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Finance, Institutions and Private Investment in Africa

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Finance, Institutions and Private Investment in Africa

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Abstract

The study extends the debate on finance versus institutions and measurement of property rights institutions. We assess the relationships between various components of property rights institutions and private investment, notably: political, economic and institutional governances. Comparative concurrent relationships of financial dynamics of depth, efficiency, activity and size are also investigated. The findings provide support for the quality of institutions as a better positive correlate of private investment than financial intermediary development. The interaction of finance and governance is not significant in potentially promoting private investment, perhaps due to substantially documented surplus liquidity issues in African financial institutions. The empirical evidence is based on 53 African countries for the period 1996-2010. Policy measures are discussed for reducing financial deposits, increasing financial activity and hence, improving financial efficiency.

1. Introduction

The quality of institutions and financial development are, *inter alia*, critical determinants of a country's investment climate[1]. This is essentially because investment is a forward-looking adventure and entrepreneurs are for the most part, looking for a secure, stable (Aysan et al. 2008 p.2) and financially appealing (Asiedu et al. 2013) environment in which to invest. There is a twofold interest in the above narrative. On the one hand, good institutions potentially mitigate economic uncertainties which promote efficiency and hence, positive investment decisions. On the other hand, a good financial environment offers more possibilities for private investment due to increasing financial allocation efficiency: the fundamental financial intermediation mission of transforming mobilized deposits into credit for private investment. In light of the above, good institutions and finance improve the climate of investment by enhancing efficiency and reducing the cost of doing business.

African countries have been characterized by a plethora of private investment unfriendly features, *inter alia*: low financial development and surplus liquidity issues (Saxegaard 2006; Fouda 2009; Asongu 2014a); poor institutional quality (Fosu 2013a, 2013b); high infrastructural deficits (Asongu et al. 2018) and substantial levels of capital flight (Asongu 2014b; Boyce and Ndikumana 2001, 2003, 2011)[2]. This has led to a growing stream of studies in the African business literature on how to increase investment in the continent. The studies range from: broad determinants of investment (Anyanwu 2012), to country-specific solutions (Rolfe and Woodward 2004).

The experience of Zambia to attract investment after failed privatization and liberalization policies has implications for other African countries (Rolfe and Woodward

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[1] The papers being extended by this manuscript use "property rights institutions" to measure institutions while we employ the six governance indicators of the World Bank. Hence, the term "institutions" is relevant to connect the positioning of the study with the literature motivating the paper. Hence, we use institutions and governance interchangeably throughout the study.

[2] Private investment and private domestic investment are used interchangeably throughout the study. Government dynamics refer to political, economic and institutional governances while finance dynamics constitute financial development proxies of depth, efficiency, activity and size.

2004). This has led to a growing body of literature on determinants of investment in Africa. Consistent with Asongu et al. (2018) and Asongu and Nguena (2014), documented factors promoting investment are multidimensional and complex. These include, inter alia: estimation methods, contexts of studies, data span and measurement of variables (Hajzler 2014; Moosa 2002; Asiedu 2002; Asiedu 2006; Moosa and Cardak 2006; Sekkat and Veganzones-Varoudakis 2007; Buchanan et al. 2012; Ranjan and Agrawal 2011; Asongu and Odhiambo 2019a). Hence, to the best of our knowledge, factors promoting investment in Africa which include institutions and financial development could be classified into two principal streams: business climate (infrastructures, trade openness, institutions, return…etc) and others (tenure security, weak land governance, regional factors, global economic shocks, resource-seeking…etc). We highlight them in the following two paragraphs.

With regard to the first stream on doing business, Amengdolagine et al. (2013) have used 1400 corporations in 19 nations of Sub-Saharan Africa (SSA) to investigate the motives of backward investment nexuses to conclude that the main drivers include: time, local partners and market factors. Asiedu (2002) has documented infrastructural availability and return on capital as the main determinants in SSA. The roles of infrastructure, market size and trade openness (Büthe and Milner 2008; Vijayakumar et al. 2010; Kinda 2010; Bartels et al 2009; Jadhav 2012; Darley 2012; Anyanwu 2012; Bartels et al. 2014; Asongu et al. 2018) , incentive packages and labor costs (Tuomi 2011; Vijayakumar et al. 2010; Bartels et al. 2014) have been documented as well. At the level of institutional quality: democracy (Asiedu and Lien 2011), government effectiveness & regulatory quality (Jadhav and Katti 2012), general domestic institutional quality (Asongu 2012; Neumayer and Spess 2005; Gastanaga et al. 1998; Tuomi 2011; Kinda 2010; Bartels et al. 2014; Abdioglu et al. 2013; Cleeve 2012) and low levels of political risk (Busse and Hefeker 2007).

While the above narratives sustain the need for positive signals like good institutional quality, the second stream which entails private investment in terms of foreign land acquisitions for the most part, suggests the contrary. For instances, inter alia: Areski et al. (2013) did find any significant nexus between the business climate quality and investment; corruption does not significantly discourage investment in the BRICS and MINT countries[3] (Akpan et al. 2018); Chinese investments in Africa are instead motivated by weak institutions (Kosltad and Wiig 2011; Asongu and Aminkeng 2013); weak tenure laws in foreign land acquisitions (UN 2010; Arezki et al. 2015; Economic Commission for Africa 2004; Ingwe et al. 2010; Okoth-Ogendo 2008; Wouterse et al. 2011; German et al. 2011; Thaler 2013; Liu 2013; Osabuohien 2014). Other motives include: resource-seeking interests (UN 2010; Kolstad and Wiig, 2011; Jadhav and Katti 2012; Jadhav 2012; Aleksynska and Havrylchyk 2013; Rogmans and Ebbers 2013; Lay and Nolte 2014); global crises like financial and food shocks (Wouterse et al. 2011; UN 2010; German et al. 2011; Clapp 2014; Isakson 2013; Fairbairn 2013) and; regional features (Asiedu 2002; Anyanwu 2012; Aleksynska and Havrylchyk 2013; Amendolagine et al. 2013; Yin and Vaschetto, 2011).

In the light of above, the present paper contributes to existing literature in at least two ways. First, it extends the Ali (2013) and Asongu (2014c) debate on the measurement of property rights institutions (PRI) and complementarities between institutions and finance in the promotion of private investment. While Asongu (2014c) has employed a composite institutional indicator instead of Polity IV as postulated by Acemoglu and Johnson (2005) in the measurement of PRI, we still know very little about the types of institutions that are most favorable to investment[4]. This paper tackles this concern by further decomposing the

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[3] While BRICS represents 'Brazil, Russia, India, China & South Africa', MINT stands for 'Mexico, Indonesia, Nigeria & Turkey'.

[4] *"The Ali (2013, EB) findings on the nexuses among institutions, finance and investment could have an important influence on policy and academic debates. This paper relaxes his hypotheses on the conception, definition and measurement of finance and institutions because they are less realistic to developing countries to which the resulting policy implications are destined. We dissect with great acuteness the contextual*

governance indicator into its political (voice & accountability and political stability), economic (government effectiveness and regulation quality) and, institutional (corruption-control and rule of law) components. In essence, the paper's curiosity of knowing how different dimensions of governance are associated with private investment could have relevant policy implications.

