
Does Institutional Quality Influence Financial Deepening In Selected African Countries?

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Abstract

This study finds new evidence that institutional quality matters in determining cross-country variation in financial deepening in Africa. Using the system-generalised method of moments (sys-GMM) technique on a sample of 35 African countries from 2005 to 2018, the study finds that: (1) while macroeconomic stability is vital for promoting financial deepening, it is not sufficient. Strong institutional quality, such as good governance systems, play a huge role in fostering financial deepening in African economies, and in determining cross-country variations, and (2) fiscal deficits or widespread financial indiscipline have constrained credit provision in Africa resulting in high cost of borrowing and crowding-out the productive private sector. Therefore, this study concludes that deepening financial markets will require prioritising institutional policy reforms aimed at fostering accountability, sound, and effective financial regulatory frameworks, honour the rule of law, control corruption, and rent-seeking behaviour.

Keywords: Macroeconomic and financial stability, financial deepening, institutional quality, Generalised methods of moments, inflation, fiscal deficits.

1. Introduction

1.1 Background

Why should we care about financial development? There are various reasons why deeper financial development—the increase in deposits and loans but also their accessibility and improved financial sector efficiency and stability—is important for sustainable economic growth and development in Africa and the world at large (Mlachila et al., 2016).

Financial development increases the supply of capital and enables the allocation of financial resources to investment and other productive activities, for example, by providing start-up capital for growth-oriented businesses. This in turn contributes to a more efficient allocation of resources and innovation and increased overall productivity over time. Moreover, it supports the creation of a larger variety of products and services, improves the management of risks, makes payments easier, and provides information that helps consumers and businesses cope with adverse events (Mlachila et al, 2016).

Financial-sector policies have become a centrepiece in the debate on how to foster inclusive and sustainable economic growth in developing countries and promote shared prosperity. Besides, it is well-established in a large body of literature that, after controlling for causality, financial development increases a country's resilience and boosts economic growth¹ (Demetriades and Andrianova 2004; Goodhart, 2004; Levine, 2005). There is no need for complex analysis to see what is evident. All advanced economies have developed financial systems in common. The frontier of the literature in this field is, therefore, shifting towards providing answers to the question of what determines cross-country variations in financial deepening.

Given the central importance of financial sector development, particularly financial deepening in building shared prosperity, the superficiality of the African financial system is a major concern. World Bank (2016) defines financial depth as the size of banks, other financial institutions, and financial markets in a country, taken together and compared to a measure of economic output. A proxy variable that has received much attention in the empirical literature in this regard is private domestic credit relative to gross domestic product (GDP). More specifically, the variable is defined as domestic private credit to the real sector by deposit money banks as a percentage of local currency GDP (World Bank, 2016). Private credit, therefore, excludes credit issued to governments, government agencies, public enterprises, and central banks. An alternative financial depth measures used in literature include total banking assets to GDP which includes not only credit to the private sector, but also credit to government and bank assets, and non-bank financial institutions (NBFIs) to GDP (McDonald and Schumacher, 2007). Since this study is focussed on the amount of credit available for productive activities and hence, reflecting the role played by financial intermediaries in channelling savings to private sector investors, financial depth is proxied by the domestic private credit to GDP (World Bank, 2016).

1.2 Institutions and Financial Deepening

Over the recent decades, institution quality has received overwhelming attention as a fundamental source of cross-country variation in financial deepening. Since at least the seminal works of Williamson (1985), North (1990), and, more recently, Acemoglu, Johnson, and Robinson (2005), institutions have been identified as the fundamental cause of long-run economic growth through financial development.²

Broadly defined, institutions are the 'rules of the game in a society, or, more formally, are the humanly devised constraints that shape human interaction. In consequence, they structure incentives in human exchange, whether political, social, or economic' (North, 1990, p. 3). Institutions can be formal or informal. Formal institutions include constitutions, contracts, and forms of government, while informal institutions include traditions, customs, moral values, taboos, and religious beliefs (North, 1990, 1991; Lowndes, 1996; Pejovich, 1999). Under such a broad definition, it is hardly controversial that institutions matter for development.

¹ hypothesized by Schumpeter (1934) and supported by King and Levine (1993) with numerous papers thereafter

² See also the massive volume by Menard and Shirley (2005) for a review of the New Institutional Economics literature developed in the last 40 years.

Nonetheless, going back at least to Adam Smith, economists have paid special attention to a particular set of institutions, most notably, the rule of law and the degree of property rights enforcement as well as the constraints on the actions of powerful groups, including the state (Fergusson, 2006). These institutions generate incentives and opportunities for investment and can therefore spur or hinder economic growth.

Fundamentally, in North's (1990) framework, institutional quality improves with the limitations imposed on executive power. Such limitations may be either formal rules or informal constraints and their strength is shaped by the characteristics of enforcing them. The idea being that limitations to executive power reduce the de jure position of a country's executives to put themselves above the law. This as a result ensures individuals, entrepreneurs and challengers of the economic system are protected by the law in their ventures and investments in human and physical capital as well as new technological endeavours. Bruinshoofd (2016) argued that these endeavours are crucial for two main reasons; i) to speed up the widespread adoption of frontier technology available elsewhere and ii) to push out the technological frontier by investing in research and development, particularly in disruptive technologies. Due to the nature of such endeavours, particularly that they are highly uncertain and disruptive in character, Bruinshoofd (2016) noted that they are a challenge to those in positions of formal and informal power, and be it political or economic. Therefore, the need for sufficiently high-quality institutions to ensure that challengers and incumbents receive equal legal protection.

