Explaining weak financial development in Africa

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Abstract

This study seeks to determine the causes of weakness in financial system development on the African continent. The research specifically investigates whether endowments theory, inequality, openness and remittances explain Africa's financial (under)development. Using Generalized Method of Moments (GMM) with a robust estimator for 48 African countries over a 12-year period, the results suggest that the traditional endowments theory does not explain financial development in African countries. Inequality is found to be detrimental to financial development, while trade openness and remittances are both individually positively linked with financial development. There is limited support for the benefits of financial openness to Africa's financial development.

Keywords: Africa, economic growth, endowments, financial sector, inequality

1   Introduction

Financial development generally measures the ease with which the finance system provides funding for entrepreneurial activities, and the extent to which financial services are made available. It is defined by Huang (2006, p. 2) as 'increasing the efficiency of allocating financial resources and monitoring capital projects, through encouraging competition and increasing the importance of the financial system'. It can be understood as a process that marks an improvement in the quantity, quality and efficiency of financial intermediation services (Abu-Bader & Abu-Quan, 2008). African banking systems generally lag behind other countries in terms of using important measures of financial system development, and are relatively small in absolute terms.

Allen *et al.* (2012, p. 14) investigated Africa's financial development and found that a 'financial development gap' exists; a conclusion they reached by predicting the levels of financial development using prior studies. This leaves the question of what factors account for Africa's financial (under)development. To what extent do the fundamentals explain Africa's level of financial development? Can explanations be given for the poor state of Africa's financial systems?

Following theory and substantial evidence linking financial development to economic growth (Schumpeter, 1911; King & Levine, 1993) and poverty alleviation (Beck *et al.*, 2007), considerable research has since focused on the factors that determine financial development. This is partly motivated by the understanding that many countries have not yet harnessed the positive poverty-reducing impact of

finance (Beck *et al*., 2007). According to Easterly and Levine (1997), Africa's level of development has been disappointing.

Given the importance of financial development and the significant evidence that Africa lags behind (Beck *et al*., 2010; Allen *et al*., 2012), it is important to understand the factors that drive financial development on the continent. Past studies have explored this issue, using traditional views on mainly heterogeneous samples of industrialised and poor countries. The few studies that focus on the continent (see Allen *et al*. 2012) tend to dwell on historical determinants of financial development, confirming that Africa lags behind but without explaining why. On the other hand, this study investigates the explanatory power of both traditional and recent factors attributed to financial development in the African context, to derive fresh explanations for what possibly causes the continent's stunted financial system growth. It evaluates the law and finance view, and empirically focuses on endowments theory, inequality, financial openness, trade openness and remittances.

The research employs GMM methodology using the Arellano-Bond (1991) estimator, a technique considered to be more robust than the traditional cross-sectional analysis commonly employed in similar studies. Arellano-Bond (1991) is the estimator of choice where the time period is short and cross-sectional units are larger (Roodman, 2006). This strategy is suitable for capturing the dynamic effect of financial development, in line with existing studies which suggest that past levels of financial development have a bearing on future financial development (Chinn & Ito, 2006).

No evidence is found to suggest that purely environmental and geographical factors, *endowments*, are important in explaining Africa's financial development. This suggests little support for the notion that African financial systems are backward by way of adverse natural circumstances. Inequality has a significant negative impact on financial development, which suggests that unequal access to wealth is potentially holding back the continent's financial development. The results show that trade openness contributes to the continent's financial progress. There is only limited support for the usefulness of financial openness in financial development – a result that may cast doubt on the effectiveness of financial reform policies implemented by African policy-makers. Remittances, on the other hand, are positively linked to the financial development of Africa's financial systems.

This article is structured as follows: In section two we review the literature pertaining to the determinants of financial development. Section three illustrates the methodology, encompassing the research approach and methods adopted. The results are reported and analysed in Section four, while Section five concludes the text.

2   Literature review

This section reviews theoretical and empirical literature on the determinants of financial development. The law and finance view will be considered first, followed by the endowments view. Inequality, financial openness, trade openness and remittances

are evaluated as candidate determinants of Africa's financial development. Possible control factors, which are not the primary focus of the study, are considered in brief.

The law and finance view is founded on the premise that legal traditions brought over by the European colonisers shaped financial development on the continent (Beck *et al.*, 2003), and is based on the work of LaPorta *et al.* (1998; 1999). LaPorta *et al.* (1998) investigated the degree of law enforcement and protection of shareholders' and creditors' rights in 49 countries, and found that the extent to which these rights are upheld, to offer the intended protection, depends on the particular jurisdiction.

