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FINANCIAL ECONOMICS | RESEARCH ARTICLE

Institutional structures and financial market development in Africa

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Abstract: Our paper examines the relationship between institutional structures and the level of financial markets development in Africa. Our paper contributes to the extant literature by using other financial market development variables—ease of access to loans and venture capital availability—that have not before been used to analyzed how institutional structures influence the level of financial markets development in the context of Africa. We employ a two-step generalized method of moment estimator with corrected standard errors to examine this. We demonstrate that a high-quality institutional environment is relevant in explaining ease of access to loans and venture capital availability in Africa. Based on these results, our paper argues that good institutional structures could help stimulate the level of financial markets development in Africa. However, to attain this feat, African governments need to strengthen institutions through effective enforcement of laws to foster compliance in a specifically definite manner-by fashioning out costs for non-compliance

Subjects: Economics; Finance; Business; Management and Accounting

Keywords: institutional structures; institutions; financial markets; financial market development; African countries

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PUBLIC INTEREST STATEMENT

Good institutional structures serve as an important issue for the growth and development of an economy's financial sector. Without the presence of good institutions in an economy, contracts would probably become unworkable, in that problems such as moral hazard and adverse selection arise from imperfect information. This means that an economy with better-developed institutions tends to experience well-developed financial intermediaries that help ensure a free-flow of information among agents involved in contracts. Moreover, good institutions are required in every economy to serve as a pathway upon which financial markets channel scarce resources to finance productive ventures. Thus, considering the relevance of institutions in an economy, the present study examines the relationship between institutional structures and financial markets development in African economies.

1. Introduction

Following the work of Gurley and Shaw (1955), the role of an efficient financial sector in pooling domestic savings and mobilising foreign capital for productive investments in an economy to promote economic growth (Bekaert, Erb, Harvey, & Viskanta, 1997; Ngare, Nyamongo, & Misati, 2014) has received an incremental attention recently. In the absence of a well-developed financial market, productive projects may remain unexploited and thus, significantly cut growth from the levels that would have probably been. Specifically, the financial sector pools funds from individuals or households and allocate them in an efficient way to individual entrepreneurs. In relation to the first activity, a well-developed financial market in an economy tends to allow households to spread risk and maintain liquid investment (Bekaert et al., 1997). The second activity tends to involve the collection of information and selection of investment projects as well as monitoring entrepreneurial activities. However, it is argued that the efficiency with which the financial sector discharges these two key activities is dependent upon the strength of institutional structures in an economy (Hooper, Sim, & Uppal, 2009; Law & Azman-Saini, 2012).

In recent times, researchers have highlighted the importance of the existence of strong institutional structures and their effects on financial markets owing to the characterising features of financial contracts (Hooper et al., 2009). With this, there should not only be the existence of appropriate legal structures, but also sound institutional structures to ensure an adequate enforcement of the rights and constraints of parties involved in contracts. Without the presence of these sound institutional structures, contracts will probably become unworkable, in that problems such as moral hazard and adverse selection arise from imperfect information (Capasso, 2004; Chinn & Ito, 2006; Hooper et al., 2009; Law & Azman-Saini, 2012). The level and nature of imperfect information and information flow among agents are imperative for resource allocation (Capasso, 2004). Corollary to this, countries with better-developed institutional structures experience well-developed financial intermediaries that help ensure a free-flow of information among agents involved in contracts. Moreover, sound institutions are required in every economy to serve as a pathway upon which financial markets channel resources to finance productive ventures (Chinn & Ito, 2006; Claessens & Laeven, 2003 Mishkin, 2009). Thus, the relationship between institutional structures and financial market development is imperative.

A structured analysis of the role of institutional structures in the development of financial market development stems from the works of Acemoglu et al. (2004), La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998), and Rajan and Zingales (1998, 2003), which show significant positive association between financial markets development and the quality of the institutional environment. More recently, the role of institutional structures in financial market development has been examined (see Demetriades & Fielding, 2009; Djankov, McLiesh, & Shleifer, 2007; Hooper et al., 2009; Law & Azman-Saini, 2012; Roe & Siegel, 2008; Tressel & Detriagiache, 2008). Evidence from advanced countries reveals that, financial markets development tends to be associated with soundness of institutional structures in economies (see Acemoglu & Johnson, 2005; Rajan & Zingales, 2003; Roe & Siegel, 2009). Based on this evidence, institutions have had an important role on the financial markets development in advanced economies. This implies that adequate functioning of institutional structures represents a significant condition for financial sector evolution, which has a relevant contribution to sustainable economic development.

In Africa, however, the contribution of institutional structures to financial markets development has not been adequately dealt with. Most of the cross-country studies in the context of Africa that come close to examining how institutional structures influence financial market development tend to be biased towards stock market variables (see Anayiotos & Toroyan, 2009; Baltagi et al., 2009) while abstracting from the stock market performance variables. Even though there has been a significant development in the African stock market since the early 1990s, this development does not imply that even the most developed African stock markets are mature (Ngare et al., 2014; Yartey & Adjasi, 2007). In most of these African stock markets, trading happens in only a small number of stocks, which constitutes a significant part of the total market capitalisation. Going

beyond these actively traded stocks, there are momentous disclosure and informational setbacks for other stocks. In addition, supervisory activities of regulatory authorities are often inadequate. With this, the capacity of the stock market to improving financial resource utilisation is questionable in Africa due to the low volumes of stock traded in the continent (Mbulawa, 2015; Ngare et al., 2014; Yartey & Adjasi, 2007). Thus our paper argues that since the stock market in most African countries is characterised by serious deficiencies (Berglof & Claessens, 2003; Ngare et al., 2014; Okpara, 2010), the use of stock market variables as surrogate measures for financial markets development in studies of this nature tends to offer an unbalanced view on how financial markets in African countries have developed.