As surveyed in the literature, institutional quality consists of a broad range of factors, some of which can be hard to measure. For the sake of objectivity and replication, the study based the institutional quality indicator on publicly available data on political, legal, and economic institutions that is as much as possible objectively assembled. To this end, the institutional quality was constructed from the seven variables obtained from the World Bank's Governance Indicators. Scholars such as Easterly and Levine (2003), IMF (2003), Kuncic, Fabro and Aixalá (2013), and more recently Bruinshoofd (2016) have all used the World Bank Global Governance Indicators (WGI). The institutional quality was proxied therefore by the following six key dimensions from WGI:

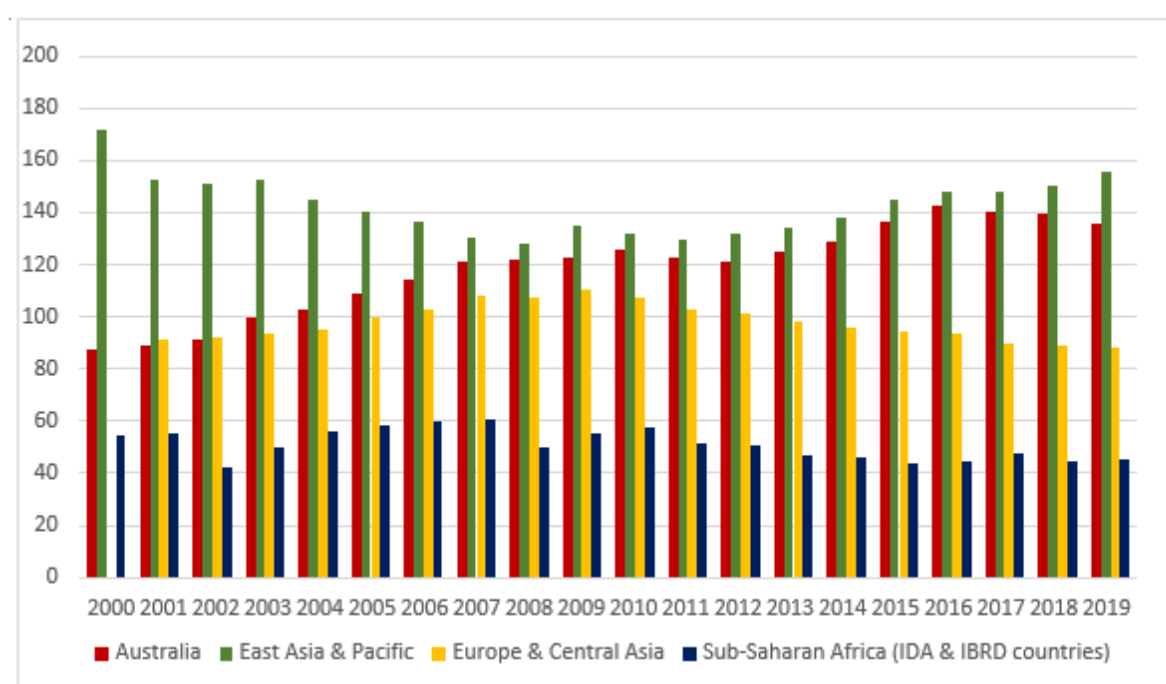
- i. Voice and accountability: capturing the extent to which a country's citizens can select and challenge its government, thus limiting executive power;
- ii. Political stability and absence of violence: the lower the probability of political instability and/or politically motivated violence, the more a country's citizens are incentivized to invest in their prosperous future (for example, Alesina et al., 1996);
- iii. Government effectiveness: capturing the quality of public services and the degree of its independence from political pressures, thus fostering a benign context for private investment;
- iv. Regulatory quality: the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development, thus laying down uniform rules of economic engagement;
- v. Rule of law: captures particularly the quality of contract enforcement, property rights, the police, and the courts, that is, the enforcement of the rules of society; and

- vi. Control of corruption: the stronger is control of corruption, the more economic success is a function of effort and competence, rather than connections and bribery.

These dimensions are highly correlated with each other, therefore, to produce unbiased results – this study developed a composite institutional quality index to measure institutional quality.

Strengthened by an extended wave of reforms over the past decades, Africa has recorded appreciable progress in liberalising the financial markets. However, both financial deepening and institutional quality development are relatively low compared to the rest of the world, and for some countries have deteriorated. Using the IMF, International Financial Statistics data from 2000 to 2019, Figure 1 below shows variations in financial deepening for selected regions as measured by the ratio of domestic private credit to GDP. The ratio of private credit to GDP since 2000 averages 50 percent in Sub-Saharan Africa, nearly one-third the average ratio for East Asia and Pacific, and 118 percent in Australia.

Figure 1. Private credit across regions

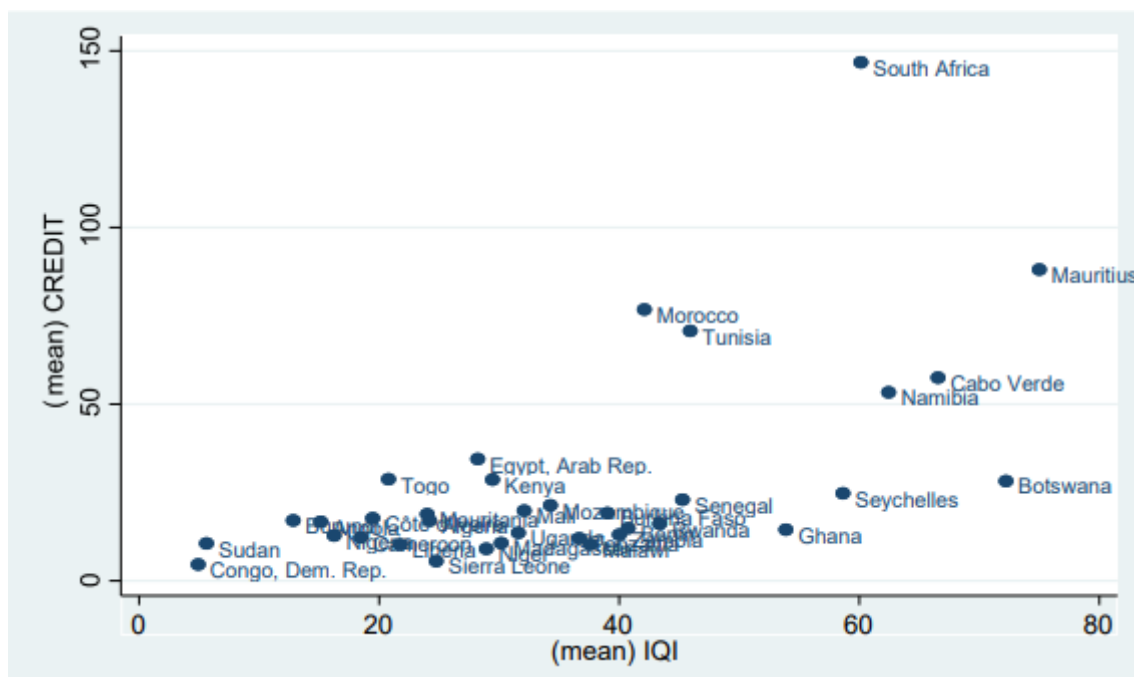


Source: IMF, International Financial Statistics and author's calculations.