It is argued that investor protection is strongest in British common law countries, and weakest in those adopting French civil law (LaPorta *et al.*, 1998). Although German and Scandinavian civil law are located somewhere in-between, they, along with common law countries, are thought to have the strongest law enforcement, while French civil law is weakest (LaPorta *et al.*, 1998). The origin of British common law is therefore associated with superior financial development, with French civil law located on the opposite extreme (LaPorta *et al.*, 1999; Beck *et al.*, 2003b).

It is argued that the development of British common law was driven by the desire to protect private property from the monarchy (LaPorta *et al.*, 1998). This cultivated an environment in which business could thrive, and created an atmosphere conducive for financial transactions. French law, on the other hand, emphasised the furthering of state power over citizens, thus limiting civil liberties and creating an environment that did not encourage free engagement in financial transactions (LaPorta *et al.*, 1998).

However, contrary to the law and finance thesis, it is argued that the relevant laws were not rigidly transferred from mainly English common law and French civil law contexts (Berkowitz *et al.*, 2003). Even if laws were successfully transplanted, it is argued that countries reformed their finance laws over time (Pagano & Volpin, 2005). Using India as an example, Sarkar and Singh (2010) show evidence of significant differences between the country's legal history and its current legal structure. As a result, researchers have continued to investigate factors that may plausibly explain countries' financial development.

Whereas the law and finance theory focuses on legal origins, the *endowments theory*, on the other hand, 'emphasizes the roles of geography and the disease environment in shaping institutional development' (Beck *et al.* 2003a, p. 139). This theory has underpinnings in the work of Acemoglu *et al.* (2001), who argue that European colonisers adopted strategies in the settler colonies depending on whether they wanted to 'settle' or 'expropriate'. Settler states, encompassing countries such as the United States, Australia and New-Zealand, were built with a desire to model their institutions along European standards (Acemoglu *et al.*, 2001). Beck *et al.* (2003a) apply this theory to explain variations in financial development based on the underlying colonisation strategy.

The logical links of the endowments view have also been challenged. Easterly (2006) argues that colonies with higher percentages of Europeans had a greater number of highly educated people than those with fewer Europeans. It is this higher education level that he attributes to the superior economic development associated

with European colonisation, as opposed to environmental conditions (Easterly, 2006).

A similar view holds that Europeans brought with them many admirable attributes, such as schools and cultures which have endured to this day (Glaeser *et al*., 2004), and which may have impacted different economies in different ways.

Inequality may impact financial development via the political channel, where inequality is thought to pave the way for a manipulation of financial systems on the part of politicians and elites (Perotti & Volpin, 2007). According to Claessens and Perotti (2007, p. 749) 'unequal access to political influence produces unequal access to finance and ultimately unequal opportunities'.

Unequal access to resources affects de facto political power (Acemoglu & Robinson, 2005), which allows elites to manipulate financial regulatory processes (Rajan & Zingales, 2003). Haber (2004), for instance, found that wealthy landowners blocked financial reforms through their political connections, while Bulmer-Thomas (2003) found evidence of similar practices across Latin America.

A more direct impact of inequality on financial development comes from limiting access to finance. According to Chakraborty and Ray (2006, p. 2920), 'access to credit and each type of financing depends on the wealth distribution due to moral hazard'. This is because financial markets are infested with credit frictions, so that wealth levels and initial personal assets affect how individuals and firms access credit opportunities (Chakraborty & Ray, 2006).

By mitigating financial repression and allowing portfolio diversification, *financial openness* may reduce the cost of capital and increase its availability to borrowers (McKinnon, 1973; Shaw, 1973). Through weeding out inefficient financial institutions and creating an impetus for financial reform, financial openness creates efficiency within the financial system (Claessens *et al*., 2001). However, the argument that financial liberalisation is entirely beneficial is not without controversy.

Stiglitz and Weiss (1981) argue that due to capital market imperfections in the form of asymmetric information and moral hazard, the absence of capital controls will lead to credit rationing and risk taking by borrowers. Referring to the 1999 Asian financial crisis, Stiglitz (2000, p. 1075), argues: 'It has become increasingly clear that financial and capital market liberalization done hurriedly without first putting into place an effective regulatory framework was at the core of the problem.' The question is whether African financial systems have the readiness to reap the benefits of liberalisation, without incurring the hazards of crisis that stem from the cyclicality and volatility of flows.