With these deficiencies associated with the development of the stock market in African countries, Kawai and Prasad (2011) and Law and Azman-Saini (2012) have contended that since most developing countries, in particular, African countries development progress is associated with the banking system, which serves as the fundamental conduit by which surplus units channel resources to deficit units, the use of other indicators that are closely associated with the banking sector could be employed as a surrogate measure for financial markets development in African economies. Therefore, our study extends the existing literature on the link between institutional structures and financial markets development by employing other financial markets development variables that have not before been exploited to analysing the effects of institutional structures on financial markets development in the context of Africa.

Thus, our contribution to the extant literature is twofold. First, our study extends the literature on the link between institutions and financial markets development by using two of the most important indicators of financial market development—ease of access to loans and venture capital availability. The rationale behind the focus of these two variables is four-fold. First, they have received limited attention in the existing literature on financial markets development (for example see, Acemoglu & Johnson, 2005; Chinn & Ito, 2006; Claessens & Laeven, 2003; Mishkin, 2009; Rajan & Zingales, 2003; Roe & Siegel, 2009; Yartey & Adjasi, 2007). Second given the particular focus on African economies that our study takes, this choice is in tandem with the very fledging and nascent literature on the development of the financial sector in developing countries. Third, our focus is also justified by the serious deficiencies associated with the stock market development in African economies. For instance, studies (Ngare et al., 2014; Yartey & Adjasi, 2007) have indicated that stock market variables provide a fuzzy image of how the financial sector has developed in developing countries, in particular, African countries. They are relatively recent in origin, small by global standards and encountered with inadequate regulatory framework and low price earnings multipliers (Enisan & Olufisayo, 2009). Fourth, as generated by the empirical data of this study, the above variables are relevant due to how they contribute in channelling resources from surplus units to deficit units for economic activities in African countries.

In addition, given the growing relevance of African countries as an asset class, our paper makes the very effort to shed some light on the quality of institutions in African countries and the extent to which these institutions may affect the level of financial markets development in the continent. Thus, outcomes are expected to serve as a guide to decision makers in formulating policies that may enhance their institutions to enhance the level of financial markets development in African countries. Our paper proceeds with a review of the literature on the relationship between institutional structures and financial market development. Following on, the research methodology is outlined and the findings, discussed. Conclusions and some recommendations for policy and practice are further made.

2. Literature review

A nascent and fledging works in the literature has shown that the development of efficient financial sector is dependent on the strength of institutional structures; particularly studies on the effects of country-level governance on the functioning of financial markets (see Demetriades & Fielding, 2009; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1997; Porta et al., 1998; Tressel & Detriagiache, 2008). Strong institutional structures (in particular, country-level governance structures) that ensure the

safeguard of property rights, enforcement of contracts, and unassailable accounting practices have been recognised to have positive effect on financial market development. Most notably this is seen in Levine (1998) who argued that economies characterised by strong institutional structures that give priority to creditors to receive the total present value of their claims on firms have improved running financial intermediaries than economies in which the institutional structures offer weak protection to creditors. In addition, Beck and Colleagues (2000) indicate how the quality of a country's legal system influences the development of its financial sector. Further, Claessens and Laeven (2003) report that in economies that are characterised by weaker legal environment, corporations and individuals not only get access to less financing but also their investments are insignificant.

Whilst it is indubitable in the literature that property rights and the legal environment play a critical role in ensuring well-functioning financial market, some researchers have argued that the relevant role of country-level governance structures in fine-tuning policies towards financial markets and their development, should not be overlooked (Asteriou & Siriopoulos, 2000; Chami et al., 2009; Cherif & Gazdar, 2010; Jain, Kuvvet, & Pagano, 2016; Lau, Demir, & Bilgin, 2013). The argument is that economies with weak governance structures (such as political stability, control of corruption, government effectiveness, rule of law, voice and accountability, and regulatory quality), tend to be characterised by weak financial markets, which may preclude highly possible competitors to get access to finance. This idea was examined in the work of Roe and Siegel (2009), which pointed out that the role of governance structures, particularly, political stability in explaining the level of financial market development is much clearer than legal origin.

More recently, Girma and Shortland (2008) in their study on the impact of democracy characteristics on financial development highlighted that political stability is an important determinant of the level of financial market development. They further contended that the banking sector profits from stable political regimes. Another important work linking country-level governance structures to the level of financial market development is the work of Roe and Siegel (2011). Their study revealed that the capacity and willingness of an economy to institute and uphold the safeguard of investors is largely dependent on how politically stable the economy is. They further argued that basic institutions that ensure investor protection cannot be well-utilised in a politically unstable environment, which may have adverse effect on the level of financial market development. They therefore, concluded that political stability has a significant positive influence on the level of financial market development in an economy.

In addition to political stability, rule of law as a country-level governance structure has been established in the literature to have influence on the level of financial market development in an economy. In financial markets, rule of law has three important characteristics. It involves legal and political guarantees of property rights and civil liberties. In addition, it ensures that the judicial system in a country is sound and thereby, restrains predatory behaviour and reduces transaction costs. Again, legal security forms the third feature of the rule of law and presumes that citizens can plan their goals within the framework of reputable rules that will not be altered arbitrarily. These three attributes boost the confidence of lenders and borrowers to pursue innovative financial contracts in the financial markets (Chami et al., 2009). Further, countries that practise rule of law offer more secure property rights, effective regulation, and efficient in terms of reducing bureaucratic delays and high tax compliance. Again, these countries are subject to high judicial output and fair judicial decisions (Lubna, 2011). Mahoney (2001) argues that legal institutions particularly, rule of law contributes to financial market development in that it protects minority shareholders and creditors, and determines the cost of external capital in financial markets.