Much of the variation in the amount of domestic credit to the private sector can be fundamentally explained by the weak institutional quality in Africa, as measured by the data from the World Bank's Worldwide Governance Indicator for which average indices from 2005 to 2018 for selected countries is shown in Figure 2. On a scale that has been normalised to give a worldwide average of zero and a standard deviation of one, the African countries in the sample have an average institutional quality score of - 0.5. A deep dive into cross-country assessment unmarks significant variations, for instance, Figure 2 indicates that only South Africa, Mauritius, Namibia, Ghana, Cape Verde, Seychelles, Ghana, and Botswana are above both African and worldwide average while countries like Nigeria, Cameroon, Angola, Togo, Kenya, and Zambia to mention but a few are below the African average. Moreover, the scatter

plot shows that there is a moderate positive correlation between institutional quality and financial deepening – and as institutional quality improves, the relationship between financial deepening and institutional quality becomes non-linear. The figure points to the key observation that the relatively poor quality of institutions is associated with low levels of financial deepening in most of the African countries.

Figure 2. Private credit and institutional quality index in sampled countries



Source: World Bank's Worldwide Governance Indicators, IMF, International Financial Statistics, and author's calculations.

Although institutional quality is a composite of many intercorrelated dimensions, the low score for most of the African countries captures many aspects of a weak institutional framework: weak creditor rights, corruption, weak regulatory quality, lack of transparency and accountability, and government ineffectiveness (McDonald and Schumacher, 2007; World Bank, 2016).

1.3 State of Financial Deepening in Africa

In most African countries, financial deepening has progressed over the past four decades. However, except for the region's middle-income countries, both financial markets and financial institutions are less developed than in other developing regions (Mlachila et al., 2016). For the developing world, banking is at the heart of their formal financial systems and Africa is no different, so measures of bank depth are the natural place to begin.

1.3.1 The Banking System

The banking system dominates the financial landscape in most African countries and accounts for the biggest share of assets, except for middle-income countries. For instance, nonbank assets account for more than 50 percent of financial sector assets in Lesotho, Namibia,

Swaziland, and South Africa (IMF, 2016). A closer interrogation of the structure within the banking system indicates that in many countries, banks are predominantly foreign-owned – these account for the major share of assets across all country groups, particularly in lower-income countries such as Guinea, Guinea-Bissau, Madagascar, São Tomé, Príncipe, and Zambia (IMF, 2016). Studies have also shown that in these countries, banks operate very profitably, with subsidiaries of foreign banks in Sub-Saharan Africa having higher returns on assets than subsidiaries of the same banks in other regions (Honohan and Beck, 2007).

Studies by Hauner (2006) and Montiel (2003) have shown that large government bank borrowing could harm financial development through the structural characteristics of the banking sector. More specifically, Hauner (2006) found that large public sector credit could raise bank profitability at the expense of lowering efficiency. This results not only in the reduction of the general quality of financial development but also undermines financial deepening in the long run because inefficient banks mainly invested in relatively profitable public sector credit tend to have little drive to develop the banking market under the often difficult circumstances in developing countries, Hauner (2006) argued.

Hauner (2006) noted that banks that lend mainly to the public sector could be more profitable if market distortions result in an insufficient interest rate premium on private sector lending.

One such distortion is that banks would not want to lend to borrowers willing to pay interest rates above a certain level due to adverse selection (Stiglitz and Weiss, 1985). Other such distortions are interest rate ceilings on deposits or collusion among banks that can result in an interest rate level that is too high relative to the return on most private sector projects.

These distortions could result in a segmented credit market. Because the private sector would not be allowed or would not be able to pay the required premium over public sector credit, banks would first lend whatever they can to the government and only the remainder to the private sector. Certainly, while financial repression has been declining in many African countries (Reinhart and others, 2003), continued large public sector bank lending suggests a preference on the banks' part (Kumhof and Tanner, 2005).

1.3.2 The Non-Banking System

Within the non-bank financial sector, pension funds in Africa contribute most significantly to the systems' assets, while stock exchanges are generally underdeveloped and illiquid accounting for less than 60 percent of the region's countries (Mlachila et al., 2016). Despite the nonbanking sub-sector controlling relatively small resources of the formal financial system, there exists significant variation among African countries revealing the potential for improvement in those that lag. This characteristic again is typical of low-income countries in general and not specific to Africa.

Honohan and Beck (2016) note that non-bank financing can offer a range and variety of services that are not part of the standard product range of banks. Furthermore, a strong non-bank sector can also provide competition for banks. Financial systems in the advanced market economies are characterized by a very diverse array of institutions and markets offering a

variety of products and services. Apart from banks, this array includes capital markets, with both equity and debt securities and contractual savings institutions, such as insurance companies, pension funds, and mutual funds.

Although financial markets are still generally nascent in many African countries (with the few exceptions of South Africa, Mauritius, Botswana, Nigeria, and Ghana among others), some positive developments deserve acknowledging. Despite government securities (both treasury bills and treasury bonds) dominating the local debt markets, there is a gradual increase in project bonds that finance infrastructural investment (IMF, 2016). Another favourable trend is that the share of marketable instruments is growing, as compared to the non-marketable debt, allowing countries to establish more liquid benchmarks for future corporate debt instruments issuances. The maturity of instruments has considerably increased on average, and in countries such as Benin, Burkina Faso, Kenya, Mali, Tanzania, and Zambia, debt instruments with maturities longer than 10 years became recently common.³

Financial development in Africa has been supported by the banking and non-banking financial sectors. For instance, in Botswana, a multitude of financial institutions exist, and the Botswana Stock Exchange's share and institutional investors' share in the financial system have both grown rapidly in the first decade of the millennium (World Bank and IMF, 2008). Similarly, in Namibia, both the banking sector and non-financial institutions have grown rapidly over the past years, with pension funds and insurance companies combined exceeding the share of commercial banks in total financial assets (Marchettini, 2015; IMF, 2007).