Perhaps more critical than financial openness to African countries is *trade openness* (openness to international trade), because of the small size of African financial markets (Huang & Temple, 2005, p. 5). By aligning the interests of economically powerful groups more closely with financial development, trade openness can improve the supply of external finance (Rajan & Zingales, 2003; Huang & Temple, 2005). On the demand side, the need to diversify the risks of external demand shocks posed by international trade, as well as short-term cash-

flow problems will create new demands for external finance (Svaleryd & Vlachis, 2002).

Evidence on the impact trade has on the financial development of developing countries, has been mixed. Although Do and Levchenko (2007) find trade openness beneficial for the financial systems of developed economies with high-tech industries, the opposite effect prevails in developing economies with low levels of technological advancement (Kim *et al*., 2011). Openness to international goods flow may harm the relatively small African economies by reinforcing economic fluctuations (Blankenau *et al*., 2001; Arora & Vamvakidis, 2004) and increasing their vulnerability to external shocks (Tornell *et al*., 2004; Loayza & Raddatz, 2007). These adverse effects would worsen capital market imperfections and impede financial development.

Remittances now constitute an important flow into the financial systems of developing countries. According to Giulliano and Reiz-Arranz (2009, p. 145) they are 'the largest source of external finance for developing countries after foreign direct investment (FDI)'. Although remittances are increasingly important to developing countries, their impact on financial development has been 'under-explored' (Ayadi, 2013, p. 12). The focus has mainly been on the impact remittances have on economic growth, human capital and investment (Adams & Page, 2005: Woodruff & Zenteno, 2007; Mundaca, 2009). For example, Giuliano and Ruiz-Arranz (2009) note that remittances serve as a good substitute for financial rather than financing investment, but the authors fall short of investigating their impact on the development of the financial system. If remittances are channelled through the formal financial system they boost its efficiency, and hence encourage financial development. Otherwise, they may act as a substitute and compete with the formal financial system.

3   Methodology

3.1   *Empirical specification*

We used panel data to investigate variations in financial development across African countries. With its cross-sectional and time dimension, panel data allowed us to model the complex behaviour between financial development and potential determinants (Hsiao, 2007). Inspired by Chinn and Ito (2006) and Baltalgi *et al*. (2009) we employed the dynamic log-linear model for financial development which includes a lagged depended variable as follows:

$$lnFD_{it} = \beta_0 + \gamma lnFD_{it-1} + \beta_1 In\ X_{it-1} + \beta_2 In\ Z_{it-1} +\ u_{it}\ \textit{(baseline model)} \qquad (1)$$

Where FD_{it}; is an indicator of financial development (i.e., financial development of country *i* at time *t*).
X is a vector of the determinants of financial development to be investigated, including *endowments*, *inequality*, *financial openness*, *trade openness and remittances*.

Z is a vector of conditioning variables, such as macro-economic policy and level of institutional development, and *u* is an error term that contains country and time specific fixed effects: $u_{it} = \mu_i + \varepsilon_t + v_{it}$
where v_{it} is assumed to be independent and identically distributed with mean zero and variance υ^2_v. All explanatory variables are lagged to prevent any bias in the estimated coefficients due to simultaneous common shocks to financial development and the right-hand side variables (as in Baltagi *et al.*, 2009).

The baseline model resulted in three separate formulations (2 to 4):

$$lnFD_{it} = \beta_0 + \gamma \, lnFD_{it-1} + \beta_1 In \, Endowments_{it-1} + \beta_2 In \, Inequality_{it-1}$$

$$+ \beta_3 In \, Remittances_{it-1} + \beta_4 In \, GDP \, Per \, Capita_{it-1} + \beta_5 In \, Infalation_{it-1}$$

$$+ \beta_6 In \, Current \, balance_{it-1} + \beta_7 InFinancial \, Openness_{it-1}$$

$$+ \beta_8 In \, Trade \, Openness_{it-1} + u_{it} \qquad (2)$$

$$lnFD_{it} = \beta_0 + \gamma \, lnFD_{it-1} + \beta_1 In \, Endowments_{it-1} + \beta_2 In \, Inequality_{it-1}$$

$$+ \beta_3 InRemittances_{it-1} + \beta_4 InGDP \, Per \, Capita_{it-1} + \beta_5 InInfalation_{it-1}$$

$$+ \beta_6 InCurrent \, balance_{it-1} + \beta_7 InFinancial \, Openness_{it-1} + u_{it} \qquad (3)$$

$$lnFD_{it} = \beta_0 + \gamma \, lnFD_{it-1} + \beta_1 In \, Endowments_{it-1} + \beta_2 In \, Inequality_{it-1}$$

$$+ \beta_3 In \, Remittances_{it-1} + \beta_4 In \, GDP \, Per \, Capita_{it-1} + \beta_5 In \, Infalation_{it-1}$$

$$+ \beta_6 In \, Current \, balance_{it-1} + \beta_7 InFinancial \, Openness_{it-1} + \beta_8 In \, Trade \, Openness_{it-1}$$

$$+ \beta_9 \{InFinancial \, Openness_{t-1} * InTrade \, Openness_{it-1}\} + u_{it} \qquad (4)$$

