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Does Economic Growth Promote Financial Development?

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Abstract

The paper investigates whether economic growth promotes financial development with annual time series data (1981-2010) from 24 African countries. The study uses Generalized Method of Moments (GMM) estimation technique with domestic credit to the private sector as proxy for financial development. The results show that economic growth promotes financial development in the 24 African countries. The results also show that human capital and inflation have positive and negative relationships with financial development respectively. These findings suggest that policies that stimulate economic growth and human capital development as well as keep inflation rates at low levels are needed to improve the financial systems of the study countries.

Keywords: Financial Development, Economic Growth, Demand-following Hypothesis, Inflation, Human Capital

1. Introduction

The anti-financial repression theorists (McKinnon, 1973; Shaw, 1973; Schumpeter, 1911) have argued that financial liberalization culminating in the removal of interest rate ceilings among other repressive policies, could accelerate economic growth. Their theory has since been subjected to empirical scrutiny albeit inconclusive results. Whereas some studies find a positive relationship between financial development and economic growth (King & Levine, 1993a, 1993b; Levine, Loayza & Beck, 2000; Tran, 2008); some find a negative relationship (Adusei, 2012; Loayza & Rancie`re, 2006; Demirguc-Kunt & Degatriache, 2000; Gourinchas, Landerretche & Valde´s, 2001, Kaminsky & Reinhart, 1999). Others do not find evidence of relationship between finance and growth (Graff, 1999; Lucas 1988). Lucas (1988) argues that "economists badly overstress the role of finance in economic growth."

In the midst of the cacophony of evidence on the finance-growth nexus, one issue that has emerged is the direction of causality between finance and growth. The empirical results on the direction of causality between finance and growth are in three categories: ***supply-leading response school of thought (***Bittencourt, 2012; Levine *et al*.,2000) which submits that financial development leads economic growth; ***demand-following school of thought*** (Odhiambo,2008; Zang & Kim,2007; Liang & Teng, 2006; Odhiambo, 2004) which posits that growth leads financial development; and ***bidirectional school of thought*** (Wood,1993; Demetriades & Hussein,1996; Rousseau & Vuthipadadorn, 2005; Apergis, Filippidis & Economidou,2007) which submits that there is a bidirectional causality between financial development and economic growth.

The current study is associated with the demand-following hypothesis which theorizes that economic growth propels financial development. The study is significant for two main reasons. One, contrary to the status quo in which the relationship between financial development and economic growth has been predominantly investigated using time series data (e.g., Agbetsiafa, 2004; Esso, 2010; Odhiambo, 2004, 2010; Quartey & Prah, 2008; Chukwu & Agu, 2009), the current study investigates the relationship between financial development and economic growth using panel data. Besides, the study departs from the conventional interest of testing whether financial development promotes economic growth to explore whether economic growth rather promotes financial development in the panel context. Second, evidence on the demand-following hypothesis in Africa using time series data is skewed towards Sub-Saharan countries. The current study transcends Sub-Saharan African countries. It samples data from 24 African countries and, thus, should provide evidence that is more representative of Africa.

The rest of the paper is divided as follows. The next section focuses on reviewing relevant literature followed by the methodology section. The penultimate section is the results section. Conclusion and policy implications section ends the paper.

2. Review of Relevant Literature

Evidence on economic growth preceding financial development has been reported in Africa. Odhiambo (2007) finds evidence in support of demand-following hypothesis in Kenya and South Africa. Similarly, Quartey & Prah (2008) study the finance-growth relationship and find evidence in support of demand-following hypothesis when growth in broad money to GDP ratio is used as a measure of financial development. Odhiambo (2009) investigates the direction of causality between financial development and economic growth by investigating the effect of inflation on the finance-growth nexus and reports that economic growth Granger-causes financial development in Kenya regardless of whether the causality is estimated in a bivariate framework or in a trivariate setting. In Nigeria, Chukwu & Agu (2009) provide evidence in support of demand-following hypothesis when financial depth is proxied by banking sector's private sector credit and real broad money supply. Odhiambo (2010) reinvestigates the finance-growth nexus in South Africa and finds evidence that confirms demand-following hypothesis. Esso (2010) also investigates the finance-growth nexus with focus on Burkina Faso, Cape Verde, Cote d'Ivoire, Ghana, Liberia and Sierra Leone and reports that growth leads finance in Burkina Faso, Cote d'Ivoire and Sierra Leone.