1.4 Statement of the Problem

Despite the importance of financial deepening in Africa, empirical evidence on the effects of institutional quality in determining the variations in financial deepening across countries remains elusive. Although the legal system and political institutions variables are correlated with the quality of institutions (Zingales 2003), little, if any, direct evidence has confirmed that institution quality determines the variations in financial deepening.

The importance of understanding the determinants of financial deepening cannot be overemphasized, because there is a large body of theoretical and empirical work showing that financial deepening is not simply a consequence of development. Rather, differences in the level of financial deepening can have a large effect on subsequent growth (Levine, 1997, 2005). Therefore, there are reasons to suspect that one of the channels whereby better institutions may affect economic development is through the consolidation of larger and better financial markets. This raises the fundamental question of whether institutional quality determines cross-country variations in financial deepening. This study, therefore, seeks to examine the effects of institutional quality in determining the variations in financial deepening across African countries.

The study adds to the growing body of knowledge in three ways. Firstly, it explores the institutional quality financial deepening nexus using African country data that has not been used before in examining the role of institutional quality on financial deepening. Secondly, the

³ IMF, Financial Development in Sub-Saharan Africa, 2016

empirical approach involved regressing the most important indicator of financial deepening with regards to the African context—domestic private sector credit—on institutional quality conditioned on variables recommended in the related literature. However, the institutional quality variable is likely to be endogenous, possibly because of feedback from financial deepening to institutional quality or because of common effects of omitted variables on both financial deepening and institutional quality. Therefore, this study employed Generalised Method of Moments (GMM) estimations to deal with endogeneity. Last but not the least, the thesis also contributes to the literature by allowing the relationship between institutions and financial deepening to be nonlinear.

1.5 Objectives of the Study

The objectives of the study are:

- i. To investigate the effect of institutional quality on financial deepening.
- ii. To establish the effect of institutional quality in determining variation in financial deepening in countries with distinct inflation levels.
- iii. To establish the effect of fiscal deficit on financial deepening.

1.6 Hypothesis Statements

The study will test the following null hypotheses based on the above-stated objectives.

- i. Ho: Institutional quality does not influence financial deepening.
H1: Institutional quality influences financial deepening.
- ii. Ho: In countries with low inflation, institutional quality does not have a relatively large effect on financial deepening.
H1: In countries with low inflation, institutional quality has a relatively large effect on financial deepening
- iii. Ho: Fiscal deficits do not crowd out private sector investment.
H1: Fiscal deficits crowd out private sector investment.

2. Literature Review

2.1 Theoretical Literature Review

This sub-section presents a summary of theoretical literature underpinning institutions and financial development. A growing strand of literature, most notably represented by La Porta et al (1997a, 1998, and 2000) and surveyed by Beck and Levine (2003) emphasises the importance of the legal framework for financial development.

It has long been recognised that complex and risky transactions such as financial contracts require a third party that specifies property rights and enforces contracts, thereby constraining opportunism, shirking, and cheating behaviour (North, 1989). Financial contracts are usually complex arrangements that try to foresee numerous contingencies and include various types of restrictive covenants. However, it is virtually impossible to anticipate all possible states of the world and the different types of opportunistic behaviour that the parties may engage in. In this context, institutions – mainly in the form of legal rules and unbiased arbitrators – have an important role to play in specifying property rights and protecting parties at disadvantage, and

enforcing previously agreed-upon contract terms (Fernández and Tamayo, 2015). The role of these two types of institutions in shaping financial markets is the subject matter of an established strand of the literature referred to as ‘law and finance’.

As Beck and Levine (2003) put it, there are two parts to the law and finance theory. The first one holds that financial development is higher in countries where legal systems enforce private contracts and property rights and where creditor rights are protected. The second part traces the international differences in legal rules and the quality of their enforcement to the origin of the legal system. It can be noted however that both the parts of the literature are intertwined because of causality issues. By tracing the origin of the differences in legal institutions, the second part of the law and finance literature seeks for an instrument that might serve to disentangle the causal effect of legal institutions on financial development that the first part attempts to establish.

The informal institutions theory posits that trust increases people’s perception that others will cooperate. Thus, trust can be important for ensuring cooperation between people who encounter each other infrequently. This implies that trust is especially important to support cooperation in large organizations, such as the government and large firms (La Porta et al, 1997b), or simply in large markets. Fergusson (2006) notes that a financial contract involves an exchange of a sum of money for a promise of more money in the future that can only take place to the extent that the financier trusts the borrower. Adequate enforcement of formal contracts and additional clauses such as collateral requirements may give credibility to such promises. Therefore, trust is especially important when legal institutions are inadequately designed or enforced. Nonetheless, because of the incompleteness of financial contracts, even under perfect enforceability, one should expect a positive association between the size and efficiency of financial markets and the level of trust (Guiso et al., 2000; Calderón et al., 2001).

Another important strand of research that has also enhanced the understanding of the emergence of particular institutions is best exemplified by Engerman and Sokoloff (1997) and Acemoglu et al. (2001, 2002a). In trying to explain the divergent paths of development between North and South America, Engerman and Sokoloff (1997) examine the impact of initial endowments on the formation of institutions that influence economic development. More specifically, they emphasize the role that the degree of inequality in wealth, human capital and political power plays in shaping economic institutions.

The basic argument is that societies that began with more inequality developed institutions that persisted over time and favoured the elite instead of the bulk of the population. Inequality, in turn, stemmed from differences in initial factor endowments between colonies. Areas with a large concentration of natives and with soil suitable for sugar and other plantations generated inequality and encouraged ‘bad’ institutions.

Acemoglu et al. (2001, 2002a) also focus on initial conditions and their effect over initial institutions as a fundamental explanation for the divergent paths of development of former European colonies. The basic building block of their hypothesis is that Europeans pursued different colonization strategies and thus established very different institutions in various colonies. At one extreme, Europeans established ‘extractive’ institutions with little concern for

private property and mostly intended to transfer wealth to the colonizer. In other colonies, they settled and tried to replicate European institutions which emphasized private property and constraints on the actions of powerful groups, especially the state. These institutions persisted over time and explain the differential paths of growth followed by former colonies.⁴

2.2 Empirical Review of Literature

Several studies have examined the determinants of cross-country variation in financial deepening, and financial development as a whole in the context of African countries and the world at large. The thesis attempts to explore relevant empirical literature in this space.