Although the formulations are fundamentally similar, (2) includes all explanatory variables of interest while (3) omits *financial openness*. Equation (4) includes the interaction term between *trade openness* and *financial openness*. Testing different formulations is a common treatment in literature, aimed at gauging the sensitivity of results and deriving deeper meaning.

The model was estimated through Generalised Method of Moments (GMM) using the Arellano-Bond (1991) estimator. This method controls for endogeneity and is also

suitable for capturing the dynamic effect of the relationship under investigation. We used the Hansen (1982) test for over-identifying restrictions. The GMM estimator is consistent if there is no second-order correlation in the residuals, and the dynamic panel data model is valid if the estimator is consistent and the instruments are valid (Baltagi *et al*., 2009; Law, 2009).

3.2   Data and sources

Use is made of the World Bank's Africa Development Indicators, available on the World Bank database. For inequality, we utilise an innovative data set, Estimated Household Income Inequality (EHII 2008), which are estimates computed from Deininger and Squire Inequality measures and UTIP-UNIDO pay inequality measures. These measures are similar to the Gini coefficient, and highly correlated to the income share measures of inequality from the World Bank. Our measure of financial openness is *KAOPEN*, obtained from Chin and Ito's (2008) openness index.

Private credit, which is domestic credit to the private sector as a percentage of GDP, is widely regarded as a measure of the efficiency of the financial system in allocating credit (Beck *et al*., 2008). Although alternative derivative measures are used in the literature, *Private credit* is superior, as more efficient financial sectors channel credit to the private sector than to the government-affiliated sector (Levine, 2008).

To identify the determinants of financial development in Africa, we regressed our proxy for financial development on the factors under investigation. In the traditional view, endowments are considered to have more explanatory power than legal origins (Beck *et al*., 2003a).

A proxy for endowments, suitable for dynamic panel estimation, is *Export raw*, defined as 'ores and metals exports as a percentage of merchandise exports' (World Bank, 2013).This measure is readily available for most countries and is a direct proxy for the concentration of natural resources in a country. A country more endowed with natural resources by way of its geography is bound to have attracted settlers who adopted extractive institutions (Acemoglu *et al*., 2001). As a result, if endowments matter for financial development, we expect to find a negative and significant coefficient for *Export raw*.

To measure *inequality*, we employ a fresh data set EHII (2008), which are 'estimates of gross household income inequality computed from a relationship between Deininger and Squire Inequality measures and the UTIP-UNIDO pay inequality measures'. If inequality is indeed a contributor to Africa's financial underdevelopment, we expect a negative and significant coefficient for *inequality*.

The Chin and Ito (2008) KAOPEN index is our measure of financial openness. KAOPEN is a weighted measure focusing on the 'regulatory aspects of capital account openness' (Chin & Ito, 2008, p. 9). It is based on the weighting of four different measures of current and capital account restrictions. If financial openness boosts African financial systems, we expect a positive significant coefficient for KAOPEN, in line with the literature (Baltagi *et al*., 2009).

Trade openness, on the other hand, is proxied by exports and imports (as a percentage of GDP), in line with the literature (e.g., Huang & Temple, 2005). Regimes that are open to trading with the rest of the world will have more volumes of exports and imports flowing across their borders. Their ratio of exports plus imports to GDP will be high. A positive significant coefficient is therefore expected to support the claim that trade openness facilitates financial development (Baltagi *et al.*, 2009).

Remittances was measured as 'workers' remittances receipts as a percentage of GDP' (Gupta *et al.*, 2009). Official records of remittances are likely to represent only a fraction of actual flows from migrants, as research has shown (World Bank, 2006). This implies that our measure for remittances is at best understated, as it captures only those flows finding their way through formal channels. A positive significant coefficient will confirm that remittances contribute to the development of African financial systems.

An important control variable to consider in this investigation is *institutional* development, because of its proposed positive linkages with financial development (Cull & Efron, 2008). According to several studies, *per-capita income* could serve as a good proxy for the general development and sophistication of institutions (e.g., Beck *et al.*, 2011; Djankov *et al.*, 2007).

We expect the coefficient of GDP per capita to be positive and significant, since higher economic development is associated with more rapid financial development (Cull & Efron, 2008).