Apart from economic growth, there are other variables that have been found to be significant determinants of financial development. A survey conducted on the determinants of financial development by Voghouei, Azali & Jamali (2011) report that institutions, openness of trade and financial markets, legal tradition, and political economy promote the financial system. La Porta, Lopez-de-Silanes, Shleifer & Vishny (1997, 1998) report that countries with French Civil Law tend to have comparatively inefficient contract enforcement and higher corruption, and less well-developed financial systems, while countries with British legal origin tend to achieve higher levels of financial development.

Huybens & Smith (1999) and Boyd, Levine & Smith (2001) assess the effects of inflation on financial development and find that economies with higher inflation are likely to have smaller, less active and less efficient banks and equity markets. Ghazouani (2004) also reports that inflation has a negative impact on financial development for 11 Middle East and North African countries. Bittencourt (2008) confirms the negative impact of inflation on financial development with evidence from Brazil. Seetanah, Padachi, Hosany & Seetanah (2010) reinforce this with evidence from Mauritius (over the period 1970- 2008).

The policy view of financial development argues that national macroeconomic policies that encourage openness to external trade promote financial development (Do & Levchenko, 2004; Huang & Temple, 2005). In their survey of the determinants of financial development Voghouei *et al.* (2011) confirm this.

The geographic view of financial development hypothesizes that geography is a significant determinant of financial development. The geographic view has three strands. The first strand looks at proximity to the equator and argues that countries closer to the equator have tropical conditions which may affect their economic development which will, in turn, affects financial development (Sachs, 2003a, b; Diamond 1997; Gallup, Sachs & Mellinger, 1999). The second strand of the geographic view of financial development focuses on the location of a

country and its proximity to large markets or having only limited access to coasts and ocean-navigable rivers (Malik & Temple, 2005; Easterly & Levine, 2003) which could affects its development. The third strand of literature concentrates on the relationship between resource endowment and economic development. The thesis is that resource-rich countries are more likely to develop faster than resource-poor countries (Easterly & Levine, 2003; Isham, Woolcock, Pritchett & Busby, 2002; Diamond, 1997).

Culture has also been identified as a significant determinant of financial development. Stulz & Williamson (2003) examine the effect of culture on the process of financial development. The study measures cultural differences by differences in religion and language and shows that culture explains cross-country variation in the protection and enforcement of investor rights, especially for creditor rights. Dutta & Mukherjee (2012) pose a question, "is culture a determinant of financial development?" They consider multiple dimensions of culture, identified in the literature by Tabellini (2008) to test their hypothesis. The contention is that as culture develops in the form of greater trust, control and other traits, the attitudes of individual towards financial market change, and they get into greater financial transactions. This leads to better financial development. The study uses quantile estimation technique for a cross section of 90 countries and finds that culture significantly influences the level of financial development. The robustness of this finding is tested using Hofstede's cultural dimension – 'Uncertainty Avoidance Index' (UAI) – as an alternative measure for culture and the result holds for multiple measures of financial development.

3. Methodology

3.1 Model

The dependent variable in our model is financial development and is defined as the logarithm of the ratio of domestic credit to the private sector to GDP (*Ln*DCPS) (Saci, Giorgioni & Holden 2009; Beck, Demirguc-Kunt & Levine, 2000; Levine *et al.,* 2000). The independent variable is economic growth which is proxied by the natural logarithm of GDP per capita (*LnGDPPC)*. We include logarithm of economic openness (*Ln*OPEN), inflation (*Ln*INFLATION), human capital (*Ln*HC) and capital formation (*Ln*CFORM) as a share of GDP as control variables. Economic openness is defined as exports plus imports divided by GDP. GDP deflator, life expectancy at birth and gross domestic investment as a share of GDP are used to represent inflation, human capital and capital formation respectively.