Abdullahi (2013) investigated the role of financial liberalisation in promoting financial deepening and economic growth in Sub-Saharan African countries (SSA) using the dataset which covered 21 countries in Sub-Saharan Africa over the 1981–2009 period. He applied the more efficient system GMM estimator in dynamic panel data that combines the first difference and an original level specification to deal with the problems of weak instruments. He found that financial liberalisation does indeed impact positively on financial deepening and resource mobilization in the SSA region, after controlling for key structural factors such as governance and institutional quality, and macroeconomic factors such as fiscal imbalances and inflation. The study reported a stronger reforms effect for countries that have stronger legal institutions, protection of property rights and higher human capital. Policy-wise, the study found that institutional and human capital factors are important in explaining growth and financial development.

Nguena and Abimbola (2013) investigated the implication for financial deepening dynamics of financial policy coordination in the WAEMU sub-region. Their study adopted a hypothetical deductive theoretical approach and an empirical investigation in both static and dynamic panel data econometrics that allowed them to identify some stylized facts on financial deepening in the WAEMU region. Their results highlighted three factors of financial deepening in the WAEMU Sub Region, namely, savings rate, GDP per capita growth rate, and population density. Regarding the dynamics, they concluded that there was a convergent dynamic which means that a high or lower initial level of financial deepening is favourable to the improvement of the financial deepening index over time in the WAEMU zone. On a developmental note, the study used average data instead of annual data. The use of annual data could have been interesting for further convergence analysis to avoid short-term disturbance according to GMM estimation theory.

Allen, Carletti, Cull, Jun, Qian, and Senbet (2010) conducted a cross-section approach study to examine the factors that are associated with financial development in selected African Countries for the period 1995 – 2007 and compared with those in other developing countries. The study found that natural resource intensity is linked to lower levels of financial development in Africa and elsewhere, consistent with the notion of a resource curse (or, more

⁴ There are several explanations for the persistence of institutions. Most importantly, institutions affect the allocation of economic and political power within a society and thus may create the conditions for their own reproduction. For a discussion on the reasons leading to institutional persistence in former colonies, see Acemoglu et al. (2001).

charitably, that broad-based banking systems are unlikely to develop in economies dominated by a small number of large firms in extractive industries). In contrast, the study revealed that population density appears to be more important in Africa than elsewhere, and the firm-level study indicated that population density is linked more to bank branch penetration in Africa than in the rest of the developing economies. Furthermore, the study indicated that inflation and the current account balance explained no variation in African financial development though they did in other developing countries. They concluded that natural resources endowment is associated with a lower level of financial development in Africa, but macro policies do not appear to be an important determinant

McDonald and Schumacher (2007) investigated the role of creditor rights and information sharing in explaining why some financial markets in sub-Saharan Africa have remained shallow. They estimated the impact of legal institutions and financial liberalisation reforms on financial development by using panel data of 37 SSA countries and three data points, constructed as averages using the unbalanced panel. The paper found that in countries with similar financial liberalisation efforts, those with better legal institutions have on average outperformed the others. The countries with superior legal institutions performed better by reducing information asymmetries, honouring the rule of law, and having relatively more efficient judicial systems. Further, as suggested by the excess liquidity observed in SSA banks, the paper found that fiscal deficits do not seem to have been an obstacle to financial deepening in the recent past. Similar findings were reported by Galindo and Micco (2001) in cross-sectional regressions of Latin American countries.

Most SSA countries got their independence in the 1960s and immediately afterwards they started to build their own social and economic institutions and put together policies to accelerate their economic prosperity. The region witnessed rapid economic development from the mid-1960s to the early 1970s. Financial sectors operated under tight controls and investment was often directed into state-owned enterprises or 'strategic' sectors (Osman, Alexiou, Tsaliki, 2011). The state's growing role in the economy was boosted by a big expansion of social services, as post-colonial governments focused on narrowing the rural-urban income gap inherited from colonial times. The oil-price shock in the 1970s and the debt crisis in the early 1980s exposed dramatically the structural economic and political weaknesses of SSA countries (Osman, Alexiou, Tsaliki, 2011). As a result, during this period the countries of the region witnessed deterioration in their economic performance, sharp accumulation of external foreign debt and persistent corrosion in trade terms. In the second half of the 1980s, many SSA countries have started to implement economic reforms by introducing belt-tightening policies such as devaluation, reduction in budget deficits, abolishment of food, utilities and transport subsidies, etc. Many countries tried for quick results, but due to the lack of efficient political and economic environments, the outcomes of their applied policies were weak and, at the same time, triggered domestic and neighbouring conflicts (African Development Report, 2006).

In the case of financial development, a noteworthy example establishing the importance of political incentives is Rajan and Zingales' (2003) study of financial development in the 20th century. These authors argue that a more efficient financial system could hurt incumbent firms

and financial institutions by facilitating entry and lowering profits. Hence, incumbents with political power may not support policies and institutional reform leading to financial development, despite their positive effect on social welfare. But under what circumstances are incumbents more inclined to favour financial development? Rajan and Zingales (2003) argue that openness to both trade and capital is important because incumbent incentives are powerfully affected by cross-border competition that they cannot control. As stated above, openness drives down domestic rents by bringing foreign competition to domestic firms. Domestic firms' cash flows are reduced, and they must rely more on external finance precisely at times when they require resources to defend themselves against the competition. In these circumstances, industrial incumbents may ask for government subsidies or press for greater financial repression to channel finance flows their way, instead of promoting reforms that improve the financial system.

3. Methodology and Data

3.1 Methodology

This section presents the empirical methodology and data to investigate the relationship between institutional qualities on financial deepening in selected African countries. Zambia is one of the countries being studied. The research design, theoretical model description and the econometric methodology are presented prior to the description of data type and sources.