Moreover, corruption has a significant influence on many facets of an economy, such as, foreign direct investment, productivity or income inequality. Also, the ability of the financial sector to operate efficiently is influenced by the level of corruption that prevails in an economy (Aljazaerli, Sirop, & Mouselli, 2016; Hillman & Krausz, 2004). Financial markets imbued with corrupt practices can undermine savings and deter investors. This can make an economy susceptible to financial

crises. Criminals in an economy characterised by wholesale corruption will probably control the financial sector (especially, banks, microfinance institutions or savings, and loans institutions). Hence, support for the strengthening of financial markets can be deteriorated if corrupt practices results in savers withdrawing their funds when they are faced with insider dealings, and opportunistic and corrupt financial sector officials. Demetriades and Fielding (2009) in their study on eight countries in West Africa find that corrupt practices challenge the development of the level of financial market development in these economies. In addition, Ito (2006) examines the relationship between institutions and financial market development and finds that the level of corruption poses a serious challenge to the level of financial market development in an economy.

Further, the quality of regulations influences the level of financial market development in an economy. Mobilising savings and channelling them efficiently and effectively into productive investment has become a key challenge in developing countries due to the quality of regulations. The deadly flaw in the efficient functioning of financial markets in developing countries lies in the fact that most developing countries are characterised by poor regulatory environment (De Serres, Kobayakawa, Sløk, & Vartia, 2006; Gani & Ngassam, 2008). Johnson (2011) asserts that economies featured with quality regulations tend to enhance the efficiency of its financial system by promoting well-functioning competition, exchange, intermediation, and arbitrage. La Porta et al. (2000) and Coffee (2000) also argue that countries with well-developed regulations tend to offer protection to small savers and investors, which eventually help enhance their financial markets.

The levels of government effectiveness, and voice and accountability have also been argued to have influence on the functioning of the financial sector in an economy (Cooray, 2008; Gani & Ngassam, 2008). Government effectiveness highlights the capacity of a country's government to formulate and execute sound policies (Hooper et al., 2009). It also looks at the quality of public service provisions and bureaucracy, the non-dependence of the civil service on political pressures, the capability of the civil service, and the commitment of policies by the government. The development view (Gerschenkron, 1962) of government effectiveness argues that in most countries, governments can assist in solving market failures and encourage financial market development through increasing access to funds and lowering cost of borrowing. In addition, improved voice and accountability are expected to result in efficient functioning of the financial market of an economy. Inefficient functioning of the financial market may exist in large part in that if small savers and investors are disempowered and unable to hold their managers to account, they may rather channel their resources elsewhere (which may have an adverse effect on the development of financial markets of that economy).

The review of literature presented above highlights the relevance of institutional structures to the development of an economy's financial sector. Primarily, the consensus from few empirical works on the relationship between institutional structures and the level of financial market development appears to be that the former positively influences the latter. However, most of these studies employed stock market variables as a surrogate measure for the level of financial market development. It is worth noting that stock markets in most developing countries are not well-developed and thus, using stock market variables as proxies for financial market development tend to offer an unbalanced view. It is against this backdrop that the present study tend to use other financial market development variables to empirically find out whether the same result can be obtained in the context of African countries.

3. Methodology

3.1. Data and data sources

The study is conducted for 40 African economies for the period, 2009–2015. The selection of the economies was determined essentially by availability of data. Primarily, those chosen for the study were those who have data for the variables in the estimated model. In the study, ease of access to loans and venture capital availability were employed as surrogate measures for financial market development. Data on these variables were obtained from the World Competitiveness Report by

the Word Economic Forum. These are value-weighted national indices that are constructed from the opinions of business experts. Data in regards to venture capital availability are based on how easy it is for entrepreneurs with innovative but risky projects to find venture capital in a specific country. In regards to ease of access to loans, its data are based on how easy to secure a bank loan with only a good business plan without any collateral security in an economy.

Further, we used the world governance indicators as proxies for institutional structures. These indicators are sourced from Kaufmann and Kraay (2003) who compiled indicators on the basis of a number of individual variables, which measure governance perceptions, obtained from 25 unconnected data sources designed by 18 separate organisations. These organisations include the World Bank, the World Markets Research Centre, think-tanks, non-governmental agencies, and business and political risk-rating organisations. The governance indicators comprise control of corruption, government effectiveness, political stability, rule of law, voice and accountability, and quality of regulations. As argued earlier, these indicators mould the ability of financial markets to operate effectively. Table 1 provides the various descriptions of the governance indicators as well as the proxies for financial market development (i.e. ease of access to loans and venture capital availability) and how they are measured.

It is argued that other variables could have significant influence on the level of financial market development. Thus, the omission of these variables could possibly bias the relationship between institutional structures and financial market development. Corollary to this, we included two control variables: real GDP per capita and Trade openness. We controlled for real GDP per capital in that it has been established in the extant literature to have positive influence on the level of financial market development (see Colombage, 2009; Law & Azman-Saini, 2012). In addition, trade openness is also employed in extant studies and have been found to affect the level of financial market development positively (see Baltagi, Demetriades, & Law, 2009; Chinn & Ito, 2006; Law, 2009; Rajan & Zingales, 2003). Thus, we controlled for trade openness.

3.2. Model

The empirical specification is aimed at establishing the relationship between institutional structures and the level of financial market development. Therefore, the study employed the following empirical model:

$$\ln FMD_{it} = \beta_{oi} + \beta_{1i} \ln FMD_{it-1} + \beta_{2i} \ln INS_{it} + \beta_{3i} \ln RGDPC_{it} + \beta_{4i} \ln TRADEO_{it} + \mu_i + \varepsilon_i$$

where *FMD* is the level of financial market development, *INS* is institutional structures, *RGDPC* is real gross domestic product (GDP) per capita, *TRADEO* is trade openness and the subscripts *i* and *t* denote countries and time. Further, the specification also includes an unobservable country-specific effect μ and error-term ε. Real GDP per capita and Trade openness were controlled for. All variables in the model are log-transformed.