Generalized Method of Moments (GMM) estimation technique is employed for the analysis. According to Saci *et al*. (2009), GMM techniques control for unobserved country-specific effects, first-difference non-stationary variables, overcome the endogeneity of the explanatory variables by using instruments and test for the presence of autocorrelation. GMM approach is a more effective and suitable technique for panel data analysis (Loayza & Ranciere, 2006). The impact of economic growth on financial development is defined as:

$$y_{it} = \beta_1 y_{it-1} + \beta_2 F_{it} + \mu_i + \varepsilon_{it} \quad (1)$$

Where y is the logarithm of domestic credit to the private sector as a share of GDP, *F* represents the explanatory variables, $\mu_i + \varepsilon_{it}$ represent the unobserved country-level effects and the error term, respectively. Based on the structure of Equation 1, the lagged dependent variable, y_{it-1}, which defines the logarithm of domestic credit to the private sector as a share of GDP for country i at time $(t-_1)$, is correlated with μ_i, creating an endogeneity problem, which leads to inconsistent estimators. To manage the endogeneity problem from the unobserved country-level effects, μ_i, the first difference for Equation 1 is conducted, resulting in Equation 2:

$$y_{it}-y_{it-1} = \beta_1 y_{it-1}- \ y_{it-2} + \beta_2(F_{it}- \ F_{it-1}) + (\varepsilon_{it}- \ \varepsilon_{it-1}) \quad (2)$$

It is evident that after dealing with the endogeneity problem from the unobserved country level effect, μi, a correlation between the lagged dependent variable y_{it-1} and ε_{it-1} as well as a potential correlation between the independent variables, F_{it} emerges. To deal with these problems, instrumental variables have to be introduced. To this end, the study assumes that there is no serial correlation between the error terms and no correlation between the lagged explanatory variables and future error terms. Making these assumptions, the lagged explanatory variables can be used as instrumental variables. The first-differenced explanatory variables are also used as instrumental variables.

3.2 Data and Sample

The study has used annual time-series data covering the period 1981-2010 gathered from the World Development Indicators (WDI) of the World Bank (http://www.worldbank.org). Twenty-four African countries have been purposively sampled for the study. The list of these 24 countries is labeled Appendix A and attached to this report.

4. Results

Table 2 presents the correlations among the variables. As can be observed, the correlations among the explanatory variables are low, suggesting the absence of multicollinearity problem in our model. The highest correlation occurs between economic openness and capital formation which is about 0.57.

Table 1. Correlation Matrix

	*Ln*DCPS	*Ln*GDPPC	*Ln*OPEN	*Ln*CFORM	*Ln*HC	*Ln*GDPDFL
*Ln*DCPS	1					
*Ln*GDPPC	0.476394	1				
*Ln*OPEN	0.230190	0.337149	1			
*Ln*CFORM	0.274196	0.405813	0.568267	1		
*Ln*HC	0.280407	0.482534	0.168998	0.377767	1	
*Ln*GDPDFL	-0.199241	-0.089879	-0.115597	-0.066576	0.066773	1

Table 2 reports the GMM results. Adjusted R^2 which measures the explanatory power of the independent variables is approximately 0.80, meaning that economic growth, economic openness, capital formation, human capital and inflation jointly explain about 80% variation in financial development. Economic growth shows a positive correlation with financial development, implying that as the economies of the 24 countries grow, demand for more financial services rises. This has been position of the demand-following hypothesis that economic precedes financial development (Odhiambo, 2008; Zang & Kim,2007; Liang & Teng, 2006; Odhiambo, 2004). The implication is that implementation of growth-enhancing policies portends a good omen for the financial systems in the study countries. But can this be done? Indubitably, economic growth cannot be relied upon to propel the greater development of the financial systems in Africa. This is because, over the years, African economies have been growing at the snail's pace despite the fact that the continent is full of natural resources. The reason for this slow growth rate is bad governance. Indeed, bad governance has been the bane of Africa and it explains why abject poverty, diseases and civil unrest have become the hallmarks of the African continent.