Second, the study also contributes to the literature by investigating how structural constraints to African development could be addressed (unemployment, surplus liquidity, business unfriendly climate…etc). With growing evidence that rising unemployment in the continent would only be absorbed by public investment in the future (Asongu 2013a), it extends the stream of literature on promoting private investment (Anyanwu 2006) by assessing the role of institutions versus finance. By examining the complementarities of institution and finance, the study investigates whether the issue of surplus liquidity in Africa could be addressed complementarily with good institutions. We employ all the four dimensions of financial intermediary development documented by the Financial Development and Structure Database (FDSD) of the World Bank for this purpose, notably: deposits (financial depth), credit (financial activity), efficiency (transformation of deposits into credit) and financial size.

In the light of the above, the paper is an applied econometrics study. Moreover, we are consistent with recent literature in arguing that applied econometrics is not exclusively based on the acceptance and rejection of existing theories (Narayan et al. 2011; Asongu and Nwachukwu 2016, 2018). Hence results from applied econometrics can also be the foundation

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underpinnings of financial development dynamics and elucidate why the Acemoglu & Johnson (2005) justification provided for the measurement of property rights institutions (PRI) is lacking in substance. Using updated data (1996-2010) from 53 African countries, we provide more robust evidence on the substitution of institutions and finance in investment. Results under many baseline and augmented scenarios are not consistent with the underlying paper. Justifications for the differences in findings are discussed. As a policy implication, the Ali (2013, EB) findings for countries with poor financial systems may not be relevant for Africa" (Asongu 2014c p. 1557).

of theory-building, especially when a study is positioned in the light of existing debates in the literature.

The intuition for multiple indicators of governance is consistent with an evolving strand of literature on the importance of unbundling governance measurements to avoid conceptual conflations and enhance policy relevance in Africa, notably: the role for formal institutions in building knowledge economies (Andrés et al. 2015); the incidence of mobile phone on governance (Asongu et al. 2019a); the use of governance variables to mitigate conflicts and crimes (Asongu and Kodila-Tedika 2016) and stimulate innovation (Oluwatobi et al. 2015). Accordingly, by so doing conceptual conflation is avoided in the perspective that previous studies have used governance variables without due consideration to specific conceptions and definitions of governance dynamics. For instance, Kangoye (2013) has conflated corruption-control with governance because while the corruption-control dynamic is used in the empirical analysis, the term governance is employed in the title of the paper. We argue that governance is more holistic and can only be used within the framework of World Governance Indicators (WDI) of the World Bank if it integrates six dimensions, namely: political governance (consisting of political stability/no violence and voice & accountability); economic governance (entailing government effectiveness and regulation quality) and institutional governance (encompassing the rule of law and corruption-control control). It follows from the example that corruption-control used by Kangoye (2013) to represent governance is only one dimension of institutional governance. In the same vein, the rule of law is another dimension of institutional governance.

The distinctions above are also plausible from the corresponding definitions. In the light of the attendant literature (Andrés et al. 2015; Asongu et al. 2019a): (i) political governance is the election and replacement of political leaders; (ii) economic governance is the formulation and implementation of policies that deliver public commodities and (iii)

institutional governance is the respect by the State and citizens of institutions that govern interactions between them. It follows from the same example above that Kangoye (2013) has focused on a dimension of institutional governance, which should not be conflated with general governance.

By extension to the more specific context of this study, Ali (2013) and Acemoglu and Johnson (2005) have been more concerned with the political dimension of governance. In this study, we depart from this narrow conception and definition of governance by distinguishing six main dimensions of phenomenon that are subsequently bundled into three more categories. Accordingly, while the Polity IV used by the contending authors was originally designed to measure durability of political systems, it is now being used to appreciate the quality of institutions and governance from a broader perspective. The rest the study is organised as follows. The data and methodology and discussed in Section 2. Section 3 presents the empirical results while Section 4 concludes.

2. Data and Methodology

2.1 Data

The study assesses a panel of 53 African nations with data of annual periodicity for the period 1996-2010 from World Bank Development Indicators. The choice of periodicity and countries has a twofold justification. First, we wish to remain consistent with the debate between Ali (2013) and Asongu (2014c). Second, institutional data from the World Bank is only available from 1996. Moreover, of the 54 African countries, only South Sudan is not included in the sample because data for the country is not available before 2011[5].

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[5] The 53 African countries are: "*Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Chad, Central African Republic, Comoros, Congo Democratic Republic, Congo Republic, Côte d'Ivoire, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Senegal, Sierra Leone, Somalia, Sudan, Rwanda, Sao Tomé & Principe, Seychelles, South Africa, Swaziland, Tanzania, Togo, Tunisia, Uganda, Zambia, Zimbabwe*".

The dependent variable of *Private investment* is measured by Gross Private investment as percentage of GDP. Private investment within the framework covers gross outlays by the private sector (including private nonprofit agencies) on additions to its fixed domestic assets. Hence, the private investment only covers domestic private investment. The financial independent variables are appreciated in terms of financial dynamics of depth, efficiency, activity and size. The institutional indicators are extracted from Principal Component Analysis (PCA) which is discussed in Section 2.1.1 below. The control variables include: inflation, trade openness and economic prosperity. Trade openness and economic prosperity are expected to improve private investment while inflation should have the opposite incidence. Accordingly, the former set is logically expected to be accompanied by more investment opportunities. Conversely, inflation is naturally a factor of uncertainty that generally plays out negatively by discouraging investment. The choice of the control variables is further substantiated in what follows.

First, trade openness which is understood as export plus imports of commodities (or goods and services) (% of GDP) has been documented in the literature to drive investment and economic development (Razin et al., 2003; Kandiero and Chitiga, 2006). Second, GDP growth also drives private domestic investment because it is associated with more avenues for investment that is needed to further boost economic growth (Dasgupta and Ratha, 2000). Moreover, GDP growth is preferred to GDP per capita growth because it is consistent with the prior studies that are being extended. Third, inflation is anticipated to negatively affect investment because investors have been documented to prefer investing in economic environments that are less ambiguous and/or stable (Zelekha, 2010; Kelsey and le Roux, 2018). It is important to note that as apparent in Appendix 2, the mean value of inflation is comparable with those of other variables. Accordingly, in terms of mean values, units in

decimal places can be involved in regressions with units in tens. Hence, taking a natural logarithm of the variables in tens of units in order to enhance comparability is not indispensible.

In GMM regressions, there is a choice between controlling for variable omission bias and having robust estimations that are not affected by instrument proliferation. Some GMM specifications do not employ control variables in order to avoid instrument proliferation and have robust models: "*Our justification for employing two control variables in the GMM specification is very solid, because employing more than two variables will lead to findings that do not pass all post-estimation diagnostic tests owing to instrument proliferation, even when the option of collapsing instruments is taken on board in the estimation exercise. There is a choice here between having valid estimated models and avoiding variable omission bias. Hence, adding more control variables will produce invalid estimations (Bruno et al. 2012; Osabuohien and Efobi 2013;...*" (Asongu & Odhiambo, 2020b, p. 679).

The above variables defined in Appendix 1 below are consistent with the underlying papers. While the dependent and control variables are in line with Ali (2013) and Asongu (2014c), the financial variables are consistent with the latter author. The composite PRI indicator of the latter author is decomposed into its political, economic and institutional dimensions to incorporate the motivation of this study discussed in the preceding section. The summary statistics and correlation analysis are presented in Appendix 2 and Appendix 3 respectively. The financial and governance variables are used distinctly in specifications in order to avoid concerns of multicollinearity apparent in Appendix 3.