Given the importance of the time-series variation in financial deepening in modern times, an empirical investigation into its determinants must be able to account for its variation both across countries and over time. This study, therefore, utilises quantitative panel data techniques using annual data for the period from 2005 to 2018 for a sample of selected 35 Countries (see Appendix 1) for which data was publicly available in the period under consideration.

The econometric methodology adopted is inspired by the work of Dehesa, Druck and Plekhanov (2007) and enriched by considering the stylised facts about financial deepening and institutional quality, that is, the positive correlation and nonlinear relationship that exists as presented in Section one. The econometric method employed to estimate the equation was based on the dynamic panel GMM estimator suggested by Arellano and Bond (1991) and further developed by Arellano and Bover (1995) and Blundell and Bond (1998). The general system GMM model is given by:

$$Y_{it} = \alpha Y_{i,t-1} + X'_{i,t} \beta + u_i + \varepsilon_{i,t} \quad (1)$$

$$\text{such that } E(u_i) = E(\varepsilon_{i,t}) = E(u_i \varepsilon_{i,t}) = 0$$

where, Y_{it} is the vector of dependant variable for country i at time t , for $i = 1, 2, \dots, N$ and $t = 1, 2, \dots, T$. X' is a vector of independent variables and μ and ε are unobservable country-effects and the error term, respectively.

The dependent variable is an institutional quality index. The index is a composite of six indicators namely: (i) voice and accountability, (ii) political stability and lack of violence, (iii) government effectiveness, (iv) regulatory quality, (v) rule of law, and (vi) control of corruption

each represents a different dimension of institutional quality. Langbein and Knack (2010) used a confirmatory factor and path analysis to test both the measurement and causal models of the six Worldwide Governance Indicators (WGI). They found that the WGI indicators appear to measure the same broad concept. In addition, their findings also supported those of other researchers (Easterly, 2002; Al-Marhubi, 2004; Bjornksov, 2006) who have averaged together the six indicators into a single broader index due to the indicators having high inter-correlations. Therefore, in this study, the institution quality indicator was measured by averaging these six indicators.

As discussed under the literature review section, this study includes inflation, the fiscal deficit to GDP ratio, and GDP per capita to control for macroeconomic stability. Inflation is relevant because financial intermediation is based on savings. Higher inflation introduces uncertainty into the trade-off of the present versus the future consumption, and, thus, this would lead to lower savings. Further, the episodes of hyperinflation (over 50 percent a year) were excluded, like the those recorded in Sierra Leone when it was affected by the Ebola virus. This is in line with Cagan (1956) specification. The inclusion of fiscal deficit is meant to control for the impact of the government's financial activities on credit markets. For instance, higher fiscal deficits lead to crowding out private credit. Alternatively, McDonald and Schumacher (2007) observed that fiscal deficits may complement or be inapt to private credit, if banks lend to the government because there is a lack of opportunities in the private sector. This usually occurs when there is a lack of adequate information in the market or weak creditor rights, thus financial institutions perceive borrowers' risks to be so high that private clients are credit rationed. The evidence that African banking systems are prone to excess liquidity (Gulde, Pattillo, and Christensen, 2006) suggests that the second explanation is more likely. GDP per capita and trade openness are included to account for economic volatility given, heavy dependence on imported inputs, and narrow export base of most African economies.

This study also controlled for creditor rights since strong creditor rights facilitate repossession of assets of delinquent borrowers, reduces the cost of monitoring the quality of borrowers' assets, and improves the precision of initial screening of borrowers (Dehesa et al. 2007). The level of protection of creditor rights is proxied by an index of creditor rights published by the World Bank in the Doing Business Report. It takes discrete values from 0 (low protection) to 10 (high protection) and reflects the ease with which creditors can hold of the collateral or the assets of borrowers that have not fulfilled their obligations.

Equation (1) can be redefined and rewritten into the following equation:

$$FD_{i,t-1} = \sum_{j=2}^q \varphi_j FD_{i,t-j} + \sum_{j=0}^q X'_{i,t-j} \varphi_j + v_{i,t} \quad (2)$$

where, FD is financial deepening factor for each country i and time $t - 1$. Eqn (2) is lagged because policy makers react to past values of policy variables. Eqn (2) can be transformed in log form to facilitate regression analysis, as has been used in the literature.

Following the literature, and using current values for the log financial deepening, the empirical model is therefore specified as follows:

$$\ln FDI_{i,t} = \alpha + \tau \ln FDI_{i,t-1} + \beta \ln IQI_{i,t} + \delta CLI_{i,t} + \theta FB_{i,t} + \gamma \ln TO_{i,t} + \mu INF_{i,t} + \lambda \ln Percapita_{i,t} + \pi_i + \varepsilon_{i,t} \quad (3)$$

where, $\ln FDI_{i,t}$ is the logarithm of financial deepening factor for each country i and time t measured by the ratio of domestic credit to the private sector to GDP; $\ln IQI$ is the logarithm of the institutional quality index; CLI is the creditor legal rights index; $\ln TO$ is the logarithm of the trade openness; FB is fiscal deficit; INF is the inflation; $\ln Percapita$ is the logarithm of GDP per capita; and the subscripts i and t index countries and time, respectively. In addition, the specification also contains an unobservable country-specific effect π and error term ε . The signs of the coefficients β , δ , γ and λ are all theoretically expected to be positive. On the other hand, θ and μ are expected to be negative. The key hypotheses can be formalized as, $\beta > 0$, $\delta > 0$, $\theta < 0$, $\gamma > 0$, $\mu < 0$ and $\lambda > 0$.

The model further predicted that the marginal effect of institutional quality will be decreasing in the level of inflation. To test this hypothesis, equation (6) was augmented with an interaction term $IQI * INF$: To determine the marginal effects of institutional quality in the subsamples of low-inflation and high-inflation countries, the estimation will be based on the model (4) below:

$$\ln FDI_{i,t} = \alpha + \tau \ln FDI_{i,t-1} + \beta_1 \ln IQI_{i,t} \text{low_inflation} + \beta_2 \ln IQI_{i,t} \text{high_inflation} + \delta CLI_{i,t} + \theta FB_{i,t} + \gamma \ln TO_{i,t} + \mu INF_{i,t} + \lambda \ln Percapita_{i,t} + \pi_i + \varepsilon_{i,t} \quad (4)$$

where, low_inflation is a dummy variable for countries where the average inflation was below the median for the sample and high_inflation is a dummy variable for the countries with above-median average inflation. The marginal effect of institutional quality index is expected to be significantly higher in the subsample of low inflation economies compared to the subsample of high inflation ones ($\beta_1 > \beta_2$).

