistically significant. Inflation, which proxies macroeconomic stability, is as expected, negatively associated with growth and statistically significant. More specifically, the negative influence is in the neigbourhood of some 0.048 to 0.054 decline in growth in response to a 1 per cent increase in BBD and LGDP in that order. Moreover, openness had both negative and positive growth impacts depending on the model, while government expenditure influences growth negatively with the former being insignificant correlates of economic growth and latter is statistically significant. Furthermore, the study devotes

the next paragraph to rationalizing the most striking finding of the study– the negative linkage between finance and growth.

At first blush, the evidence of a negative finance-growth correlation appears puzzling. However, it corroborates a few previous conclusions in the literature, notably those of de Gregorio and Guidotti (1995) and Ram (1999). The former explain their results as mirroring the influence of extreme exposure of the financial markets of the Latin American countries due to weak regulatory capacity and the perverse expectations that banks would be bailed out in the instance of any systemic risk. To sum up, therefore, de Gregorio and Guidotti submit that "..... *a high degree of financial intermediation in the sample of Latin American countries was often a sign of a fragile and overexposed financial system, rather than one that was efficiently allocating credit*". In like fashion, for Ram (1999), the predominant finding using a sample of 95 countries is a miniscule or at best weakly negative association between financial sector development and the growth of real GDP per capita. This evidence is equally consistent with the study results, particularly noting that 17 out of the 28 selected countries in the present study are also considered in Ram's paper. He finds negative and significant relations in 11 economies, that is, about 65 per cent of cases. Taking the foregoing evidence together the study seems to suggest that undertaking financial liberalization, to deepen the financial system, when regulatory structures are and largely remain nascent, may constitute an important drag on growth.

Turning to the regressions with the money – growth matrix, still on Table 1, the FD measures retain their negative growth effects except BBD and they maintain the same structure of significance as explained above. The magnitudes of the estimates, compared to the counterparts in (1) to (3), equally decline in proportion except for BBD that indicates positive growth effect. This, for instance, is especially apt for PGDP with a decline from -0.089 to -0.096. While this might in part be driven by the incorporation of monetary policy stance, the monetary variable itself is both negatively and positively correlated with growth and insignificant in the model with LGDP as the preferred measure of financial development. Nevertheless, the result turns around for BBD as it impacts growth positively with the incorporation of monetary indicator. All interaction terms are statistically weightless with very small magnitudes. Again, as in the preceding regressions, the explanatory power of these interaction models is only slightly greater than that of the models without money growth suggesting that the weight of monetary policy is not much in affecting the linkage between finance and growth in the selected countries. Furthermore, the outcomes for inflation, investment and openness remain both quantitatively and qualitatively unaltered with the introduction of monetary policy and its interaction with financial development. Government spending continues to show a negative and significant growth effect.

Concerns about the biases emanating from the influence of potential endogenous regressors are rife in the empirical panel literature. System GMM is employed to

mitigate the effect of such endogeneity problems. Table 2 presents the results from the SYS-GMM estimations.

Table 2: System Generalised Method of Moments (SYS-GMM) Estimates

Variable	(1)	(2)	(3)	(4)	(5)	(6)
CONSTANT	-4.19 (-1.56)	-5.380 (-2.09)**	-6.355(-2.16)**	1.011(0.18)	-2.042 (-0.69)	-3.480(-1.05)
GEXP	0.044 (1.60)	0.037 (1.41)	0.045 (1.67)***	0.035 (1.23)	0.024 (0.81)	0.036(1.17)
INFL	0.120 (2.15)**	0.146 (2.80)*	0.137 (2.87)*	0.100(1.31)	0.045 (0.67)	0.058(0.83)
INV	0.156(2.08)*	0.179 (3.24)*	0.191 (3.12)*	0.102(1.20)	0.114 (1.50)	0.135(1.79)*
OPN	-0.009(-0.82)	-0.017 (-1.29)	-0.010 (-0.80)	-0.007 (-0.54)	-0.022 (-1.90)	-0.010(-0.92)
BBD	-0.012(-0.96)			-0.059(-1.46)		
LGDP		0.023(1.30)			-0.004 (-0.05)	
PGDP			0.016(1.21)			-0.063(-0.96)
MPOL				-0.254 (-1.39)	-0.025 (-0.18)	0.039(-0.58)
BBD×MPOL				0.004 (1.57)		
LGDP×MPOL					0.003(0.55)	
PGDP×MPOL						0.007(1.43)
Diagnostic Tests						
Sargan test	[0.506]	[0.590]	[0.565]	[0.814]	[0.703]	[0.740]
2nd Order auto-correlation test	[0.414]	[0.672]	[0.893]	[0.294]	[0.550]	[0.736]
Number of Cross-sections	28	28	28	28	28	28
Number of Observations	532	532	532	532	532	532

Notes: The dependent variable is the growth of real GDP per capita. Figures in parentheses are t-ratios, while those in brackets are probability values. The t ratios are computed with standard errors which are heteroscedasticity consistent. All estimates have been rounded to three decimal places. *,** and *** designate statistical significance at the 1,5 and 10 per cent levels in that order. The Sargan test has a null hypothesis that the set of instruments are valid. The serial correlation test has a null that second-order autocorrelation is absent from the residuals.