The financial variables are conceptually different and some have high degrees of correlations and thus, should not be involved simultaneously in the same specification because when variables with a high degree of substitution are involved in the same specification, they enter into conflict and only a few emerge in the estimation output with the

expected signs: "*The political indicators sometimes enter negatively and significantly, perhaps because the predicted components of the political and adaptability channels are highly correlated. Although we did obtain the same results when we added many additional instrumental variables, we interpret these results cautiously and note that they do not imply that the political channel is unimportant in general*" (Beck et al., 2003, p. 671). "*Our sample comprises 43 countries with British common law, 61 countries with French civil law, six countries with German civil law and five Scandinavian civil law countries. We omit the Scandinavian legal origin from the regressions to avoid multicollinearity*" (Beck et al., 2003, p. 663). It follows that estimated coefficients with wrong signs owing to multicollinearity can lead to misplaced policy implications.

The adopted multicollinearity threshold of 0.600 is consistent with debates in the literature on multicollinearity thresholds: "*…an extended analysis is engaged in order to take on board the concern about multicollinearity. A threshold of 0.600 is used because it is the average of 0.500 suggested by Wichers (1975) and Obrien (2007) and, 0.700 posited by Kennedy (2008)*" (Asongu, Biekpe & Cassimon, 2020, p. 5).

2.2 Methodology

2.2.1 Principal Component Analysis

Consistent with the underlying literature (Asongu 2013b, 2014c; Amavilah et al. 2017; Ajide et al. 2019), there is potentially a very high rate of correlation or substitution among the governance indicators. This leads to some information redundancy. Hence, we employ PCA to mitigate the dimensions of the composite indicator employed by Asongu (2014c) into its economic, political and institutional components. The PCA is a statistical approach that has been substantially used in Applied Econometrics to reduce a large set of correlated indicators into smaller components of composite variables known as principal components (PCs). The

first PC represents a substantial part of variation or information in the initial data set. We use the Jolliffe (2002) and Kaiser (1974) criterion to retain the PCs for the various governance dimensions. These authors have recommended dropping factors with an eigenvalue less than one.

In Table 1 below, the first composite indicator of general governance used by Asongu (2014c) is decomposed into *Political governance* (PolGov), *Economic governance* (Ecog Gov) and *Institutional governance* (InstGov). The governance dynamics all have an eigen value of above 1 with substantial variations relative to the initial dataset: 82.90% for *PolGov*, 90.60% for *EcoGov* and, 93.50% for *InstGov*. *Political governance* captured by voice & accountability and political/no violence, is 'the election and replacement of political leaders'. *Economic governance* which appreciates the formulation and implementation of policies to deliver the public goods is measured with government effectiveness and regulation quality. *Institutional governance* which is the respect of the State and citizens of institutions that govern interactions between them is captured with corruption-control and rule of law. These definitions and measurements are consistent with recent institutional literature (Andrés and Asongu 2013). It is important to note that the Eigen vectors are orthogonal, which is consistent with the empirical literature using PCA (Tchamyou 2020a, 2020b; Asongu et al. 2019b). The presentation of the principal component analysis output as well as the corresponding interpretation is consistent with the attendant literature in this section[6].

It is also important to clarify that the categorization of the governance indicators into three main categories is motivated by two main factors: (i) it is the classification of the World Governance Indicators of the World Bank and (ii) the classification has been used in contemporary governance literature (Ajide and Raheem 2016a, 2016b; Asongu and Odhiambo

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[6] It is important to note that: (i) the indicators load the way that they do according to the software used to derive the principal components. Accordingly, the indicators are simply fitted and the software program generates the groupings. Such grouping is consistent with recent literature (Asongu et al. 2019a, 2019b). (ii) Moreover, the indicators are interpreted the way they are presented because; doing so is consistent with recent literature employing principal component analysis (Tchamyou 2020a, 2020b).

2019b; Asongu and Nnanna 2019). Hence, while the attendant governance indicators have been criticized in the governance literature (Desbordes and Koop 2016), they are, to the best of our knowledge the most widely used because of their availability.

"*Insert Table 1 here*"

2.2.2 Estimation Technique

The Generalized Methods of Moments (GMM) estimation technique is employed consistently with underlying studies. The advantages of dynamic panel regressions have been substantially documented in the literature (Demirgüç-Kunt and Levine 2008; Asongu 2013c; Tchamyou 2017; 2019; Tchamyou et al. 2019a, 2019b; Boateng et al. 2018)[7]. Two points are worth emphasizing in the goodness of fit. On the one hand, the conditions for the use of GMM are satisfied: N>T (53>5): On the other hand, the use of three-year data averages enable us to restrict overidentification or limit the proliferation of instruments. Hence, this ensures that the number of instruments is consistently lower than the number of countries across specifications. If annual observations are used in place of data averages, in the post-estimation diagnostic information criteria, the numbers of instruments are higher than the number of cross sections in each specification. Models with instruments higher than the number of cross section are invalid. Hence, the motivation for adopting data averages is more about obtaining valid model than a concern about slow moving variables. Another reason for the employment of the GMM is its relative advantage of controlling for two dimensions of endogeneity, notably: (i) the unobserved heterogeneity in terms of time invariant omitted

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[7] Relative to cross-country analysis, dynamic panel data analysis has three main advantages and one principal disadvantage. The former include: (1) the incorporation of both time-series and cross-sectional variations; time-invariant omitted variables are controlled for, which has some bite on endogeneity; the *System* GMM approach eliminates small sample biases in the *Difference* estimator. On the latter, the estimates are interpreted as short-run effects because data averages are employed to mitigate short-term disturbances that may loom substantially.

variables and (ii) simultaneity or reverse causality with the used of internal instruments (Efobi et al., 2018; Meniago & Asongu, 2018).

The dynamic panel equations are as follows:

$$PI_{i,t} = \sigma_0 + \sigma_1 PI_{i,t-1} + \sigma_2 F_{i,t} + \sigma_3 Gov_{i,t} + \sigma_4 FGov_{i,t} + \sigma_5 T_{i,t} + \sigma_6 E_{i,t} + \sigma_7 I_{i,t} + \eta_i + \xi_t + \varepsilon_{i,t} \tag{1}$$

$$PI_{i,t} - PI_{i,t-1} = \sigma_1(PI_{i,t-1} - PI_{i,t-2}) + \sigma_2(F_{i,t} - F_{i,t-1}) + \sigma_3(Gov_{i,t} - Gov_{i,t-1}) + \sigma_4(FGov_{i,t} - FGov_{i,t-1})$$
$$+ \sigma_5(T_{i,t} - T_{i,t-1}) + \sigma_6(E_{i,t} - E_{i,t-1}) + \sigma_7(I_{i,t} - I_{i,t-1}) + (\xi_t - \xi_{t-1}) + (\varepsilon_{i,t} - \varepsilon_{i,t-1}), \tag{2}$$

where, i represents the country and t stands for the period in years. Tau τ is three because we have used 3 year data averages. PI measures private investment; F, represents financial development dynamics in terms of depth, efficiency, activity or size. Gov, denotes governance dynamics (political, economic or institutional); $FGov$, interaction between finance (F) and governance dynamics (Gov); I, inflation; E, economic prosperity; T, trade openness; ξ_t is a time-specific effects; η_i represent country-specific effects and; $\varepsilon_{i,t}$ the error term. The use of interactive regressions is consistent with the problem statement and the two studies being extended which are also based on interactive regressions. Accordingly, the problem statement is to assess how the interaction between finance and governance affects private investment. Moreover, the specifications are consistent with contemporary GMM-centric literature involving independent variables that are highly correlated (Ajide & Raheem, 2016a, 2016b; Tchamyou, 2020a, 2020b).

