Is Entrepreneurship a Significant Determinant of Financial Development?

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Author's contribution

This whole work was carried out by the author MA.

Original Research Article

ABSTRACT

Aims: The paper explores whether entrepreneurship is a significant determinant of financial development in 12 African countries.
Study Design: Cross-sectional Study
Place and Duration of Study: The study is in 12 African countries between 2004-2011
Methodology: Total domestic credit provided to the private sector by the banking sector as a share of GDP and the number of new business start-ups registered in each fiscal year are used to measure financial development and entrepreneurship respectively. We use data (2004-2011) from 12 African countries(Ghana; Algeria; Botswana; Egypt; Gabon; Lesotho; Mauritius; Senegal; South Africa; Togo; Zambia; and Nigeria). Two estimation techniques are used: Fully Modified Ordinary Least Squares (FMOLS) and Generalized Method of Moments (GMM) techniques. The latter is used as a control measure to ascertain the robustness or otherwise of the results obtained from the former.
Results: We find evidence in support of a positive statistically significant relationship between entrepreneurship and financial development.
Conclusion: The paper concludes that entrepreneurship significantly predicts variations in the financial development of the study countries.

Keywords: Innovation; entrepreneurship; financial development; determinant; Africa.

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1. INTRODUCTION

The theoretical as well as empirical prognosis that financial development is instrumental in the growth process of an economy has given birth to the towering interest in empirically identifying the significant determinants of financial development. The intuition is that by identifying the significant predictors of financial development, policy interventions could be directed at them so as to promote economic growth. Mention can be made of studies such as [1,2,3,4,5,6] which shed light on the predictors of financial development.

Despite the fact that the theoretical literature links entrepreneurship to financial development [7,8], rummaging through the plethora of empirical investigations into the significant predictors of financial development reveals that these investigations have not addressed the issue of whether entrepreneurship significantly explains the variations in the development of the financial sector. Consequently, the current study has been designed to address this murky area of the empirical literature. The significance of the current study is predicated on its expansion of the frontiers of the empirical literature on the determinants of financial development as well as on its African setting where most financial systems are bogged down in the quagmire of underdevelopment. It is contemplated that the findings of the study will inform policy direction regarding financial development in Africa in particular and the world in general.

The rest of the paper is sectionalized as follows. The next section reviews the extant literature. The literature review is in two parts. Part one establishes the theoretical foundations of the entrepreneurship-finance nexus. Part II reviews the documented determinants of financial development. The methodology used for the study follows the literature review section. Estimation results section is next in line followed by the conclusion section.

2. LITERATURE REVIEW

This section comprises two parts. Part I reviews the theoretical foundations of the entrepreneurship-finance nexus. Part II reviews some documented determinants of financial development.

2.1 The Entrepreneurship-Finance Nexus: The Theoretical Foundations

The current study has been inspired by two theories: [8] and [7]. However, before we review these two theories it is important to state that the preponderance of evidence on the definition of entrepreneurship triangulates around the view that entrepreneurship consists of three elements: resource coordination, new enterprise creation, and innovation [9]. The innovation element of entrepreneurship has been the main thesis of [7,8]. Innovation has been defined by [7] as invention of new products, enrichment of existing products; costly adoption of technology from other countries; and production of an existing good employing new production or business methods.

The entrepreneur is viewed by [8] as the leader who "leads" the means of production into new channels. However, the decision to do this stems from some expectation of obtaining a profit derivable from monopoly power position. Schumpeter recognizes that innovation could have an indirect effect which he calls "creative destruction" in which the entrepreneur competes with established (and often declining) businesses, destroy their business models

in favor of newer, more effective, and more tough technologies, products, and services. As one entrepreneur innovates and generates profits other entrepreneurs are stimulated to also innovate and as innovations abound in the system economic growth is achieved. The theory advances that due to the fact that innovation is growth enhancing, it is important for it to be financed, with savings playing an instrumental role. Therefore, to facilitate innovation-driven growth, according to Schumpeter, an efficient financial system that facilitates flow of savings to investment should be in place. He argues that in the absence of efficient financial intermediaries the onus lies on the central bank to supply the necessary resources to support entrepreneurship. This presupposes that monetary policy is important in this regard. An increase in money supply should be considered as a bet by the central bank in favor of small and medium-sized enterprises to catalyze the innovation process [10].