Many African economies are vulnerable to macro-economic instability which sometimes presents itself as inflationary pressures. Inflation is thus regarded as a suitable control (Ayadi *et al.*, 2013) and is measured by the GDP deflator (World Bank, 2013). The magnitude of the *current account balance* as a percentage of GDP (*cabal*) also signifies the degree of macro-economic stability and is another suitable control variable (Beck *et al.*, 2008; Allen *et al.*, 2012).

Table 1: Summary statistics

Summary statistics: African countries (1984–1995) dataset							
Variable	Source	Unit of measure	Obser vations	Mean	Standard deviation	Min	Max
Private credit	ADI	% of GDP	522	19.04	16.79	0.72	119.34
Export raw	ADI	% of GDP	184	0.50	2.24	0.00	88.81
Trade openness	ADI	% of GDP	543	0.50	0.28	0.05	1.47
Remittance	ADI	% of GDP	254	3.07	4.24	0.00	21.34
GDP per capita	ADI	US$ Per capita	572	839.23	1107.91	54.51	6 355.75
Inflation	ADI	% of GDP	568	90.97	1147.41	-29.17	26 762.02
Current balance	WDI	% of GDP	543	-4.82	9.58	-75.26	31.98
Inequality	E H I I (2008)^	a Gini measure^	221	44.93	5.36	29.03	57.75
F i n a n c i a l openness	C h i n and Ito (2008)	*Kaopen*^^	612	-0.96	0.83	-2.00	2.46

Figure 1 shows the graphical distribution of inequality in relation to financial development, suggesting an inverse relationship. Countries with high inequality tend to have low levels of financial development, while low inequality goes hand in hand with superior financial development.
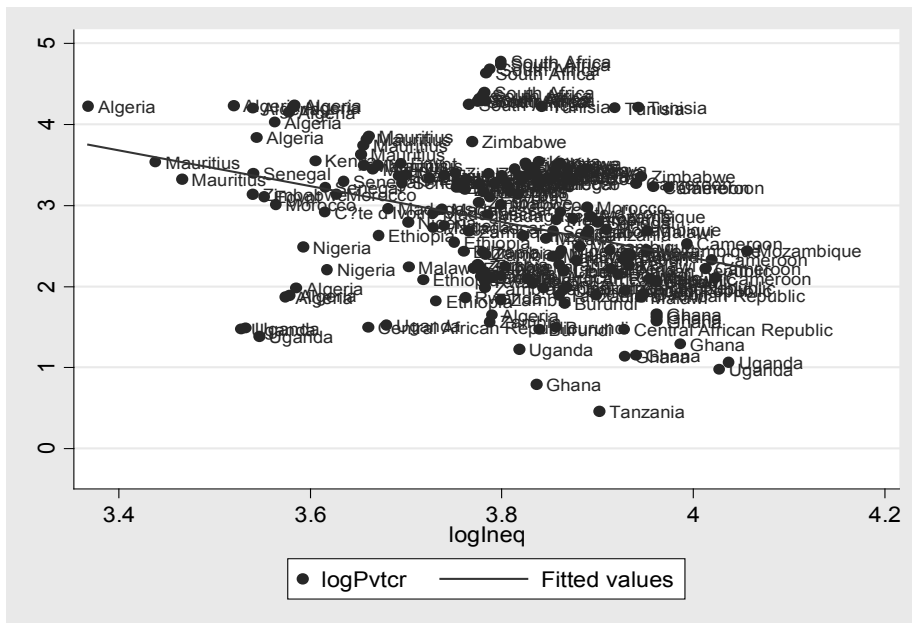
Figure 1: Inequality and financial development – an inverse relationship