Since the study utilised annual data from 2005 to 2018, panel data analysis gives the study the advantage of having time-series acceptable size for analysis, which could not be performed on each of the individual countries. Further, by controlling individual heterogeneity, panel data allows also for more informative data, more variability, less collinearity among the variables, more degrees of freedom, and more efficiency (Baltagi (2005)). The two-step system GMM estimator was selected because of the need to address country-specific effects and simultaneity bias. To explain its application concerning the dataset, consider Equation (3). Arellano and Bond (1991) suggested transforming Equation (1) into a first difference to remove the country-specific effect and using lagged levels of the regressors as instruments to eliminate simultaneity bias. However, several papers have illustrated that this type of modelling strategy may lead to incorrect inferences if the explanatory variables are persistent (Arellano and Bover (1995)). To overcome this problem, Arellano and Bover (1995) and Blundell and Bond (1998) proposed a system GMM estimator in which the level and difference equations are combined. The lagged differences of the regressors are then used as additional instruments for a level equation. They illustrated that this type of modelling strategy can reduce biases and imprecision linked to the

difference estimator. There are two variants of GMM estimators, the one- and two-step estimator. Theoretically, the two-step estimator is more efficient than the one-step estimator because it uses optimal weighting matrices (Law and Azman-Saini (2012)).

3.2 Data

Data is available on the selected 35 countries (see Appendix 1). Data is not available for those countries experiencing civil conflict or inactive members of the World Bank. This explains why the 35 countries were selected for this study. Table 3 describes the variables used and their sources. Financial deepening is depicted by domestic private credit to GDP, which measures claims on the private sector by commercial banks and other financial institutions. Several studies have used this indicator as a measure of financial depth including McDonald and Schumacher (2007) and Dehesa et al. (2007), among others.

Table 3. Variable definitions and Sources

Variable	Source	Description
Domestic Credit to GDP	IMF, International Financial Statistics	The ratio of credit from deposit-taking financial institutions to the private sector to GDP is expressed as a percentage.
Institutional quality index	World Bank's Worldwide Governance Indicators (WGI)	An index of voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption.
Fiscal Balance to GDP	IMF, International Financial Statistics	Total general government revenues minus total general government expenditures to GDP expressed as a percentage.
Trade openness	World Bank, National Accounts	Sum of exports and imports of goods and services measured as a share of GDP.
Creditor Rights Index	World Bank, Doing Business	Sum of the extent of disclosure index, the extent of director liability index and ease of shareholder suits index.
Inflation	IMF, International Financial Statistics	The consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.
Gross Domestic Product Per capita	World Bank, National Accounts data	GDP per capita is the gross domestic product divided by mid-year population.

4. Empirical Results

The system GMM panel regression model (4) above generated results presented in Table 4. Table 4 Column [A] shows the results from the baseline model, while columns B and C are those in sub-samples of high inflation and low inflation countries, respectively. From the baseline model, the lagged dependent variable is statistically significant, which implies that the two-step system GMM is an appropriate estimator, and the empirical results can be relied upon for statistical inference.

Table 4. Two-step System GMM Estimates

	(A) Baseline	(B) High inflation	(C) Low inflation
Dependent variable	logFD	logFD	logFD
L.logFD	.569*** (5.03)	.706*** (7.68)	.732*** (6.09)
logIQI	.087* (1.81)	.096* (1.81)	.111** (2.16)
INF	-.009** (-2.43)	-.008*** (-6.77)	-.003 (-0.15)
CLI	.003 (0.10)	-.016 (-0.50)	-.016 (-0.92)
FB	-.013*** (-2.60)	-.003 (-0.40)	-.012** (-2.57)
logT_O	.112 (0.61)	-.054 (-0.25)	.079 (0.58)
logperCapita	.109* (1.75)	.136** (2.43)	.061 (0.82)
Constant	-.239 (-0.39)	-1.332 (-0.18)	-.215 (-0.67)
Number of obs.	466	220	226
Time dummies	Yes	Yes	Yes
F Statistic	74.883	130.04	139.77
AR(1)	0.016	0.005	0.012
AR(2)	0.263	0.674	0.324
Hansen test	0.788	0.619	0.444

Note: Robust options used; t-statistics in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ indicate significance at 1%, 5% and 10% respectively. Estimations are done using xtabond2 routine in Stata. Source: Authors' computations.

Table 5. Long run Results – Log FD as Dependent Variable

Variables (Independent)	Coefficient
logIQI	.202* (1.80)
INF	- .020*** (-2.43)
FB	-.003** (-2.60)
logperCapita	.253** (1.75)
Constant	-.239 (-0.39)

Note: Robust options used; z-statistics in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ indicate significance at 1%, 5% and 10% respectively.

Source: Author's calculations

Estimation results summarised in Table 4 support the key hypotheses. Column A reports the short-run results obtained by the two-step system GMM model for 466 observations estimated using equation (4) but without the interaction term. The coefficient of institutional quality has an expected sign with a coefficient of 0.087 and is statistically significant at 10 percent. The findings indicate that a one percent increase in institutional quality, all things equal, increases financial deepening by 0.087 percent.

In terms of control variables in the financial deepening model specification, the coefficient of real GDP per capita is positive as expected with a coefficient of 0.109 and a statistically significant determinant of financial deepening at 10 percent. In contrast, the coefficient of fiscal deficit to GDP and inflation are negative with coefficients of 0.013, and 0.009 respectively and significant determinants of financial deepening. This is consistent with the key hypothesis and coefficients are of expected signs. Trade openness and creditor legal rights are both positive as expected but statistically insignificant determinants of financial deepening in the short run. The insignificant results of trade openness may be due to the measurement used in the study, which was the sum of exports and imports divided by GDP⁵ considering that the economic structure of most of the African economies where major economic activities are controlled by foreign entities. Further, strengthening credit legal rights makes an important contribution to the availability of credit but may not have any significant impact on financial deepening due to the risky environment.