Consistent with Bond et al. (2001 pp. 3-4), the *System* GMM approach is preferred to the *Difference* estimator (Arellano and Bover 1995; Blundell and Bond 1998; Arellano and Bond 1991; Tchamyou and Asongu 2017). A *two-step* estimation procedure is adopted instead of a *one-step* approach because it is heteroscedasticity-consistent. Hence, the specification is two-step (i.e. with the use of robust heteroscedasticity-consistent standards errors) instead of one-step (i.e. with the use of robust homoscedasticity-consistent standards errors). The second order autocorrelation test in difference (AR(2)) and Sargan overidentifying restrictions (OIR)

tests are employed to ascertain the absence of autocorrelation in the residuals and instruments validity respectively. It is also interesting to note that the relationships between the independent variables on the dependent variable are not contemporaneous because in the specifications, lagged levels of the independent variables are used as instruments in the difference equation (Eq. 2) and lagged differences of the independent indicators used as instruments in the level equation (Eq. 1). This enables the exploitation of orthogonal or parallel conditions between the lagged endogenous variable and the error term.

From the stationarity test, it is apparent that the variables are overwhelmingly stationary. Accordingly, based on the Fisher-type (Choi 2001) test, the variables are stationary. Given the unbalanced nature of the dataset, the following tests are not performed because they require the dataset to be highly balanced, namely, the: Levin–Lin–Chu (2002), Harris–Tzavalis (1999), Breitung (2000), Breitung and Das 2005) and Hadri (2000) tests. Moreover, the Im–Pesaran–Shin (2003) test cannot be carried out owing to insufficient observations.

It is also worthwhile to discuss properties of identification and exclusive restrictions that are fundamental for the robustness of a GMM specification. Consistent with contemporary GMM-centric research (Nyasha et al., 2020), the identification process consists of disclosing three sets of variables, notably, the: dependent, independent and strictly exogenous variables. In the light of previous narratives, the outcome variable is private domestic investment while the independent variables of interest are the main channels (i.e. finance and governance dynamics) and elements in the conditioning information set (i.e. GDP growth, inflation and trade openness). The time-specific effects, lagged levels in the differenced equation and lagged differences in the level equation are the strictly exogenous variables. This identification strategy is consistent with contemporary system GMM literature (Haftu, 2019; Islam & McGillivray, 2020).

Building on the attendant instrument variable (IV) literature (Agbloyor *et al.*, 2013; Amavilah *et al.*, 2017), in the GMM-IV approach, assessing whether the assumption of exclusive restriction discussed in the previous paragraph holds consists of demonstrating that the strictly exogenous variables have an incidence on the outcome variable exclusively by means of the main channels and elements in the conditioning information set. Hence, in the findings that are reported in the next section, the null hypothesis of the Sargan test should not be rejected in order for the assumption of exclusive restriction to hold. In other words, when the corresponding null hypothesis is not rejected, the strictly exogenous variables affect the outcome exclusively through the identified channels of finance, governance and control variables.

3. Empirical results and discussion

There are two principal concerns motivating this section: (1) the independent correlations of governance indicators and financial dynamics on private investment and; (2) the combined correlations of governance and finance on the dependent variable. Tables 2, 3, 4 & 5 assess the nexuses with financial depth, efficiency, activity and size respectively. The models are consistently valid across specifications and tables because the null hypotheses of the AR(2) and Sargan OIR are overwhelmingly rejected[8].

In Table 2 below, the following findings could be established. First, while governance dynamics significantly and positively correlate with private investment, the nexus of financial depth (deposits) is not significantly correlated. The incidence from governance indicators in increasing order is significant in the political, economic and institutional dimensions. Second,

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[8] As discussed in the methodology section, in order to investigate the validity of the models, two tests have been carried out. (1) The Arellano & Bond autocorrelation test which examines the null hypothesis for the absence of autocorrelation in the residuals. (2) The Sargan OIR test which assesses the null hypothesis for instrument validity. Hence, rejection of the null hypotheses of both tests across tables and specifications implies the absence of autocorrelation in the residuals and validity of the instruments. Therefore the models are valid. It is also worthwhile to note that the information criteria do not provide evidence of model misspecification.

the interaction of governance and finance on the dependent variable is not significantly correlated. This may imply financial deposits mitigate the positive relationship between governance dynamics and private investment. Third, the significant control variables display the expected signs. Accordingly, while inflation has a negative relationship with private investment because of an unfavorable investment climate, governance is endogenous to economic prosperity or growth in Africa (Anyanwu and Erhijakpor 2014).

"Insert Tables 2 to 5 here"

The results of financial efficiency (Table 3), financial activity (Table 4) and financial size (Table 5) below in terms of institution-, finance-, interaction- and 'control variable'-correlations are broadly consistent with those of Table 2 above.

For robustness purposes we performed the Ordinary Least Squares and Fixed Effects regressions using the lagged dependent variable and largely found that the coefficients for the lagged dependent variable are below 1.00 and lie between the Ordinary Least Squares and Fixed Effects estimates. We introduced the lagged dependent variable because doing so is consistent with Roodman (2009 p. 103): "*Interestingly, where in our initial naïve OLS regression the lagged dependent variable was positively correlated with the error, biasing its coefficient estimate upward, the opposite is the case now. In the Stata examples, the estimate for the coefficient on lagged employment fell from 1.045 to 0.733. Good estimates of the true parameter should therefore lie in or near the range between these values. (In fact, a credible estimate should probably be below 1.00 because values above 1.00 imply an unstable dynamic, with accelerating divergence away from equilibrium values.)*".

3.2 Discussion and policy implications

The results above have shown consistently across tables and specifications that the interaction between finance and governance variables is not significant in potentially promoting private investment. This is a serious concern because we have employed all the

financial development dynamics identified by the Financial Development and Structure Database (FDSD) of the World Bank. This absence of a significant positive relationship between finance and private investment could be traceable to financial development inefficiencies that have been substantially documented in African financial institutions (Fouda 2009; Saxagaard 2006). These inefficiencies ultimately lead to surplus liquidity issues owing to information asymmetry (moral hazard & adverse selection).