Source: Author's own tabulation

The data show that more open countries tend to be more financially developed (see Figure 2). An increase in trade openness tends to favour more rapid financial development, while low levels of trade openness seem to derail financial progress.
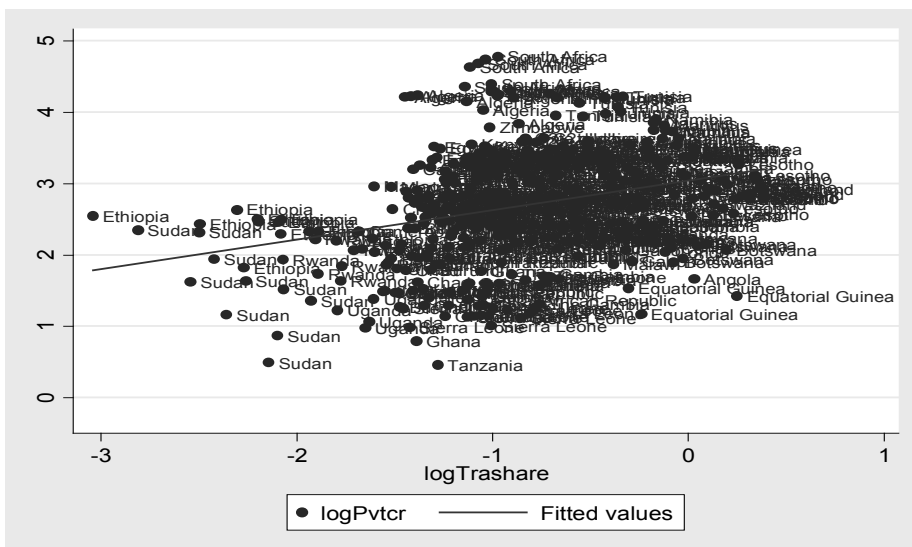

Figure 2: Trade openness and financial development

Source: author's own tabulation

A similar positive relationship with financial development is depicted in *remittances* data (see Figure 3). According to the findings, as remittance increase, financial development increases.
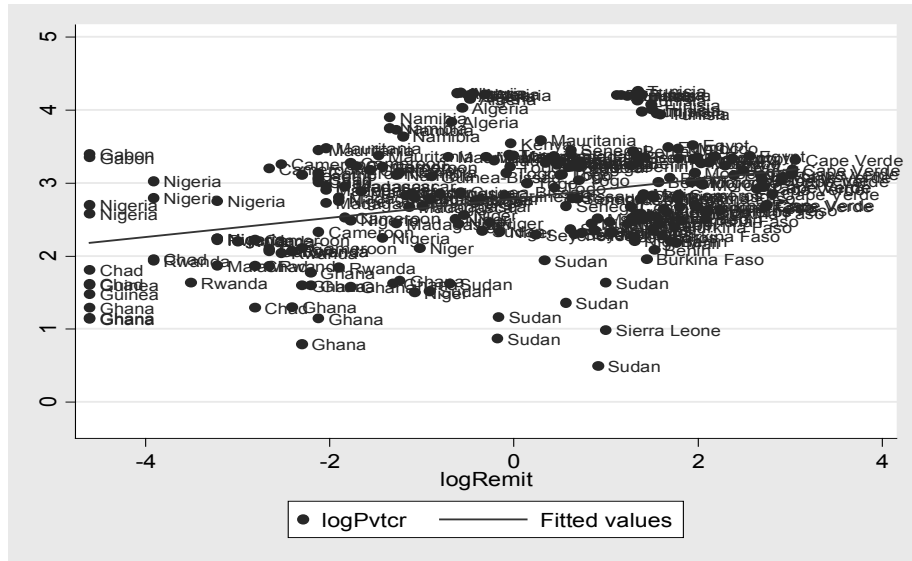

Figure 3: Remittances and financial development

Source: author's own tabulation

4   Results and analysis of findings

Our results (see Table 2) show that endowments do not matter for Africa's financial development (i.e., they are insignificant at all levels). However, inequality is found to hold back financial development on the continent. Trade openness and remittances have a positive impact on Africa's financial systems, whereas limited support was found for the role of financial openness. We used the Hansen test for over-identification restrictions to verify the validity of our results. In all our formulations, failure to reject the null in the Hansen test as well as the second-order serial correlation test implies the appropriateness of our model. A more detailed analysis follows after the results summary below.

Table 2: Summary of results

Determinants of financial development in African countries: Dependent variable *Private credit*			
	Eq. 2	**Eq. 3**	**Eq. 4**
Financial development (*Private credit, lagged*)	-0.961**	-0.585**	-1.578**
	(0.385)	(0.212)	(0.461)
Endowments (*Export raw*)	-0.044	-0.155	0.095
	(0.191)	(0.140)	(0.173)
Inequality	-5.003***	-4.748***	-5.636***
	(1.018)	(1.237)	(1.005)
Remittances	0.758**	0.662**	0.719**
	(0.265)	(0.251)	(0.254)
GDP per capita	4.085**	3.703	3.453**
	(1.600)	(2.057)	(1.387)**
Inflation	-1.838***	-1.555***	-2.754***
	(0.350)	(0.323)	(0.233)
Current balance	-7.037**	-7.091**	-6.988**
	(2.352)	(2.519)	(2.522)
Financial openness (*Kaopen*)	0.142		1.416***
	(0.142)		(0.359)
Trade openness	1.962***	1.593**	2.848***
	(0.417)	(0.595)	(0.481)
Financial X trade openness			0.965***
			(0.250)
Number of time periods (T)	12	12	12
Number of countries (N)	48	48	48
Second order serial correlation test (p-value)	(0.154)	(0.142)	(0.134)
Hensen test for over-identifying restrictions (p-value)	(0.87)	(0.78)	(0.64)