3.3. Estimation technique

Our study employed the dynamic panel generalized method of moments (GMM) estimators to estimate the model. This method was developed by Holtz-Eakin and Rosen (1990), and Arellano and Bond (1991) and further advanced by Arellano and Bover (1995) and, Blundell and Bond (1998). We employed the dynamic panel estimator because of the need to tackle simultaneity bias and country-specific effects. With the application of the panel GMM estimators to our model, we tend to transform our model into a first-difference to get rid of country-specific effect and employing lagged levels of our independent variables as instruments to avoid simultaneity bias (Arellano & Bond, 1991). Nevertheless, it has been argued that this sort of modelling would probably result in erroneous conclusions if the independent variables are persistent in nature (Arellano & Bover, 1995). This is the case for institutional structures as they persist once they are established in society (Acemoglu & Robinson, 2008; Law & Azman-Saini, 2012). However, Arellano and Bover (1995) suggested a system GMM estimator in which the level as well as difference equations are merged. The lagged differences of the independent variables are then employed as extra instruments for a level equation.

Table 1. Explanation, measurement and sources of variables			
Variables	**Explanation**	**Measurement**	**Source**
Ease of access to loans	How easy is it to obtain a bank loan in your country with only a good business plan and no collateral?	Log of ease of access to loans	Global competitiveness report 2009–2015
Venture capital availability	In your country, how easy is it for entrepreneurs with innovative but risky projects to find venture capital?	Log of venture capital availability	Global competitiveness report 2009–2015
Political stability	Capturing perceptions of the likelihood that the government will be destabilised or overthrown by unconstitutional or violent means, including politically motivated violence and terrorism	Log of political stability	World Bank Governance Indicators, 2009–2015
Control of corruption	Capturing perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests	Log of control of corruption	World Bank Governance Indicators, 2009–2015
Voice and accountability	Capturing perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media	Log of voice and accountability	World Bank Governance Indicators, 2009–2015
Rule of law	Capturing perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular, the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.	Log of rule of law	World Bank Governance Indicators, 2009–2015
Regulatory quality	Regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.	Log of regulatory quality	World Bank Governance Indicators, 2009–2015
Government effectiveness	Capturing perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.	Log of government effectiveness	World Bank Governance Indicators, 2009–2015

(Continued)

Table1. (*Continued*)			
Variables	**Explanation**	**Measurement**	**Source**
Real GDP per capita	Real GDP per capita in US dollars	Log of real GDP per capita	Global competitiveness report 2009–2015
Trade openness	The extent in which tariff and non-tariff barriers limit the ability of imported goods to compete in the domestic market	Log of trade openness	Global competitiveness report 2009–2015

Two variants of system GMM estimator exist; the one-step and two-step estimators. We employed the two-step estimator with corrected standard errors in that theoretically; it is more efficient than the one-step estimator. The system GMM is appropriate for this work for some two main reasons. First, the GMM technique allows for the control of endogeneity of the independent variables. The institutional structures are likely to be endogenous, probably because of feedback from financial markets development to institutional quality or due to common effects of omitted variables on both financial markets development and institutional structures. Second, it is proposed for circumstances whereby a study's time period is short and has quite a significant number of individuals (Roodman, 2006). The time period of this study is not long (7 years) and we have quite a significant number of African countries. To check whether our estimates are consistent, we applied the Hansen *J* test of over-identification restrictions and the Arellano and Bond test for second-order serial correlation in the disturbance term (Arellano & Bond, 1991). The Hansen *J* test measures the validity of the instruments by examining sample analogues of the moment conditions employed in the estimation. In addition, the validity of the instruments and whether the model is correctly specified would be based on our failure to reject the null of the Hansen *J* test. The disturbance term, by construction, will probably be serially correlated in the first order. Nevertheless, second-order serial correlation is an indicative of misspecification.

3.4. Empirical results and discussion

We present and discuss the results obtained from our empirical analysis in this section. First, we present the summary statistics, which allow us to explore the data at hand. Second, we present a correlation matrix, which helps us in the empirical specification and to determine the extent of association among the independent variables. Finally, we present the empirical analysis to establish the relationship between the institutional structures and the level of financial market development in our sampled African countries. Table 2 presents the summary statistics. On the average, the easiness to access bank loans with only a good business plan without any collateral security in our sampled African countries is 2.581. Further, on the average, venture capital availability is 2.356. Together, these statistics are an indicative that the level of financial market development in our sampled African economies is somewhat low.

Over the period, 2009–2015, the aggregate institutional indicator averages about 35%. This result indicates that institutional structures in our sampled African countries are weak. This result on institutional structures demonstrates the vulnerability in institutional structures in our sampled African countries. More so, the data indicate that our sampled African countries are moderately open to trade with an average figure of 4.079. The average of real GDP per capita over the period, 2009–2015 recorded US$2,763.822, which indicates that most of our sampled African countries fall within the lower middle income bracket.

Table 3 presents the pairwise correlation matrix of our variables for empirical analysis. Obviously, the six governance indicators indicate a high correlation among each other. The aggregate of these governance indicators, which was computed by finding a simple average of the governance indicators,

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Table 2. Summary statistics					
Variable	Observation	Mean	Std. deviation	Minimum	Maximum
Financial market development					
Easeofaccess	280	2.581	0.621	1.300	5.200
Venturecap	280	2.356	0.467	1.400	3.500
Governance indicators	280				
Institutions	280	34.762	17.595	3.077	76.923
Contcur	280	35.658	22.070	0.950	80.480
Goveffect	280	32.791	19.557	1.920	81.250
Polstab	280	35.133	22.260	2.840	88.150
Rulelaw	280	35.468	19.730	0.940	79.620
Reguqual	280	34.832	17.528	0.480	83.650
Voice	280	34.689	18.925	2.840	76.530
Controls	280				
TRADEO	280	4.079	0.485	2.600	5.000
RGDPC	280	2,763.822	3,283.532	163.000	15,203.000

Note: Easeofaccess represents ease of access to loans. Venturecap represents venture capital availability. Institutions represent the simple average of the six governance indicators. Contcur represents control of corruption. Goveffect represents government effectiveness, Polstab represents political stability, Rulelaw represents rule of law, Reguqual represents regulatory quality. Voice represents voice and accountability. TRADEO represents trade openness. RGDPC represents real gross domestic product per capita.

exhibited a very high pairwise correlation with its six constituents. The results in Table 3, however, (as demonstrated in Panels A and B) do not raise any major concern about multicollinearity.