Let us also discuss how the findings converge with or diverge from existing literature in two strands. First, on the former perspective, the findings are broadly consistent with Ahlin and Pang (2008) who have established a substitution effect: the positive impact of finance on growth decreases with the progress of institutions. Second, with regard to the latter strand, the absence of a finance led investment nexus is broadly inconsistent with the plethora of existing literature on, *inter alia*: developing (Ndikumana 2000, 2005; Xu 2000; Huang 2006); Asian (Rousseau and Vuthipadadorn 2005); European (Forssbaeck and Oxelheim 2008) and; developed (Love and Zichinno 2006) countries. To be more specific about sub-Saharan Africa, Misati and Nyamongo (2010) and Afangideh (2010) have also established a positive nexus. An explanation of this difference is that, the measure of financial development for the most part in the documented studies is money supply. Hence, as a shown by Asongu (2014d), this different is very apparent when all the dimensions of the Financial Development and Structure Database of the World Bank are employed in an analysis, notably: financial dynamics of depth, efficiency, activity and size. In this paper, money supply is a component of financial depth.

Before suggesting policy recommendations that could be used in the fight against surplus liquidity, it is interesting to highlight how the financial variables employed in the study are: linked to each other and, related to surplus liquidity. Accordingly, financial allocation efficiency is the ability of financial intermediary institutions to transform mobilized

deposits (financial depth or liquid liability) into credit (financial activity) for investment purposes. Hence, the second indicator for financial efficiency may also be measured as a ratio of the third (financial activity) on the first (financial depth or deposits). Hence, high levels of financial inefficiency imply higher financial depth or liabilities and lower financial activity or credit. We suggest the following policy measures for reducing financial deposits, increasing financial activity and hence, improving financial efficiency.

We now discuss the appropriate policies that might be used to address the concern of surplus liquidity. Consistent with Asongu (2014a), the measures either target voluntary keeping of surplus liquidity or involuntary holding of surplus cash. First, voluntary keeping of surplus cash by financial institutions could be curtailed by: improving infrastructure in order to facilitate the transport of funds to remote bank branches, hence avoid them holding too much excess reserves; consolidation of establishments that would facilitate inter-bank lending, especially for contingency motives and; deterring of banks from holding reserves above statutory ceilings, by easing the huddles they face at the central bank in tracking their positions. Second, involuntary keeping of cash could also be substantially curtailed by: improving the structures and efficiencies of regional and domestic stock markets in order to expand opportunities of investment for commercial banking institutions; increasing competition and mitigating asymmetric information so as to reduce the reluctance of banks to increase lending; improving the ability of banks to increase lending, especially when interest rates are subject to regulation and; in order for banks to invest in bond markets, conditions that sustain bond-reserves spreads are necessary.

The above policy measures will offer greater possibilities for private investment because of increasing financial allocation efficiency. Hence, the fundamental financial intermediation mission of transforming mobilized deposits into credit for private investment. Moreover, the interaction of enhanced efficiency with good governance institutions would

produce positive externalities in the investment climate by potentially reducing information asymmetry and the cost of doing business.

4. Conclusion, caveats and future research directions.

The study has extended the debate on finance versus institutions and measurement of property rights institutions documented by Acemoglu and Johnson (2005), Ali (2013) and Asongu (2014). We have assessed the relationships between various components of property rights institutions and private investment, notably: political, economic and institutional governances. Comparative concurrent relationships of financial dynamics of depth, efficiency, activity and size have also been investigated. The findings provide support for the quality of institutions as a better positive correlate of private investment than financial intermediary development. Moreover, the relevance of the governance indicators is in the following order of increasing importance: political governance, economic governance and institutional governance. The interaction of finance and governance is not significant in potentially promoting private investment, perhaps due to substantially documented surplus liquidity issues in African financial institutions. Policy measures have been discussed for reducing financial deposits, increasing financial activity and hence, improving financial efficiency. It important to note that when compared with institutional governance and political governance, we expected the financial measure to significantly interact with economic governance to drive private investment because by conception, economic governance provides economic conditions that can boost financial system credit and deposits.

On concerns that may arise pertaining to the sufficiency of data for the empirical analysis as well as the need to report a binning estimator (Hainmueller et al. 2018), it is important to note that in interactive regressions, only the concern of perfect multicollinearity is an issue because one of the perfectly collinear variables is automatically eliminated from the model by the econometrics software. However, the concern of high collinearity among

interacted variables is not an issue because the interacted variables are interpreted as conditional effects (Brambor et al. 2006). Hence, in the light of the motivation of the study, estimated interactive or conditional effects are used to draw conclusions and hence net effects or binning effects are not absolutely necessary. It is also important to note that the focus of the study on interactive relationships instead of binning relationships is because the studies the paper is extending have used a similar approach of conditional relationships. Hence in order to remain consistent with the underlying studies for comparative purposes, conclusions are drawn based on interactive or conditional relationships.

It is also worthwhile to articulate that there is sufficient data for the analysis because previous studies focusing on interactive regressions have exclusively focused on Africa with periodicities that are less than that employed in this paper (e.g. Asongu and Odhiambo 2020a, 2020b). Moreover, the scope is Africa and the study has focused on all African countries for which, data were available at the time of the study. This clarification is essentially because Aronow and Samii (2016) show that "*with an unrepresentative sample, the estimate of a causal effect may fail to characterize how effects operate in the population of interest*" (p. 250). Hence, in our study, the sample of Africa is representative because all African countries for which, data were available at the time of the study are engaged.

As a caveat, the adopted estimation technique does not account for outliers which can influence the established relationships. Hence, the established linkages may be different across varying levels of private investment, notably: low, intermediate and high levels of private investment. Quantile regressions (which assess the relevance of the independent variables on outcome variables throughout the conditional distributions of the outcome variables), is an appropriate technique to start with. It is also important to articulate that sector- and country-specific effects are not taken on board because such fixed effects are removed by first differencing in order to eliminate the correlation between the lagged

dependent variable and fixed effects. Such a correlation which is a cause of endogeneity is theoretically and practically eliminated in Generalised Method of Moments in order to avoid endogeneity resulting from the underlying correlation. Hence, in future research, it would therefore be worthwhile to assess whether the influence of the independent variables of interest (i.e. governance and financial development) on private investment is the same across sectors and whether it varies depending on whether countries are resource rich or not. Moreover, while the concern of reverse causality has been partly addressed with the use of internal instruments, future studies can build on Ambraseys and Bilham (2011) to better address the concern.

Another caveat to the study is that WGI variables of the World Bank are perception-based measures. However, they have been used in this study because they are the most widely employed in the literature. Moreover, we are unaware of alternative measures that articulate dimensions of political, economic and institutional governances as used in the study. Moreover, in GMM regressions, there is a choice between controlling for variable omission bias and having robust estimations that are not affected by instrument proliferation. Hence, the limited engagement of variables in the conditioning information set which is inherent to GMM regressions is an obvious caveat.

Table 1: Principal Component Analysis (PCA) for Governance (Gov)

Principal Components	Component Matrix (Loadings)						Proportion	Cumulative Proportion	Eigen Value
	VA	PS	RQ	GE	RL	CC			
First PC (G.Gov)	0.383	0.374	0.403	0.429	0.443	0.413	0.773	0.773	4.642
Second PC	0.297	0.774	-0.369	-0.350	-0.021	-0.230	0.077	0.851	0.466
Third PC	0.750	-0.300	0.353	-0.127	-0.223	-0.396	0.066	0.917	0.398
First PC (PolGov)	0.707	0.707	---	---	---	---	0.829	0.829	1.659
Second PC	-0.707	0.707	---	---	---	---	0.170	1.000	0.340
First PC (EcoGov)	---	---	0.707	0.707	---	---	0.906	0.906	1.812
Second PC	---	---	-0.707	0.707	---	---	0.093	1.000	0.187
First PC (InstGov)	---	---	---	---	0.707	0.707	0.935	0.935	1.871
Second PC	---	---	---	---	-0.707	0.707	0.064	1.000	0.128

P.C: Principal Component. VA: Voice & Accountability. RL: Rule of Law. R.Q: Regulation Quality. GE: Government Effectiveness. PS: Political Stability. CC: Control of Corruption. G.Gov (General Governance): First PC of VA, PS, RQ, GE, RL & CC. PolGov (Political Governance): First PC of VA & PS. EcoGov (Economic Governance): First PC of RQ & GE. InstGov (Institutional Governance): First PC of RL & CC.