Notes:

1. All independent variables are lagged

2. Regressions are estimated using the Arellano-Bond (1991) estimator

3. Figures in parentheses are standard errors.

4. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

No evidence was found in support of the *endowments view*. This implies that controlling for other factors which are more important to Africa's financial development, renders purely geographical and environmental factors less critical. The limited empirical analysis of the view that geographical or environmental conditions have a bearing on financial development comes from Beck *et al*.'s (2003a)

cross-country analysis. Their heterogeneous sample consists of well-developed countries such as Australia and Canada, and includes much poorer countries such as Tanzania and Zaire. It is possible that sample heterogeneity and failure to control for fixed effects may have distorted the results. The other potential weakness of the Beck *et al.* (2003) study relates to the use of very few control variables, thus leaving room for omitted variable bias (see Beck *et al*., 2003a, p. 156).

We found a strong impact on financial development running from *inequality* (Table 2) at the one per cent significance level in all formulations. This places inequality among the candidates explaining Africa's financial underdevelopment. The results suggest that what is depicted in Figure 1 is a strong inverse relationship, as opposed to mere correlation. The trend indicated therein is that high inequality leads to low financial development, while low inequality favours better financial development (Figure 1).

Using the result of Eq. 4, the coefficient of -5.636 (Table 2) implies that, on average, a one per cent decline in inequality results in a partial increase of 5.636 per cent in financial development, as measured by private credit. Figure 1 shows that in 1984 Uganda was among the most unequal societies, with inequality as high as 56.11. If this country could reduce its inequality to the average of Algeria, i.e., 35, this would represent a 37.6 per cent drop in inequality (35/56.11-1). Based on our coefficient, this decline in inequality will result in a 212 per cent increase in private credit (37.6 x 5.636) – a value increase from 2.65 per cent of GDP (in 1984) to 8.27 per cent of GDP! It follows that the primary emphasis in mainstream economics about GDP growth is mistaken, and that the romanticism about 'Africa on the rise' requires radical reconsideration, as recently argued by Obeng-Odoom (2013; 2014).

While the figures in the present study are approximations, the analysis shows that inequality is harmful to the financial system. Inequality impedes financial advancement by limiting access to finance to a small proportion of the population who have initial personal wealth (Chackraborty & Ray, 2006). The inequality which hitherto existed in the earlier accumulation of assets tends to persist and extend to the use of financial products and systems, to the detriment of overall development.

In general we found limited support for the notion that *financial openness* may assist financial development. This is so because in Eq 2, the coefficient of financial openness comes out insignificantly, while in Eq 4 its coefficient comes out strongly significant. As a result, we cannot confidently claim that financial openness undoubtedly assists development. However, the literature on this matter is also not definitive. The success of financial openness in achieving intended goals depends on the economic environment and the manner in which reforms to open the financial sector are implemented (Stiglitz, 2000). In addition, due to extended periods of repression, it may take time before particular reforms actually bear fruit. In a typical study of Uganda, for instance, Brownbridge (1998, p. 1) found that the 'financial sector reforms of the 1990s are intended to remedy the consequences of the previous two decades of misguided financial policies'. This implies that it may take a prolonged period before the poor financial systems meaningfully respond to financial liberalisation measures (Kose *et al*., 2009).

Evidence on the beneficial effects of *trade openness* is more convincing than that on financial openness. The graphic representation (Figure 2) shows that financial development increases with trade openness. According to that graph, higher trade openness is associated with better financial development. Our results confirm the relationship observed in Figure 2, which shows that countries such as Sudan and Ethiopia could improve their financial development through opening up their borders to trade. Based on the coefficient depicted in Eq. 4, we can say that a one per cent increase in trade openness increases financial development by at least 2.5 per cent. If Sudan were to open up more to trade from 0.11 per cent of GDP in 1984 (by increasing trade flows through removing barriers to match the average value of African countries, which is 0.50 per cent), the commensurate change in financial development (private credit) from its 1984 levels of 11.85 per cent of GDP will rise to at least 110 per cent of GDP. At such levels Sudan would be as financially developed as South Africa, which is regarded as one of the most financially sophisticated countries on the continent (Odhiambo, 2007).