3.5. Regression results
In this section, we present and discuss our regression results. The results are presented in Tables 4 and 5. Table 4 highlights the results of the relationship between our first proxy for financial market development (i.e. ease of access to loans) and institutional structures. Table 5 also shows the relationship between our second proxy for financial market development (i.e. venture capital availability) and institutional structures. In all, there are seven regression models in each of the tables. The first regression model in each of the tables reports the regression estimates employing the simple average of the institutional indicators (see models 1 and 8). The subsequent regression models highlight the estimates of the individual constituents of the institutional indicators, which consist of control of corruption, government effectiveness, political stability, rule of law, regulatory quality, and voice and accountability.

3.5.1. Ease of access to loans and institutional structures
The results in Table 4 show that the lagged dependent variable (i.e. the lagged of ease of access to loans) is statistically significant, which implies that the dynamic Generalised Method of Moment is a suitable estimator and thus, the empirical results can serve as a basis for statistical inference. We do find a significant positive relationship between ease of access to loans and the simple average of the institutional structures (i.e. institutions) (see model 1). This finding indicates that sound institutional structures play a vitally important role in how easy individuals in our sampled African countries secure a bank loan with only a good business plan without any collateral security. This is true for most of the individual components of institutions, as portrayed in Models 3, 4, 5, 6, and 7. Our results divulge that if government is effective, regulations are sound, rule of law works and people are at liberty to express themselves, individuals will not encounter any difficulty in accessing loans in a country. This is because sound institutions can help individuals to overcome some deficiencies that they may encounter in accessing loans.

Table 3. Correlation matrix

Panel A: Correlation matrix—ease of access to loans, governance indicators and the control variables

	Easeofaccess	Institutions	Contcur	Goveffect	Polstab	Rulelaw	Reguqual	Voice	TRADEO	RGDPC
Ease of access	1.0000									
Institutions	0.5208	1.0000								
Contcur	0.4714	0.9070	1.0000							
Goveffect	0.5616	0.9181	0.8505	1.0000						
Polstab	0.3353	0.8201	0.6837	0.6428	1.0000					
Rulelaw	0.5222	0.9533	0.8838	0.8050	0.7152	1.0000				
Reguqual	0.4910	0.8638	0.7057	0.8112	0.5831	0.8272	1.0000			
Voice	0.3734	0.8135	0.6352	0.6453	0.6515	0.7019	0.6828	1.0000		
TRADEO	0.2795	0.4225	0.3462	0.4114	0.3776	0.4052	0.4256	0.2673	1.0000	
RGDPC	0.2979	0.3864	0.3272	0.4208	0.4278	0.3699	0.2327	0.2348	0.1441	1.0000

Panel B: Correlation matrix—venture capital availability, governance indicators and the control variables

	Venturecap	Institutions	Contcur	Goveffect	Polstab	Rulelaw	Reguqual	Voice	TRADEO	RGDPC
Venturecap	1.0000									
Institutions	0.4716	1.0000								
Contcur	0.4800	0.9070	1.0000							
Goveffect	0.5310	0.9181	0.8505	1.0000						
Polstab	0.2319	0.8201	0.6837	0.6428	1.0000					
Rulelaw	0.4884	0.9533	0.8838	0.8050	0.7152	1.0000				
Reguqual	0.5033	0.8638	0.7057	0.8112	0.5831	0.8272	1.0000			
Voice	0.2654	0.8135	0.6352	0.6453	0.6515	0.7019	0.6828	1.0000		
TRADEO	0.1910	0.4225	0.3462	0.4114	0.3776	0.4052	0.4256	0.2673	1.0000	
RGDPC	0.2228	0.3864	0.3272	0.4208	0.4278	0.3699	0.2327	0.2348	0.1441	1.0000

Note: Easeofaccess represents ease of access to loans. Venturecap represents venture capital availability. Institutions represent the simple average of the six governance indicators. Contcur represents control of corruption. Goveffect represents government effectiveness, Polstab represents political stability, Rulelaw represents rule of law, Reguqual represents regulatory quality. Voice represents voice and accountability. TRADEO represents trade openness. RGDPC represents real gross domestic product per capita.

Table 4. Relationship between ease of access to loans and institutional structures							
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**
Lag of Easeofaccess	0.8212***	0.8552***	0.8172***	0.8769***	0.8254***	0.8398***	0.8614***
	(0.0723)	(0.0691)	(0.0690)	(0.0640)	(0.0740)	(0.0679)	(0.0649)
Institutions	0.0477**						
	(0.0238)						
Contcur		0.0167					
		(0.0138)					
Goveffect			0.0410**				
			(0.0188)				
Polstab				0.0129			
				(0.0158)			
Rulelaw					0.0315*		
					(0.0169)		
Reguqual						0.0307**	
						(0.0158)	
Voice							0.0349*
							(0.0204)
TRADEO	−0.0313	−0.0027	0.0438	−0.0019	0.0014	−0.0088	−0.0010
	(0.1139)	(0.1105)	(0.0549)	(0.1151)	(0.1115)	(0.1090)	(0.1098)
RGDPC	0.0006	0.0020	0.0016	0.0011	0.0012	0.0044	0.0003
	(0.0102)	(0.0102)	(0.0093)	(0.0103)	(0.0104)	(0.0104)	(0.0102)
Constant	0.0349	0.0466	0.0245	0.0462	0.0364	0.0276	0.0206
	(0.0645)	(0.0648)	(0.0563)	(0.0659)	(0.0657)	(0.0646)	(0.0657)
Diagnostics							
No. of obs.	280	280	280	280	280	280	280
AR(2): Z (*p* value)	−0.2051 (0.1384)	−0.2115 (0.1203)	−0.2238 (0.099)	−0.2068 (0.124)	−0.1870 (0.182)	−0.217 (0.116)	−0.2084 (0.126)
Hansen: X^2 (*p* value)	9.78 (0.743)	21.34 (0.962)	19.34 (0.867)	21.56 (0.543)	20.45 (0.865)	19.71 (0.834)	20.91 (0.641)