An endogenous growth model developed by [7] establishes the connection between finance and entrepreneurship. They affirm the view of Schumpeter that the degree of innovative activity undertaken by society dictates the rate of economic growth. Their model focuses on productivity growth which they posit is the result of rational investment decisions. They argue that finance has its dominant effect on productivity growth by its evaluation, management and funding of entrepreneurial activity. Financial systems influence entrepreneurial activities which culminate in productivity improvements in four ways: (1) evaluation of prospective entrepreneurs and selection of the most promising projects; (2) mobilization of resources to finance promising projects; (3) assisting investors to diversify the risk associated with uncertain innovative activities; and (4) revelation of the potential rewards to engaging in innovation, relative to continuing to make existing products with existing techniques. "Thus, a more-developed financial system fosters productivity improvement by choosing higher quality entrepreneurs and projects, by more effectively mobilizing external financing for these entrepreneurs, by providing superior vehicles for diversifying the risk of innovative activities, and by revealing more accurately the potentially large profits associated with the uncertain business of innovation" [7, p.540]. The model posits that financial institutions more effectively and less expensively provide research, evaluative and monitoring services than individual investors. In terms of mobilization and provision of appropriate funding to entrepreneurs, financial institutions are better than individuals. In effect, they assert that evaluation and sorting of entrepreneurs for financial support undertaken by financial institutions reduces the cost of investing in productivity enhancement and thus stimulates economic growth. By extrapolation, it is predictable that distortions in the financial sector could undermine the rate of economic growth.

On the basis of the above theories, we expect entrepreneurship to positively influence financial development.

2.2 Some Documented Determinants of Financial Development

A survey of the literature by [1] on the determinants of financial development shows that institutions, openness of trade and financial markets, legal tradition, and political economy are factors that promote the financial system. However, political factors are the most significant predictors of financial development [1].

The effect of institutional quality on financial development has received some attention. The contention of [5,6] is that the origins of the legal code substantially influence the treatment of creditors and shareholders, and the efficiency of contract enforcement. 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 attain higher levels of financial development [5,6]. A study by [11] delves into the effect of economic institutions on financial development. Corruption, rule of law, bureaucratic quality, government repudiation of contracts, and risk of expropriation are used to measure institutional quality. The study reports that institutional quality has a positive influence on the level of financial development. A study by [12] also investigates the impact of institutional quality on financial development and shows that institutional quality promotes private credit and that improvements in institutional quality promote liquid stock markets. A paper by [13] also investigates the impact of institutional quality on financial development. They measure institutional quality with constraints on executive, legal formalism, procedural complexity, number of procedures, risk of expropriation, and property rights and find that constraints on executive consistently and significantly promote relative size of capital market [13].

Inflation is one of the significant determinants of financial development. Using the dynamic panel technique, [14] shows that inflation has a negative impact on financial development for 11 Middle East and North African countries over the period of 1979-1999. The negative impact of inflation on financial development has been confirmed by [15] who reports from Brazil that inflation impedes financial development.

Openness to external trade has been found to promote financial development [16; 17]. Opening up banking markets enhances the functioning of national banking systems and boosts the quality of financial services which augur well for banking customers [18]. Using a dynamic panel data analysis for 43 developing countries from 1980-2001, [19] report that trade openness and institutions are key determinants of financial development. Their study also shows that liberalisation of both trade and capital flows is effective in facilitating financial development in middle income countries, but less effective in low income countries [19]. However, [20] report that trade openness is not a statistically significant determinant of the banking sector development in Malaysia. Opening up the stock market to foreign investors makes stock returns more volatile and more highly correlated with the world market return [21].

The geographical view of financial development has three strands of literature. The first strand of literature addresses the relationship between latitude and economic development and categorizes countries into two: those closer to the equator and those not closer to the equator. The thesis is that countries closer to the equator have tropical conditions which may affect their economic development [22,23,24,25]. The second group of studies concentrates on the location of a country and its proximity to large markets or having only limited access to coasts and ocean-navigable rivers [26,27,28,29]. The main thesis is that geographic circumstances may impede a country from entering a large economic market and exploit economies of scale for development. The third strand of literature relates to the relationship between resource endowment and economic development [22,30]. The contention is that resource-endowed countries develop faster than their counterparts.

Economic growth, income level, population level, religion, language and ethnic characteristics have also been identified as significant determinants of financial development [31,20,32,33,34,4,35,36]. Regarding GDP as a significant determinant of financial development, [20] undertake a study that explores the determinants of banking sector development in Malaysia using three models of banking sector development (liquid liability, private sector credit and domestic credit) and report that higher GDP promotes banking sector development and that financial liberalization appears to destabilize banking sector development. Evidence on economic growth preceding financial development has

been reported in Africa [37,38,39]. On culture-financial development connection, [31] pose a question, "Is culture a determinant of financial development?" They consider multiple dimensions of culture, identified in the literature by [40], to test their hypothesis. The thesis is that as culture develops in the form of greater trust, control and other traits, the attitudes of individuals towards financial market change positively, and they get into greater financial transactions. This results in 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 [40].

3. METHODOLOGY

We provide measures of financial development and entrepreneurship, explain the model employed and describe the data used for the study in this section.