Table 2: Financial Depth (Liquid Liabilities), institutions and private investment

	Dependent Variable: Private Investment								
	Political Governance (PolGov)			Institutional Governance (InstGov)			Economic Governance (EconGov)		
Priv. Invt. (-1)	0.370*	0.460**	0.460**	0.407**	0.453**	0.453**	0.406**	0.468***	0.468***
	(0.085)	(0.017)	(0.017)	(0.048)	(0.012)	(0.012)	(0.041)	(0.005)	(0.000)
Constant	5.216***	5.115***	5.115***	5.431***	5.509***	5.509***	4.748***	4.869***	4.869***
	(0.004)	(0.000)	(0.009)	(0.002)	(0.000)	(0.005)	(0.004)	(0.005)	(0.000)
Growth	0.379**	0.286*	0.286*	0.322*	0.306*	0.306*	0.312*	0.283*	0.283*
	(0.024)	(0.069)	(0.069)	(0.062)	(0.052)	(0.052)	(0.073)	(0.079)	(0.079)
Inflation	-0.000***	-0.030**	-0.030**	-0.000***	-0.025*	-0.025*	-0.000***	-0.029**	-0.029**
	(0.000)	(0.018)	(0.018)	(0.000)	(0.072)	(0.072)	(0.000)	(0.026)	(0.026)
Trade	0.015	0.006	0.006	0.004	0.004	0.004	0.013	0.008	0.008
	(0.426)	(0.792)	(0.792)	(0.810)	(0.853)	(0.853)	(0.489)	(0.713)	(0.713)
Fin. Depth (FD)	---	4.122	---	---	1.234	---	---	2.320	---
		(0.232)			(0.745)			(0.570)	
PolGov	0.824**	0.461	0.461	---	---	---	---	---	---
	(0.047)	(0.351)	(0.351)						
InstGov	---	---	---	1.256***	0.998*	0.998**	---	---	---
				(0.002)	(0.068)	(0.068)			
EconGov	---	---	---	---	---	---	1.182***	0.839	0.839
							(0.003)	(0.135)	(0.135)
PolGov×FD	---	---	-1.966	---	---	---	---	---	---
			(0.232)						
InstGov×FD	---	---	---	---	---	-1.891	---	---	---
						(0.745)			
EconGov×FD	---	---	---	---	---	---	---	---	-4.069
									(0.570)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(2)	0.828	0.742	0.742	0.775	0.732	0.732	0.783	0.728	0.728
	(0.407)	(0.457)	(0.457)	(0.438)	(0.463)	(0.463)	(0.433)	(0.466)	(0.466)
Sargan OIR	8.143	9.570	9.570	7.970	9.201	9.201	8.090	9.683	9.683
	(0.419)	(0.296)	(0.296)	(0.436)	(0.325)	(0.325)	(0.424)	(0.288)	(0.288)
Wald (joint)	213.47***	42.34***	42.34***	217.76***	73.09***	73.092***	233.26***	71.072***	71.072***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Countries	46	41	41	46	41	41	46	41	41
Instruments	17	18	18	17	18	18	17	18	18
Observations	162	141	141	162	141	141	162	141	141

***, **, and * indicate significance at 1%, 5% and 10% levels respectively. AR(2): Second Order Autocorrelation test. OIR: Overidentifying Restrictions test. The significance of bold values is twofold. 1) The significance of estimated coefficients and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(2) tests and; b) the validity of the instruments in the Sargan OIR test. Fin: Financial. Priv. Invt: Private Investment. The software omitted one of the constituent variables in the interaction because of perfect multicollinearity. Estimated coefficients of inflation indicated as "-0.000" are close to zero. Values in parentheses are p-values.

Table 3: Financial Efficiency, Institutions and Private Investment

	Political Governance (PolGov)			Institutional Governance (InstGov)			Economic Governance (EconGov)		
Dependent Variable: Private Investment									
Priv. Invt. (-1)	**0.370***	0.345	0.345	**0.407***	0.377	0.377	**0.406***	**0.398***	**0.398***
	(0.085)	(0.168)	(0.168)	**(0.048)**	(0.123)	(0.123)	**(0.041)**	**(0.068)**	**(0.068)**
Constant	**5.216***	**6.174***	**6.174***	**5.431***	**6.479***	**6.479***	**4.748***	**6.099***	**6.099***
	(0.004)	**(0.016)**	**(0.016)**	**(0.002)**	**(0.003)**	**(0.003)**	**(0.004)**	**(0.010)**	**(0.010)**
Growth	**0.379***	**0.358***	**0.358***	**0.322***	**0.365***	**0.365***	**0.312***	**0.327***	**0.327***
	(0.024)	**(0.066)**	**(0.066)**	**(0.062)**	**(0.062)**	**(0.062)**	**(0.073)**	**(0.078)**	**(0.078)**
Inflation	**-0.000***	**-0.029***	**-0.029***	**-0.000***	-0.020	-0.020	**-0.000***	**-0.025***	**-0.025***
	(0.000)	**(0.013)**	**(0.013)**	**(0.000)**	(0.120)	(0.120)	**(0.000)**	**(0.035)**	**(0.035)**
Trade	0.015	0.021	0.021	0.004	0.008	0.008	0.013	0.013	0.013
	(0.426)	(0.305)	(0.305)	(0.810)	(0.687)	(0.687)	(0.489)	(0.444)	(0.444)
Fin. Efficiency (FE)	---	-0.366	---	---	-0.755	---	---	-1.040	---
		(0.678)			(0.397)			(0.301)	
PolGov	**0.824***	0.701	0.701	---	---	---	---	---	---
	(0.047)	(0.155)	(0.155)						
InstGov	---	---	---	**1.256***	**1.287***	**1.287***	---	---	---
				(0.002)	**(0.012)**	**(0.012)**			
EconGov	---	---	---	---	---	---	**1.182***	**1.225***	**1.225***
							(0.003)	**(0.025)**	**(0.025)**
PolGov×FE	---	---	0.174	---	---	---	---	---	---
			(0.678)						
InstGov×FE	---	---	---	---	---	1.157	---	---	---
						(0.397)			
EconGov×FE	---	---	---	---	---	---	---	---	1.824
									(0.301)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(2)	0.828	0.755	0.755	0.775	0.707	0.707	0.783	0.710	0.710
	(0.407)	(0.450)	(0.450)	(0.438)	(0.479)	(0.479)	(0.433)	(0.477)	(0.477)
Sargan OIR	8.143	6.850	6.850	7.970	6.798	6.798	8.090	6.689	6.689
	(0.419)	(0.552)	(0.552)	(0.436)	(0.558)	(0.558)	(0.424)	(0.570)	(0.570)
Wald (joint)	**213.47***	**107.54***	**107.54***	**217.76***	**100.32***	**100.32***	**233.26***	**125.84***	**125.84***
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Countries	46	41	41	46	41	41	46	41	41
Instruments	17	18	18	17	18	18	17	18	18
Observations	162	136	136	162	136	136	162	136	136

***, **, and * indicate significance at 1%, 5% and 10% levels respectively. AR(2): Second Order Autocorrelation test. OIR: Overidentifying Restrictions test. The significance of bold values is twofold. 1) The significance of estimated coefficients and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(2) tests and; b) the validity of the instruments in the Sargan OIR test. Fin: Financial. Priv. Invt: Private Investment. The software omitted one of the constituent variables in the interaction because of perfect multicollinearity. Estimated coefficients of inflation indicated as "-0.000" are close to zero. Values in parentheses are p-values.