Note: Easeofaccess represents ease of access to loans. Institutions represent the simple average of the six governance indicators. Contcur represents control of corruption. Goveffect represents government effectiveness, Polstab represents political stability, Rulelaw represents rule of law, Reguqual represents regulatory quality. Voice represents voice and accountability. TRADEO represents trade openness. RGDPC represents real gross domestic product per capita. *, **, and *** indicate the respective 10%, 5%, and 1% significance levels.

3.5.2. Venture capital availability and institutional structures

The results in Table 5 indicate that the lagged dependent of venture capital is statistically significant, which is an indicative that our dynamic GMM model is a suitable estimator and thus we can rely on the empirical results to make statistical deductions. In terms of the simple average of the institutional structures, the findings illuminate a direct role of institutional structures in enhancing venture capital availability. We find overwhelming evidence of a positive relationship between the institutional structures and venture capital availability. Indeed, all of the components of institutional structures, that is, control of corruption, government effectiveness, political stability, rule of law, regulatory quality, and voice and accountability, seem to matter for the enhancement of venture capital availability in our sampled African countries (see models 9–14). Thus, enhanced venture capital availability can be realised by controlling or mitigating the level of corruption, enhancing government effectiveness, improving regulatory quality, ensuring that rule of law prevails, stimulating political stability, and permitting voice and accountability in our sampled African countries.

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Table 5. Relationship between venture capital availability and institutional structures							
	Model 8	**Model 9**	**Model 10**	**Model 11**	**Model 12**	**Model 13**	**Model 14**
Lag of	0.8386***	0.8428***	0.8371***	0.8861***	0.8466***	0.8559***	0.8782***
Venturecap	(0.0376)	(0.0380)	(0.0375)	(0.0347)	(0.0391)	(0.0379)	(0.0354)
Institutions	0.0387***						
	(0.0119)						
Contcur		0.0220***					
		(0.0072)					
Goveffect			0.0328**				
			(0.0010)				
Polstab				0.0137*			
				(0.0082)			
Rulelaw					0.0214**		
					(0.0085)		
Reguqual						0.0201**	
						(0.0086)	
Voice							0.0199*
							(0.0105)
TRADEO	−0.1241**	−0.1079*	−0.1202**	−0.1062	−0.0932	−0.0972*	−0.0879
	(0.0597)	(0.0052)	(0.0597)	(0.0623)	(0.0580)	(0.0086)	(0.0586)
RGDPC	0.0002	0.0019	−0.0001	0.0009	0.0012	0.00036	0.0012
	(0.0052)	(0.0052)	(0.0053)	(0.0055)	(0.0053)	(0.0054)	(0.0054)
Constant	0.0815**	0.0907***	0.0943***	0.0888**	0.0830**	0.0760**	0.0697*
	(0.0338)	(0.0345)	(0.0347)	(0.0357)	(0.0346)	(0.0346)	(0.0351)
Diagnostics							
No. of obs.	280	280	280	280	280	280	280
AR(2): Z (*p* value)	−0.3698 (0.539)	−0.3585 (0.1601)	−0.3638 (0.161)	−0.3479 (0.439)	−0.356 (0.346)	−0.356 (0.346)	−0.3524 (0.677)
Hansen: X^2 (*p* value)	16.43 (0.249)	23.71 (0.745)	27.54 (0.497)	26.81 (0.983)	27.09 (0.473)	22.72 (0.598)	25.91 (0.829)

Note: Venturecap represents venture capital availability. Institutions represent the simple average of the six governance indicators. Contcur represents control of corruption. Goveffect represents government effectiveness, Polstab represents political stability, Rulelaw represents rule of law, Reguqual represents regulatory quality. Voice represents voice and accountability. TRADEO represents trade openness. RGDPC represents real gross domestic product per capita. *, **, and *** indicate the respective 10%, 5%, and 1% significance levels.

3.5.3. Control variables

In regards to our control variables in the level of financial market development specification, in all models (see models 1–14), the coefficients on real GDP per capita exhibit an insignificant determinant of the level of financial market development in our sampled African countries. In addition, some of the coefficients on trade openness in the models exhibited significant relationship with the level of financial market development in our sampled African countries. Generally, the estimated models in Tables 4 and 5 are relatively appropriately specified. Thus, the diagnostic statistics were found to be convincing. The Hansen test failed to reject the over-identification restrictions.

4. Conclusions and recommendations

This study examined the role of institutional structures in influencing the level of financial market development in Africa. Even though extant related literatures have established the positive relationship between institutional structures and the level of financial market development in economies, most of these studies employed stock market variables as proxies for the level of financial market

development. It is worth considering that in developing countries, in particular, African economies, the use of stock market variables as proxies for the level of financial market development gives a hazy view of the extent to which their financial markets have developed. The argument is that the market capitalisation in developing economies does not portray much disparity in relation to that of advanced economies and thus, stock market variables cannot be used as proxies for the level of financial market development in developing economies. Corollary to this, due to the domination of the banking sector in developing countries, the study deviated from the extant literature by employing ease of access to loans and venture capital availability as surrogate measures for the level of financial market development.