3.1 Measures of Financial Development and Entrepreneurship

Unanimity is yet to be accomplished regarding the accurate measure of financial development. Liquid liabilities of the financial system such as M1/GDP, M2/GDP, and M3/GDP seem to dominate the measures [41,7,42,43]. However, these measures have been criticized on the basis that they are likely to measure the extent of transactions monetization rather than the ability of the financial system to channel funds from depositors to investment opportunities [44]. Instead, [45,46,47] submit that allocation of credit to the private sector should be used to measure financial development. Accordingly, total domestic credit provided to the private by the banking sector as a share of GDP is used to measure financial development in this study.

Just as the accurate measure of financial development is caught in the web of intellectual controversy so is the accurate measure of entrepreneurship. However, it appears self-employment ratio (defined as the proportion of the labor force who are self-employed or business owners) is widely used to measure entrepreneurship [48,49,50,51]. Private employment ratio (the proportion of the labor force that is employed by the private sector) as measure of entrepreneurship is also common [48]. Measures of entrepreneurship have been identified by [9] as rates of new business formation, self-employment, business ownership, and innovation. However, data constraints permit us to adopt the rates of new business formation as measure of entrepreneurship. Our use of the rates of new business formation to measure entrepreneurship has additional support in the literature [52,53].

3.2 Model

Financial development is the dependent variable and is represented by the natural logarithm of total domestic credit provided to the private sector by the banking sector as a share of GDP (*Ln*CPS). The independent variable is entrepreneurship which is proxied by the natural logarithm of the number of new businesses registered in a fiscal year (*Ln*ENTREPREN).The control variables are domestic investment proxied by the natural logarithm of gross capital formation as a share of GDP (*Ln*CFORM); inflation proxied by natural logarithm of GDP deflator (*Ln*INFL); economic openness represented by imports plus exports as a share of GDP (*Ln*OPEN) and economic growth represented by GDP per capita (*Ln*EGROWTH).

Our panel regression model is generally stated as:

$$y_{it} = \beta_1 + \beta_2 F_{it} + \mu_i + \varepsilon_{it} \tag{1}$$

Where y is the natural logarithm of total credit provided by the banking sector to the private sector as a share of GDP (*LCPS*); *F* represents the explanatory variables, $\mu_i + \varepsilon_{it}$ represent the unobserved country-level effects and the error term, respectively.

Two estimation techniques are used: Fully Modified Ordinary Least Squares (FMOLS) credited to [54] and Generalized Method of Moments (GMM) techniques. The latter is used as a control measure to ascertain the robustness or otherwise of the results obtained from the former. GMM has been widely used in recent empirical work, particularly in macroeconomics and finance [55] due to its superiority over other estimation techniques. According to [56] GMM controls 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. Our GMM estimation uses the lagged variables as well as the first-differenced variables as instrumental variables.

3.3 Data

We use eight-year data (2004-2011) from purposively selected twelve African countries (Ghana; Algeria; Botswana; Egypt; Gabon; Lesotho; Mauritius; Senegal; South Africa; Togo; Zambia; and Nigeria). Selection of countries has been informed by availability of the metrics required for the study. Thus, every African country with the required number of metrics has been included in the sample. The study period (2004-2011) has been dictated by the limited data on the number of new businesses registered in a fiscal year which is our proxy for entrepreneurial activity. Data have been gathered from the World Development Indicators [57] of the World Bank.

4. RESULTS AND DISCUSSION

To ascertain the presence or otherwise of multicollinearity problem in our model we first perform correlation analysis with the independent variables. The results are reported in Table 1. From the table it can be observed that the highest correlation is between entrepreneurship and economic growth. Generally, the correlations among the variables are within acceptable limits suggesting that multicollinearity may not be present in our model [58].

Table 1. Correlation Matrix

	*Ln*CFORM	*Ln*ENTREPREN	*Ln*INFL	*Ln*EGROWTH	*Ln*OPEN
*Ln*CFORM	1.000000				
*Ln*ENTREPREN	0.215432	1.000000			
*Ln*INFL	0.036978	0.324440	1.000000		
*Ln*EGROWTH	0.372357	0.659551	0.024945	1.000000	
*Ln*OPEN	0.331194	-0.184527	-0.182671	0.078427	1.000000

The results of the FMOLS estimation are reported in Table 2. The Adjusted R^2 of 0.98 indicates that the independent variables jointly explain about 98% variation in the dependent

variable. This coupled with *F*-Statistic of 226.1537 significant at .0000000 suggests the appropriateness of our model.