Contrary to the position of the literature that economic openness promotes financial development (Voghouei *et al.* 2011; Huang & Temple, 2005; Do & Levchenko, 2004), economic openness shows a weak positive, statistically insignificant relationship with financial development. Similarly, capital formation shows a weak, positive, statistically insignificant relationship with financial development. We are, thus, inclined to assert that economic openness and capital formation (gross domestic investment) are not good predictors of financial development. In the case of economic openness, the insignificant relationship can be explained in terms of unfair practices involved in the trade between the developed and the developing economies. International trade policies tend to favor the developed economies at the expense of the developing economies. Regarding domestic investment, the finding suggests that domestic investment is not productive enough to spur growth in the financial systems of the study countries.

Human capital has a strong positive, statistically significant relationship with financial development, meaning growth in human capital accelerates financial development. This suggests to us that stock of competent human resources a country can boast of could trigger growth in its financial sector.

In line with the extant literature (Seetanah *et al.*, 2010; Bittencourt, 2008; Ghazouani, 2004; Boyd *et al.*, 2001; Huybens & Smith, 1999) inflation has a negative, statistically significant relationship with financial development, suggesting that a rise in inflation undermines the growth of the financial sector in the study countries. Inflation stalls financial development by making intermediation more expensive (Feldstein, 1982; Ocran, 2007; Khan & Senhadji, 2001).

Table 2. GMM Results

Dependent Variable: *LnDCPS*				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**p-value**
C	-2.4434	0.8546	-2.8591	0.0044***
LnDCPS(-1)	0.3726	0.0753	4.9498	0.0000***
LnGDPPC	0.2260	0.0387	5.8340	0.0000***
LnOPEN	0.0239	0.0622	0.3839	0.7012
LnCFORM	0.0689	0.0575	1.1982	0.2315
LnHC	0.6264	0.2247	2.7878	0.0055***
LnLINFLATION	-0.0848	0.0199	-4.2505	0.0000***
R^2 =0.80, Adjusted R^2 =0.80				

*Note: ***, ** and * represent 1%, 5% and 10% levels of significance. Instrument List: DLnDCPS (-1), LnGDPPC (-1), LnOPEN (-1), LnCFORM (-1), LnHC (-1), LnINFLATION (-1), DLnDCPS, DLGDPPC, DLnOPEN, DLnCFORM, DLnHC, DLnINFLATION.*

5. Conclusion and Policy Implications

The paper has sought to answer one important question, "Does economic growth promote financial development?" with annual time series data spanning from 1981 to 2010 from 24 African countries. The results show that economic growth promotes financial development. The results also show that human capital and inflation are significant determinants of financial development. The main contribution of this paper is that economic growth supports financial development in the study countries which lends credence to the demand-following hypothesis.

To the extent that economic growth promotes financial development, policy makers can catalyze financial development if growth-promoting pragmatic measures such as strengthening existing legal and other institutions coupled with prudent fiscal and monetary management are implemented to promote economic growth. However, whether these interventions can be introduced remains a matter of hope owing to the fact that African counties lack selfless and visionary leaders who think beyond their personal gratification and aggrandizement.

The development of the financial system in every nation is inextricably tied to the quality of human resources coupled with other development indicators such as high quality and affordable healthcare system in that nation. It is expected that as more and more people become highly educated their appreciation of the financial system improves. Since human capital promotes financial development, policy interventions such as high quality and affordable education as well as high quality and affordable healthcare system which enhance human capital development should be pursued so as to stimulate the development of the financial systems in the study countries.

It is trite that taming inflation has been the ultimate aim of monetary policies in every economy. Indeed, most African countries such as South Africa and Ghana have resorted to inflation targeting in which their policy interventions are geared towards holding inflation

within some threshold so as to guarantee economic growth and development. We would recommend that such policies should be continued vigorously as a way of deepening financial systems.

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Appendix 1. List of Study Countries:

1. Ghana
2. Algeria
3. Benin
4. Botswana
5. Burundi
6. Cameroon
7. Central African Republic
8. Chad
9. Congo
10. Cote Divoire
11. Egypt
12. Gabon
13. Gambia
14. Lesotho
15. Madagascar
16. Mali
17. Mauritius
18. Senegal
19. Sierra Leone
20. South Africa
21. Sudan
22. Swaziland
23. Togo
24. Zambia