Based on the dynamic panel system generalised method of moment estimations, our empirical results highlight that the presence of institutional structures enhances the ease of access to loans by individuals in our sampled economies. In addition, we do find a significant positive relationship between institutional structures and venture capital availability in our sampled African countries. Our results have an important policy implication. As a continent that is yet to fully realise its potential, the establishment of good institutions is particularly essential, as this will probably not only assist in enhancing the level of financial markets development, but may help the continent attract investors, which will beneficially affect economic growth and development of African countries. In this regard, attempts by African governments to ensuring the presence of good institutions are praiseworthy. A possible way is to ensure effective enforcements of laws to foster compliance in a specifically definite manner-by fashioning out costs for non-compliance (for example, investigation costs, imprisonment, dent to image, fines, and legal costs).

Finally, while our paper highlights striking results, some caveats are in order. Since the study did not cover all African countries due to data availability, generalising the results to the countries that were excluded in this study becomes challenging. Nevertheless, as most African countries share similar features, we argue that the results can be generalised to the excluded countries in an analytical sense by employing inductive reasoning. In addition, while the study only focused on African countries, a fertile area for future study is to extend this study to other geographical areas. In addition, a fertile area for suture study can focus on how institutions moderate the relationship between financial markets development and economic growth.

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References
Acemoglu, D., Autor, D. H., & Lyle, D. (2004). Women, war, and wages: The effect of female laborsupply on the wage structure at mid-century. *Journal of political Economy*, *112*(3), 497–551.
Acemoglu, D., & Johnson, S. (2005). Unbundling institutions. *Journal of Political Economy*, *113*(5), 949–995. doi:10.1086/432166

Acemoglu, D., & Robinson, J. (2008). *The role of institutions in growth and development*. Washington DC: World Bank.
Aljazaerli, M. A., Sirop, R., & Mouselli, S. (2016). Corruption and stock market development: New evidence from GCC countries. *Business: Theory and Practice/Verslas: Teorija Ir Praktika*, *17*(2), 117–127. doi:10.3846/btp.2016.555
Anayiotos, G. C. & Toroyan, H. (2009). Institutional factors and financial sector development: evidence from Sub-Saharan Africa (No. 9-258). International Monetary Fund.
Arellano, M. and S. Bond. (1991). Some Tests of Specification for Panel Data: Monte CarloEvidence and an Application to Employment Equations, Review of Economic Studies, *58*, 277–297.
Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, *68*(1), 29–51. doi:10.1016/0304-4076(94)01642-D
Asteriou, D., & Siriopoulos, C. (2000). The role of political instability in stock market development and economic growth: The case of Greece. *Economic Notes*, *29*(3), 355–374. doi:10.1111/ecno.2000.29.issue-3
Baltagi, B. H., Demetriades, P. O., & Law, S. H. (2009). Financial development and openness: Evidence from panel data. *Journal of Development Economics*, *89*(2), 285–296. doi:10.1016/j.jdeveco.2008.06.006

Beck, T., Levine, R., & Loayza, N. (2000). Finance and the Sources of Growth. Journal of financialeconomics, *58* (1–2), 261–300.

Bekaert, G., Erb, C. B., Harvey, C. R., & Viskanta, T. E. (1997). What matters for emerging equity market investments. *Emerging Markets Quarterly, 1*(2), 17–46.

Berglof, E., & Claessens, S. (2003). Enforcement and Corporate Governance (Discussion Paper 5). In Global Corporate Governance Forum. Retrieved November 10, 2007, from www.gcgf.org

Blundell, R.W. and S.R. Bond. (1998). Initial Conditions and Moment Restrictions in Dynamic PanelData Models. Journal of Econometrics, *87*, 115–143.

Capasso, S. (2004). Financial markets, development and economic growth: tales of informationalasymmetries. Journal of Economic Surveys, *18*(3), 267–292.

Chami, M. R., Sharma, M. S., & Fullenkamp, C. (2009). *A framework for financial market development* (No. 9-156). International Monetary Fund.

Cherif, M., & Gazdar, K. (2010). Macroeconomic and institutional determinants of stock market development in MENA region: New results from a panel data analysis. *International Journal of Banking and Finance, 7* (1), 138–159.

Chinn, M. D., & Ito, H. (2006). What matters for financial development? Capital controls, institutions, and interactions. *Journal of Development Economics, 81* (1), 163–192. doi:10.1016/j.jdeveco.2005.05.010

Coffee, J. C., Jr. (1999). Privatization and corporate governance: The lessons from securities market failure. *Journal Corp L, 25*, 1.

Coffee, J. C. (2000). *Convergence and its critics: What are the preconditions to the separation of ownership and control?*

Colombage, S. R. (2009). Financial markets and economic performances: Empirical evidence from five industrialized economies. *Research in International Business and Finance, 23*(3), 339–348. doi:10.1016/j.ribaf.2008.12.002

Cooray, A., 2008. Economic growth and the size and quality of the government.

Demetriades, P. & Fielding, D. (2009). Information, Institutions and Banking Sector Developmentin West Africa.

De Serres, A., Kobayakawa, S., Sløk, T., & Vartia, L. (2006). Regulation of financial systems and economic growth.

Djankov, S., McLiesh, C., & Shleifer, A. (2007). Private credit in 129 countries. *Journal of Financial Economics, 84* (2), 299–329. doi:10.1016/j.jfineco.2006.03.004

Enisan, A. A., & Olufisayo, A. O. (2009). Stock market development and economic growth: Evidence from seven sub-Sahara African countries. *Journal of Economics and Business, 61*(2), 162–171. doi:10.1016/j.jeconbus.2008.05.001

Gani, A., & Ngassam, C. (2008). Effect of institutional factors on stock market development in Asia. *American Journal of Finance and Accounting, 1*(2), 103–120. doi:10.1504/AJFA.2008.019947

Gerschenkron, A. (1962). *Economic backwardness in historical perspective*. Cambridge, MA: Harvard University Press.