The Hansen J-test did not reject the over-identification restrictions. As expected, the null hypothesis of the absence of the first-order serial correlation (AR1) was rejected, but the null hypothesis of the absence of the second-order serial correlation (AR2) was not, implying that the model is correctly specified.

⁵ For further discussion on measuring trade openness, see Squalli and Wilson (2011).

Turning the attention to results of subsamples, Columns B and C examine the marginal effects of key variables in the subsamples of high-inflation and low-inflation countries by estimating the equation (4). The estimation results presented in Columns B and C are consistent with the key hypothesis and are of expected signs. In the subsample of low inflation countries, institutional quality has a relatively larger coefficient (0.11) than 0.096 in sub-sample countries with high inflation. A one percent increase in institutional quality increases financial deepening by 0.11 percent in countries with low inflation as compared to 0.096 percent in countries with high inflation, all things equal. Further, the coefficients of institutional quality in both subsamples are statistically significant at 10 percent.

The long-run results in Table 5 are broadly similar to those reported in Tables 4. Like in short run, institutional quality has a positive effect on financial deepening as expected and consistent with main hypotheses. Simply put, a 1 percent increase in institutional quality increases financial deepening by 0.202 percent in the long run, all things equal. Further, institutional quality has relatively a large coefficient in the long run (0.22) than in short-run (0.87) indicating that improving institutional quality has relatively more benefits on financial deepening in the long run.

As for control variables, inflation, GDP per capita and fiscal deficit to GDP are all significant with appropriate signs. A one percent increase in inflation results in a 0.02 percent decrease in financial deepening, all things equal. The coefficient of fiscal deficit to GDP and GDP per capita, -.003 and 0.253 respectively are of expected signs and consistent with the main hypotheses. Like institutional quality, GDP per capita has a relatively larger effect on financial deepening (0.253) in the long run than in the short-run (0.109).

The study found that institutional quality is a key factor in determining cross-country variation in the depth of financial markets in African countries. In almost all the specifications, and after controlling for macroeconomic and microeconomic factors, institutional quality had a positive and significant effect on financial deepening. The finding is similar to what has been found by others in the literature including Baltagi, Demetriades and Law (2007) and Le, Kim, and Lee (2015). Other existing literature has found that the strength of the financial depth and generally financial development might be dependent on institutional quality (Demetriades and Andrianova, 2004; Rioja and Valev, 2004). Improving institutional quality is, however, complex. Countries with strong institutional quality have promoted deeper financial markets by reducing corruption, having relatively more efficient judicial systems, as well as sound and effective financial regulatory frameworks. Ensuring bottlenecks to increased institutional quality are removed will therefore help African countries to deepen their financial markets.

Concerning policy and control variables, inflation in all model specifications, was significant, suggesting that sustained reduction in inflation helps to promote credit to the private sector. Within the broader literature, Djankov, McLiesh, and Shleifer (2005), and Dehesa et al. (2007) have found that inflation affects the credit-to-GDP ratio in both developing and developed countries. Besides, it was found that in countries with similar levels of institutional quality, those with lower inflation promote more credit to the private sector than their counterparts. Indeed, by contributing to relative price stability, lower inflation can help to reduce the overall level of uncertainty about the ability of borrowers to meet their obligations, resulting in a less

risky environment that facilitates financial deepening. It is critical therefore that institutional quality improvement is accompanied by macroeconomic stability for African countries to leapfrog meaningful depth in financial markets.

Last but not the least, fiscal deficits seem to have been an obstacle to financial deepening for African countries. The study found that fiscal deficits impede credit to the private sector, resulting in crowding out private sector investments. This finding is consistent with what was found by Cottarelli et al. (2005) and Hauner (2006) that fiscal deficit has negative on private sector credit. Other pieces of literature have also found that large government bank borrowing could harm financial development through the structural characteristics of the banking sector – particularly through raising profitability but lowering efficiency (Stiglitz and Weiss 1985; Reinhart and others 2003; Kumhof and Tanner, 2005). In most African countries, banks are mainly invested in relatively profitable public sector credit and have little drive to develop the banking market under the existing circumstances, thus this not only reduces the quality of financial development but also harms financial deepening in the long run.

5. Implications and Conclusion

5.1 Implications

The main policy implication is that strengthening institutional quality in Africa deserves more attention. Most African economies have low values of the institutional quality index, which suggests that policies that help to strengthen institutions would significantly enhance the financial depth in the region. Policy makers in African countries should therefore specifically prioritise formulating and executing policy reforms that foster accountability, sound, and effective financial regulatory frameworks, honour the rule of law and control corruption and rent-seeking behaviour

5.2 Conclusion

This study sought to answer the questions: what determines cross-country variation in financial deepening across African countries? Does institutional quality explain cross-country variation in financial deepening? Although institutional quality has been gaining popularity in recent years, especially to promote economic growth, no available econometric evidence has traced the link between institutional quality and financial deepening specifically in African countries.

As financial-sector policies become a centrepiece on how to foster inclusive and sustainable economic growth in African countries, it is critical to understand how institutional quality affects financial deepening.

The study utilised quantitative panel data techniques using annual data from the period 2005 to 2018 for a sample of 35 African countries. Based on dynamic panel system GMM estimations and datasets from IMF and World Bank, the empirical results suggested that while macroeconomic stability is vital for promoting financial deepening, it is not sufficient. Strong institutional quality plays a huge role in fostering financial deepening in African economies, and thus determines cross-country variations. The findings are consistent with a growing body

of research from other regions of the world such as Asia.⁶ The study further revealed that the positive effect of institutional quality on financial deepening is particularly stronger in countries with low inflation than high inflation. Moreover, fiscal deficits have undermined credit markets in Africa resulting in crowding-out effects. Most of the African countries are located at the lower side of institutional quality, which suggests that further improvement of institutions above the average threshold will lead to an improvement in financial deepening, and lead to wider financial sector development.

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APPENDICES

APPENDIX 1. LIST OF COUNTRIES

Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Congo, Dem. Rep., Côte d'Ivoire, Egypt, Arab Rep., Ghana, Kenya, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Tanzania, Togo, Tunisia, Uganda, Zambia.