Table 2. FMOLS Regression Results

Dependent Variable: *Ln*CPS				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**p-value**
C	6.493747	1.314815	4.938907	0.000***
*Ln*ENTREPREN	0.094531	0.041425	2.281952	0.03**
*Ln*CFORM	0.317798	0.109706	2.896807	0.005***
*Ln*EGROWTH	-0.320360	0.123717	-2.589469	0.012**
*Ln*INFL	-0.127473	0.031764	-4.013079	0.000***
*Ln*OPEN	-0.589229	0.172385	-3.418105	0.001***

R^2 =0.99, Adjusted R^2 =0.98 ,F-statistic=226.1537
Prob.(F-statistic)=0.000000,N=82
*This table presents the FMOLS regression results. Note: ***, ** and * represent 1%, 5% and 10%*
levels of significance

Evidence in Table 2 demonstrates that there is a positive statistically significant relationship between entrepreneurship and financial development. This implies that in the long-run an increase in entrepreneurship is likely to facilitate financial development in the study countries. As entrepreneurs intensify their entrepreneurial activities, all things being equal, their demand for financial services increases. And as they fall on the banking sector for financial assistance the sector experiences expansion in its lending activities. This is in line with the theories of [8,7] which predict a strong connection between entrepreneurship and finance. This suggests to us that promotion of entrepreneurship (especially innovative entrepreneurship) will promote the development of the financial sector in the study countries. Flexible tax system, fair and firm legal system, fiscal responsibility of government etc. that are known to be entrepreneurship friendly, if vigorously pursued, should accelerate financial development in the study countries.

Domestic investment proxied by the natural logarithm of Gross capital formation as a share of GDP (*Ln*CFORM) shows a positive statistically significant relationship with financial development. Investment in fixed assets for production usually requires huge capital which one's personal sources may not be able to support. Seeking financial assistance from financial intermediaries is, therefore, predictable. Thus, as capital formation increases we expect it to catalyze the growth of the financial sector.

Evidence on demand-following hypothesis (i.e. economic growth preceding financial development) has been reported in Africa [37,38,39]. However, the results in Table 2 indicate that contrary to this evidence, economic growth appears to undermine financial development in the study countries. The implication is that as the economies of these study countries grow demand for financial services reduces.

Inflation is documented in the literature as having a negative impact on financial development [14,15]. The contention is that inflation stalls financial development by making intermediation more expensive. Evidence in Table 2 confirms this. Inflation has a negative statistically significant relationship with financial development, meaning an increase in inflation is likely to undermine financial development.

Opening up banking markets enhances the functioning of national banking systems and boosts the quality of financial services which augur well for banking customers [18]. Liberalisation of both trade and capital flows is effective in facilitating financial development in middle income countries, but less effective in low income countries [19]. Evidence in Table 2 suggests that openness to trade has a strong, negative statistically significant relationship with financial development, implying that as the economies of the study countries become more open to the rest of the world in terms of trade their financial systems are undermined. This may be attributed to the lop-sided international trade conventions and laws that tend to disadvantage African economies.

4.1 Robustness Check

To test the robustness of our findings from FMOLS, our regression model is re-estimated with GMM estimator. This has been done to deal with perceived weaknesses in FMOLS such as endogeneity problem that might have biased our results. The results of the GMM estimation are reported in Table 3. The results confirm the results from the FMOLS underscoring the robustness of our findings.

Table 3. GMM Estimation Results

Dependent Variable: *Ln*CPS				
Variable	Coefficient	Std. Error	t-Statistic	p-value
C	6.060569	1.541915	3.930547	.000***
*Ln*ENTREPREN	0.096293	0.052669	1.828254	.07*
*Ln*CFORM	0.412047	0.131496	3.133525	.003***
*Ln*EGROWTH	-0.312406	0.157971	-1.977611	.054**
*Ln*INFL	-0.157424	0.040268	-3.909418	.000***
*Ln*OPEN	-0.559155	0.201223	-2.778782	.008***

R2 =0.99, Adjusted R2 =0.98   N=66

Instrument List: LnCPS (-1), LnENTREPREN (-1), LnCFORM (-1), LnEGROWTH (-1), LnINFL (-1), LnOPEN (-1), ΔLnCPS, ΔLnENTREPREN, ΔLnCFORM, ΔLnEGROWTH, ΔLnINFL, ΔLnOPEN. Note: ***, ** and * represent 1%, 5% and 10% levels of significance

5. CONCLUSION

The study is focused on testing whether entrepreneurship is a significant determinant of financial development in 12 African countries using Fully Modified Ordinary Least Squares (FMOLS) and Generalized Method of Moments (GMM) estimation techniques. The results indicate that entrepreneurship has a positive statistically significant relationship with financial development in the study countries. This finding provides grounds for us to conclude that entrepreneurship significantly predicts financial development in the study countries. The policy implication is that to the extent that entrepreneurship promotes financial development, implementation of policies and programmes that promote entrepreneurship may translate into financial development.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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