Girma, S., & Shortland, A. (2008). The political economy of financial development. *Oxford Economic Papers, 60* (4), 567–596. doi:10.1093/oep/gpm040

Greenhouse, L., & Siegel, R. B. (2011). Before (and after) Roe v. *Wade: New Questions About Backlash, 120*, 2061–2071.

Gurley, J. G., & Shaw, E. S. (1955). Financial aspects of economic development. *The American Economic Review, 45*(4), 515–538.

Hillman, A. L., & Krausz, M. (2004, April). Development failure, corruption, and the financial system. In *European public choice society conference in Berlin* (pp. 15–18).

Holtz-Eakin, D., & Rosen, H. (1990). Federal deductibility and local property tax rates. *Journal of Urban Economics, 27*(3), 269–284. doi:10.1016/0094-1190 (90)90001-4

Hooper, V., Sim, A. B., & Uppal, A. (2009). Governance and stock market performance. *Economic Systems, 33*, 93–116. doi:10.1016/j.ecosys.2009.03.001

Ito, H. (2006). Financial development and financial liberalisation in Asia: Thresholds, institutions and the sequence of liberalization. *The North American Journal of Economics and Finance, 17*(3), 303–327. doi:10.1016/j.najef.2006.06.008

Johnson, O. E. (2011). Financial sector reform and development in Sierra Leone. *Economic Challenges and Policy Issues in Early Twenty-First-Century Sierra Leone*.

Kaufmann, D., & Kraay, A. (2003, February). *Governance and growth: Causality which way? Evidence for the world, in brief*. Washington, DC: World Bank.

Kawai, M., & Prasad, E. S. (Eds.). (2011). *Financial market regulation and reforms in emerging markets*. Brookings Institution Press.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1997). Legal determinants of external finance. *Journal of Finance*, 1131–1150. doi:10.1111/j.1540-6261.1997.tb02727.x

Lau, C. K. M., Demir, E., & Bilgin, M. H. (2013). Experience-based corporate corruption and stock market volatility: Evidence from emerging markets. *Emerging Markets Review, 17*, 1–13. doi:10.1016/j.ememar.2013.07.002

Law, S. H. (2009). Trade openness, capital flows and financial development in developing economies. *International Economic Journal, 23*(3), 409–426. doi:10.1080/10168730903268398

Law, S. H., & Azman-Saini, W. N. W. (2012). Institutional quality, governance, and financial development. *Economics of Governance, 13*(3), 217–236. doi:10.1007/s10101-012-0112-z

Levine, R. (1998). The legal environment, banks, and long-run economic growth. *Journal of Money, Credit and Banking*, 596–613. doi:10.2307/2601259

Lubna, H. (2011). Rule of law, legal development and economic growth: Perspectives for Pakistan. *Journal of Advanced Research in Law and Economics (JARLE), 2*(3), 48–59.

Mahoney, P. G. (2001). The common law and economic growth: Hayek might be right. *The Journal of Legal Studies, 30*(2), 503–525. doi:10.1086/322053

Mbulawa, S. (2015). Determinants of financial development in Southern Africa Development Community (SADC): Do institutions matter. *European Journal of Accounting Auditing and Finance Research, 3*(6), 39–62.

Mishkin, F. S. (2009). Is monetary policy effective during financial crises? *American Economic Review, 99*(2), 573–577. doi:10.1257/aer.99.2.573

Ngare, E., Nyamongo, E. M., & Misati, R. N. (2014). Stock market development and economic growth in Africa. *Journal of Economics and Business, 74*, 24–39. doi:10.1016/j.jeconbus.2014.03.002

Okpara, J. O. (2010). Perspectives on Corporate governance challenges in a sub-Saharan African economy. *Journal of Business and Policy Research, 5*(1), 110–122.

Pastor, L., & Veronesi, P. (2012). Uncertainty about government policy and stock prices. *The Journal of Finance, 67*(4), 1219–1264. doi:10.1111/j.1540-6261.2012.01746.x

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Pinheiro, A. R. D. C. (2010). *Does corruption drive the stock market?* (Doctoral dissertation, NSBE-UNL). Presented at the 120th Annual Meeting of the American Economic Association.

Porta, R. L., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1998). Law and finance. *Journal of Political Economy*, *106*(6), 1113–1155. doi:10.1086/250042

Rajan, R. G., & Zingales, L. (1998). Which capitalism? Lessons from the East Asian crisis. *Journal of Applied Corporate Finance*, *11*(3), 40–48. doi:10.1111/jacf.1998.11.issue-3

Rajan, R. G., & Zingales, L. (2003). The great reversals: The politics of financial development in the twentieth century. *Journal of Financial Economics*, *69*(1), 5–50. doi:10.1016/S0304-405X(03)00125-9

Roe, M., & Siegel, J. (2008). *Political instability's impact on financial development*. Harvard Law and Economics Discussion Paper, (570).

Roe, M. J., & Siegel, J. I. (2011). Political instability: Effects on financial development, roots in the severity of economic inequality. Journal of Comparative Economics, *39*(3), 279–309.

Roe, M. J., & Siegel, J. I. (2009). Finance and politics: A review essay based on Kenneth Dam's analysis of legal traditions in the law-growth nexus. *Journal of Economic Literature*, *47*(3), 781–800. doi:10.1257/jel.47.3.781

Roodman, D. (2006). How to do xtabond2: An introduction to difference and system GMM in Stata. *The Stata Journal*, *9*(1), 86–136.

Tressel, T., & E. Detragiache. (2008). Do Financial Sector Reforms Lead to Financial Development? Evidence from a New Dataset. IMF Working Papers 08/265. Washington, DC: International Monetary Fund.

Yartey, C. A. & Adjasi, C. K. (2007). Stock market development in Sub-Saharan Africa: Critical issuesand challenges (No. 7-209). International Monetary Fund..

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