Given the positive role of *remittances*, African decision makers may craft policies that facilitate the channelling of remittances through the financial system. The study confirms the direct relationship shown from the data in Figure 3, where financial development is seen to increase with an increase in remittances. Our results quantify this relationship, to show that a one per cent increase in remittances has a partial positive impact of at least 0.7 per cent on financial development (Eq. 2 to Eq. 4).

This effect likely comes from the role of remittances in stimulating access to financial services by poor people (Gupta *et al*., 2009). The majority of poor lack access to formal financial services, but there is scope that migrant transfers may avail them of banking services (Gulde *et al*., 2006).

5   Conclusions

Financial development is credited for economic growth and development (King & Levine, 1993), hence recent research has focused on its determinants (e.g., Rajan & Zingales, 2003; Baltagi *et al*., 2009). Findings from such studies may assist many developing countries that are yet to reap the benefits of financial development. Africa in particular suffers from a financial development gap (Allen *et al*., 2012), which raises the question of what factors are responsible for holding back Africa's financial systems.

Using dynamic panel analysis, this study evaluated the determinants of financial development in Africa by investigating the impact of endowments, inequality, openness and remittances on the continent's financial systems, while controlling for macro-economic and institutional factors. The GMM Arellano-Bond (1991) estimator, used in this research, is the appropriate choice in an investigation of a dynamic relationship, with explanatory variables that are not strictly exogenous.

No evidence was found in support of the traditional endowments theory in the African context, in line with Allen *et al*.'s (2012) suggestion that traditional

theory fails to explain the continent's stunted development. The research found that inequality has a direct causal impact on financial development, and holds back African financial systems.

Financial and trade openness both have a positive impact on financial development. The individual support for financial openness was partial. Trade openness has a greater impact on financial development than financial openness on its own, while opening both current and capital accounts is more beneficial. This implies that prioritising trade and financial openness is likely to pay dividends for African countries that embark on it, although the benefits may be indirect and only evident in the long term (Kasekende, 2001; Kose *et al.*, 2009).

The impact of the increasing volume of remittances to Africa on the financial system is positive and significant. Whereas remittances are found to boost financial development, it is possible that many of the benefits are not being harnessed, as research shows that a large volume of remittances is not channelled through the formal sector (Gupta *et al.*, 2009). For instance, Ghana receives only 65 per cent of its total flows through the formal system, according to calculations by Mazzucato *et al.* (2004).

The accrual of earnings by migrant workers in small amounts at a time, along with the relatively high transactions fees charged by banks, contribute to this outcome (Adaawen & Owusu, 2014). This implies that policies to formalise and account for this flow will reap benefits for most African countries.

As a matter of policy, African development leaders should focus on reducing inequality, not only for its good moral and social welfare effects, but also to stimulate financial development. In addition, policies that encourage the channelling of remittances into the formal sector are most desirable. As a stimulus for this, measures should be taken to reduce the cost of transmitting funds through local banking systems.

Future research should attempt to corroborate the finding that endowments do not matter in African financial system development and should empower policymakers with knowledge on how to implement effective financial reform practices that are suited to their particular contexts. In addition, more research could also focus on mechanisms aimed at enhancing the effectiveness of trade openness in boosting financial system development in African countries.

Biographical note

Michael Gwama was a UK Chevening Scholar (2012–2013) at the University of Manchester's Institute for Development Policy and Management (IDPM), where he graduated with distinction, with an MSc in Development Finance. He is a qualified chartered management accountant and associate member of the Chartered Institute of Management Accountants (UK). He earned his BSc from Oxford Brookes University (UK) with first class honours. Michael is currently employed at Barclays Bank Zimbabwe, in the risk management division. This research is undertaken in his personal capacity and does not represent the views of any organisation. He can be contacted at michael.gwama@gmail.com

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Appendix 1: List of countries in analysis

Country name	Country name
Algeria	Libya
Benin	Madagascar
Botswana	Malawi
Burkina Faso	Mauritania
Burundi	Mali
Cameroon	Mauritius
Cape Verde	Morocco
Central African Republic	Mozambique
Chad	Namibia
Comoros	Niger
Congo, Dem. Rep.	Nigeria
Congo, Rep.	Rwanda
Cote d'Ivoire	Senegal
Egypt, Arab Rep.	Seychelles
Equatorial Guinea	Sierra Leone
Ethiopia	South Africa
Gabon	Sudan
Gambia, The	Swaziland
Ghana	The Gambia
Guinea	Togo
Guinea-Bissau	Tunisia
Kenya	Uganda
Lesotho	Zambia
Liberia	Zimbabwe