Table 4: Financial Activity, Institutions and Private Investment

Dependent Variable: Private Investment

	Political Governance (PolGov)			Institutional Governance (InstGov)			Economic Governance (EconGov)		
Priv. Invt. (-1)	**0.370***	**0.408****	**0.408****	**0.407****	**0.429*****	**0.429*****	**0.406****	**0.424*****	**0.424*****
	(0.085)	**(0.011)**	**(0.011)**	**(0.048)**	**(0.005)**	**(0.005)**	**(0.041)**	**(0.000)**	**(0.000)**
Constant	**5.216*****	**5.503*****	**5.503*****	**5.431*****	**5.865*****	**5.865*****	**4.748*****	**5.201*****	**5.201*****
	(0.004)	**(0.008)**	**(0.008)**	**(0.002)**	**(0.002)**	**(0.002)**	**(0.004)**	**(0.007)**	**(0.007)**
Growth	**0.379****	**0.345***	**0.345***	**0.322***	**0.342****	**0.342****	**0.312***	**0.350***	**0.350***
	(0.024)	**(0.057)**	**(0.057)**	**(0.062)**	**(0.047)**	**(0.047)**	**(0.073)**	**(0.076)**	**(0.076)**
Inflation	**-0.000*****	**-0.032****	**-0.032****	**-0.000*****	-0.024	-0.024	**-0.000*****	**-0.029***	**-0.029***
	(0.000)	**(0.022)**	**(0.022)**	**(0.000)**	(0.103)	(0.103)	**(0.000)**	**(0.050)**	**(0.050)**
Trade	0.015	0.016	0.016	0.004	0.005	0.005	0.013	0.014	0.014
	(0.426)	(0.467)	(0.467)	(0.810)	(0.795)	(0.795)	(0.489)	(0.478)	(0.478)
Fin. Activity (FA)	---	1.330	---	---	-0.718	---	---	-0.730	---
		(0.635)			(0.727)			(0.788)	
PolGov	**0.824****	0.545	0.545	---	---	---	---	---	---
	(0.047)	(0.296)	(0.296)						
InstGov	---	---	---	**1.256*****	**1.198****	**1.198****	---	---	---
				(0.002)	**(0.040)**	**(0.040)**			
EconGov	---	---	---	---	---	---	**1.182*****	**1.108***	**1.108***
							(0.003)	**(0.074)**	**(0.074)**
PolGov×FA	---	---	-0.634	---	---	---	---	---	---
			(0.635)						
InstGov×FA	---	---	---	---	---	1.101	---	---	---
						(0.727)			
EconGov×FA	---	---	---	---	---	---	---	---	1.279
									(0.788)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(2)	**0.828**	**0.727**	**0.727**	**0.775**	**0.708**	**0.708**	**0.783**	**0.674**	**0.674**
	(0.407)	**(0.467)**	**(0.467)**	**(0.438)**	**(0.478)**	**(0.478)**	**(0.433)**	**(0.500)**	**(0.500)**
Sargan OIR	**8.143**	**8.973**	**8.973**	**7.970**	**8.901**	**8.901**	**8.090**	**9.683**	**9.683**
	(0.419)	**(0.344)**	**(0.344)**	**(0.436)**	**(0.350)**	**(0.350)**	**(0.424)**	**(0.287)**	**(0.287)**
Wald (joint)	**213.47*****	**49.950*****	**49.95*****	**217.76*****	**73.18*****	**73.18*****	**233.26*****	**85.55*****	**85.55*****
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Countries	46	41	41	46	41	41	46	41	41
Instruments	17	18	18	17	18	18	17	18	18
Observations	162	141	141	162	141	141	162	141	141

*** , **, and * indicate significance at 1%, 5% and 10% levels respectively. AR(2): Second Order Autocorrelation test. OIR: Overidentifying Restrictions test. The significance of bold values is twofold. 1) The significance of estimated coefficients and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(2) tests and; b) the validity of the instruments in the Sargan OIR test. Fin: Financial. Priv. Invt: Private Investment. The software omitted one of the constituent variables in the interaction because of perfect multicollinearity. Estimated coefficients of inflation indicated as "-0.000" are close to zero. Values in parentheses are p-values.

Table 5: Financial Size, Institutions and Private Investment

	Dependent Variable: Private Investment								
	Political Governance (PolGov)			Institutional Governance (InstGov)			Economic Governance (EconGov)		
Priv. Invt. (-1)	**0.370***	0.374	0.374	**0.407****	**0.415****	**0.415****	**0.406****	**0.428***	0.428
	(0.085)	(0.101)	(0.101)	**(0.048)**	**(0.047)**	**(0.047)**	**(0.041)**	**(0.055)**	(0.055)
Constant	**5.216***	3.651	3.651	**5.431****	**5.422***	**5.422***	**4.748****	4.620	4.620
	(0.004)	(0.302)	(0.302)	**(0.002)**	**(0.083)**	**(0.083)**	**(0.004)**	(0.113)	(0.113)
Growth	**0.379****	**0.322***	**0.322***	**0.322***	0.289	0.289	**0.312***	0.261	0.261
	(0.024)	**(0.071)**	**(0.071)**	**(0.062)**	(0.131)	(0.131)	**(0.073)**	(0.179)	(0.179)
Inflation	**-0.000***	**-0.000***	**-0.000***	**-0.000***	**-0.000***	**-0.000***	**-0.000***	**-0.000***	**-0.000***
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Trade	0.015	0.003	0.003	0.004	-0.005	-0.005	0.013	0.001	0.001
	(0.426)	(0.832)	(0.832)	(0.810)	(0.725)	(0.725)	(0.489)	(0.926)	(0.926)
Fin. Activity (FS)	---	3.575	---	---	1.025	---	---	1.183	---
		(0.304)			(0.774)			(0.749)	
PolGov	**0.824***	0.687	0.687	---	---	---	---	---	---
	(0.047)	(0.236)	(0.236)						
InstGov	---	---	---	**1.256***	**1.190***	**1.190***	---	---	---
				(0.002)	**(0.035)**	**(0.035)**			
EconGov	---	---	---	---	---	---	**1.182***	**1.194***	**1.194***
							(0.003)	**(0.044)**	**(0.044)**
PolGov×FS	---	---	-1.705	---	---	---	---	---	---
			(0.304)						
InstGov×FS	---	---	---	---	---	-1.570	---	---	---
						(0.774)			
EconGov×FS	---	---	---	---	---	---	---	---	-2.075
									(0.749)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(2)	0.828	0.709	0.709	0.775	0.679	0.679	0.783	0.711	0.711
	(0.407)	(0.477)	(0.477)	(0.438)	(0.496)	(0.496)	(0.433)	(0.477)	(0.477)
Sargan OIR	8.143	8.543	8.543	7.970	9.356	9.356	8.090	8.022	8.022
	(0.419)	(0.382)	(0.382)	(0.436)	(0.313)	(0.313)	(0.424)	(0.431)	(0.431)
Wald (joint)	213.47***	239.57***	239.57***	217.76***	243.25***	243.25***	233.26***	262.95***	262.95***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Countries	46	45	45	46	45	45	46	45	45
Instruments	17	18	18	17	18	18	17	18	18
Observations	162	156	156	162	156	156	162	156	156