In the basic models, viz without interaction terms, the results are very much in dissimilarity with those in the first three columns of Table 1. First, the direction and statistical significance position have changed for LGDP and PGDP, they are now positive and statistically insignificant on growth. On juxtaposing the first and third regressions of Tables 1 and 2, the BBD retains its negative signs and its magnitude of influence declines slightly while PGDP is now positive and statistically insignificant reflecting 0.016 percent increase in growth. Inflation and government expenditure remain statistically significant but now impacted growth positively. Also, investment and openness retained their signs and still remain significant.

Dwelling on further analysis of results in Table 2, the study finds that introducing interaction terms yields a number of interesting results: the sign of the growth impact of BBD becomes negative and still appears statistically insignificant, suggesting a decrease in output of about 0.06 per cent in response to a 1 percentage point rise in total banking sector credit/total banking deposit ratio. LGDP and PGDP retain their directional effect but are now statistically insignificant. In terms of the indicator of monetary policy stance, the coefficients slightly change and remain insignificant in all regressions (that is (4) to (6)) but its interaction with FD is only statistically important in the latter one although with opposing signs except for PGDP under monetary policy interaction that now influences growth positively. Openness is now negative and remains insignificant in the model with PGDP, while investment is unaffected by the incorporation of monetary policy and its interaction with finance. With the interactions, government expenditure is now positively related to growth. The Sargan test of over-identifying restrictions and the second-order serial correlation test respectively suggest that instrument invalidity and second degree residual correlation are not binding constraints on the reliability of the reported estimates. Finally, a quick squaring of Tables 1 and 2 shows that controlling for endogeneity does not result in significant estimates for the FD measures on one hand but very importantly positive impact multipliers are obtained on the other hand once endogeneity is accounted for.

5. CONCLUSION

This study, seeks to examine the connection between financial system development and economic growth in Sub-Saharan Africa (SSA). Beyond the admittedly controversial issues bordering on causality, the present study departs from the extant literature on the subject in SSA along a major line, namely, determining the likely influence of monetary policy on economic growth. Using annual time series data on 28 SSA countries in the period 1996 through 2014 and Fixed Effects estimation model as well as system Generalized Method of Moments estimators, the study presents these findings: One, there appears to be a fairly broad negative linkage between finance and economic growth in the sample. This submission proves largely robust to alternative definitions of financial development, the deployment of interaction terms as well as estimation techniques. Two, there seems to be little or no explicit role for monetary policy as an intervening factor in the finance-growth space. Monetary policy indicators, together with their interactions with financial development markers, post weak growth predictors. While the complexity of drawing policy implications from panel regressions is beyond doubt, the study briefly makes a few remarks on plausible policy lessons from the enquiry. One clear lesson is that one- size- fits-all type interventions are likely to have little usefulness in the selected SSA economies. Ultimately, getting a firmer grip on what works in each country

remains a necessary first step for a better appreciation of the role of financial development in the growth processes of these SSA economies.

These results are, however, tentative, having regard to the limitations in the proxies used for variables on both sides of the finance – growth divide. Besides, measurement problems loom large even for the variables used for the sample of 28 countries in SSA brought on board. Even so, the study arguably blazes a trail in focusing on the extent to which monetary policy has influenced the finance-growth nexus, especially in sub-saharan Africa. It thus represents a value adding contribution to the debate on the subject in extant literature. Future research, however, should be targeted at determining country specific mechanisms through which finance influences growth.

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Appendix

Table A: List of countries included in the study sample

1. Benin	11. Cote'd'Ivoire	20. Mozambique
2. Botswana	12. Ethiopia	21. Niger
3. Burkina Faso	13. Gabon	22. Senegal
4. Burundi	14. Ghana	23. Seychelles
5. Cameroon	15. Kenya	24. South Africa
6. Cape Verde	16. Madagascar	25. Tanzania
7. Central African Republic	17. Malawi	26. Togo
8. Chad	18. Mali	27. Uganda
9. Congo Republic	19. Mauritius	28. Zambia
10. Nigeria		