***, **, and * indicate significance at 1%, 5% and 10% levels respectively. AR(2): Second Order Autocorrelation test. OIR: Overidentifying Restrictions test. The significance of bold values is twofold. 1) The significance of estimated coefficients and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(2) tests and; b) the validity of the instruments in the Sargan OIR test. Fin: Financial. Priv. Invt: Private Investment. The software omitted one of the constituent variables in the interaction because of perfect multicollinearity. Estimated coefficients of inflation indicated as "-0.000" are close to zero. Values in parentheses are p-values.

Appendices

Appendix 1: Definitions of variables

Variables	Signs	Definitions of variables (Measurements)	Sources
Political Stability	PolSta	Political stability/no violence (estimate): measured as the perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional and violent means, including domestic violence and terrorism.	World Bank (WDI)
Voice & Accountability	V&A	Voice and accountability (estimate): measures the extent to which a country's citizens are able to participate in selecting their government and to enjoy freedom of expression, freedom of association and a free media.	World Bank (WDI)
Political Governance	Polgov	First Principal Component of Political Stability and Voice & Accountability. The process by which those in authority are selected and replaced.	PCA
Government Effectiveness	Gov. E	Government effectiveness (estimate): measures the quality of public services, the quality and degree of independence from political pressures of the civil service, the quality of policy formulation and implementation, and the credibility of governments' commitments to such policies.	World Bank (WDI)
Regulation Quality	RQ	Regulation quality (estimate): measured as the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.	World Bank (WDI)
Economic Governance	Ecogov	First Principal Component of Government Effectiveness and Regulation Quality. The capacity of government to formulate & implement policies, and to deliver services.	PCA
Rule of Law	RL	Rule of law (estimate): captures perceptions of the extent to which agents have confidence in and abide by the rules of society and in particular the quality of contract enforcement, property rights, the police, the courts, as well as the likelihood of crime and violence.	World Bank (WDI)
Corruption-Control	CC	Control of corruption (estimate): captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests.	World Bank (WDI)
Institutional Governance	Instgov	First Principal Component of Rule of Law and Corruption-Control. The respect for citizens and the state of institutions that govern the interactions among them	PCA
General Governance	G.gov	First Principal Component of Political, Economic and Institutional Governances	PCA
Inflation	Infl	Consumer Price Index (annual %)	World Bank (WDI)
GDP growth	GDPg	Gross Domestic Product (GDP) growth (annual %)	World Bank (WDI)
Trade Openness	Trade	Export plus Imports of Commodities (or Goods and Services) (% of GDP)	World Bank (WDI)
Private Investment	PrivIvt	Gross Private Investment (% of GDP)	World Bank (WDI)
Financial system Depth	LLgdp	Liquid Liabilities or Financial System Deposits (% of GDP)	World Bank (FDSD)
Financial System Efficiency	FcFd	Financial system credit on Financial system deposit	World Bank (FDSD)
Financial System Activity	Pcrbof	Private domestic credit by deposit banks and other financial institutions (% of GDP)	World Bank (FDSD)
Financial System Size	Dbacba	Deposit bank assets on (Deposit bank assets plus Central bank assets)	World Bank (FDSD)

WDI: World Bank Development Indicators. FDSD: Financial Development and Structure Database. PCA: Principal Component Analysis. P.C: Principal Component. V& A: Voice & Accountability. R.L: Rule of Law. R.Q: Regulation Quality. GE: Government Effectiveness. PS: Political Stability. CC: Control of Corruption.

. Appendix 2: Summary statistics

	Mean	SD	Minimum	Maximum	Observations
Political Stability	-0.571	0.952	-3.229	1.143	265
Voice & Accountability	-0.679	0.730	-2.161	1.047	265
Political Governance	-0.016	1.291	-3.204	2.621	264
Government Effectiveness	-0.678	0.610	-1.847	0.761	255
Regulation Quality	-0.681	0.674	-2.573	0.868	265
Economic Governance	0.049	1.310	-3.019	3.290	254
Rule of Law	-0.703	0.686	-2.550	1.018	265
Control of Corruption	-0.598	0.622	-2.344	0.971	265
Institutional Governance	0.008	1.378	-3.879	3.179	264
Private Investment	13.075	9.115	-0.540	85.913	231
Inflation	56.191	575.70	-45.335	8603.3	230
Trade Openness	78.340	39.979	20.980	250.95	247
GDP Growth	4.755	5.587	-11.272	49.367	254
Financial Depth	0.254	0.214	0.023	0.962	205
Financial Efficiency	0.748	0.414	0.158	2.575	195
Financial Activity	0.197	0.239	0.007	1.681	205
Financial Size	0.710	0.249	0.019	1.436	251

S.D: Standard Deviation.

Appendix 3: Correlation Matrix

Financial Development				Control variables			Institutions				Priv. Invt.	
Fdgdp	FcFd	Pcrbof	Dbacba	GDPg	Trade	Inflation	PolGov	InstGov	EcoGov	G.Gov	Invt.	
1.000	0.078	0.689	0.456	-0.115	0.244	-0.066	0.458	0.677	0.589	0.616	0.165	Fdgdp
	1.000	0.667	0.268	-0.075	-0.166	-0.119	0.104	0.162	0.290	0.211	-0.013	FcFd
		1.000	0.431	-0.109	0.023	-0.068	0.365	0.537	0.603	0.540	0.077	Pcrbof
			1.000	-0.083	0.154	-0.068	0.411	0.470	0.531	0.517	0.240	Dbacba
				1.000	0.179	-0.132	-0.012	-0.084	-0.041	-0.049	0.536	GDPg
					1.000	0.024	0.202	0.207	0.089	0.174	0.469	Trade
						1.000	-0.114	-0.136	-0.169	-0.149	-0.089	Inflation
							1.000	0.819	0.758	0.901	0.199	PolGov
								1.000	0.878	0.957	0.220	InstGov
									1.000	0.945	0.225	EcoGov
										1.000	0.229	G.Gov
											1.000	Priv. Invt

Fdgdp: liquid liabilities. FcFd: Financial credit on financial deposit. Pcrbof: Private domestic credit by deposit banks and other financial institutions. Dbacba: Deposit bank assets on deposit bank assets plus central bank assets. GDPg: GDP growth rate. PolGov: Political Governance. InstGov: Institutional Governance. EcoGov: Economic Governance. G. Governance: Governance.

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