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RESEARCH ARTICLE

Differences in African banking systems: causes and consequences

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Abstract
This paper links banking system development to the colonial and legal history of African countries. Based on a sample of 40 African countries from 2000 to 2018, our empirical findings show a significant dependence of current financial institutions on the inherited legal origin and the colonization type. Findings also reveal that current financial legal institutions are not major determinants of banking system development, and that institutional development and governance quality are more important. A high share of government spending relative to GDP also positively affects banking system development in African countries.

Key words: banking systems; colonial history; correlated random effects model; financial institutions; legal origin

JEL codes: G21; G38; G39; K15; K40; K54

1. Introduction

African countries' banking systems differ remarkably from those of developing countries outside the continent. African banking systems have lower levels of development as shown by lower financial depths and access. Loans to the private sector as a percentage of GDP ratio is on average only 21% in African countries, half of the ratio in other developing countries. Bank assets to GDP are also only 57%, which is half of the amount in developing countries outside Africa (Mlachila *et al.*, 2016). Even among African countries, there are remarkable heterogeneities in terms of private credit. For instance, private credit to GDP is 141% in South Africa, 87% in Mauritius and 61% in Cape Verde, but only 5% in Chad (Beck and Cull, 2014).

The central focus of this study is to examine what drives underdevelopment and heterogeneity of African banking systems. The legacy of colonialism, in combination with the stark institutional differences between countries, make Africa's banking systems a good laboratory to conduct empirical research on the link between the colonial heritage of African countries and the development of these countries' legal institutions and banking systems. Surprisingly, we know relatively little about this relationship. According to the literature, weak institutional infrastructures are prevalent in many African countries (Demetriades and Fielding, 2012), creditor rights are often poor, contract enforcement is inefficient and involves a lengthy procedure (Beck *et al.*, 2011), and in many countries financial repression is high (Andrianaivo and Yartey, 2010). By examining the link between colonial heritage and legal traditions, we shed more light on why some African countries are more successful than others to leave the quagmire of underdeveloped banking systems.

The law and finance strand of literature claims that the weak legal systems operating in modern African nations are based on and shaped through the history of European colonization (Beck *et al.*,

2003; La Porta *et al*., 1998, 2008). This paper's aim is to disentangle the channels through which the legal origin influences the development of legal institutions and, subsequently, of banking systems. In addition, we explore whether the specific type of colonization matters for institution building and banking system development. The study uses country-level data from 40 African countries for the period 2000–2018. Our main findings are derived from correlated random effects (CRE) model estimations (Mundlak, 1978; Wooldridge, 2010), and as robustness tests we also instrument the country-level legal institutions *Creditor rights*, *Investor protection* and *Contract enforcement*, and apply the Hausman–Taylor estimator to account for potential endogeneity (Hausman and Taylor, 1981).

Our empirical analysis reveals several important results. First, consistent with the law and finance proposition (e.g. Beck *et al*., 2003; La Porta *et al*., 2004), our research suggests that legal traditions matter. Both British and non-British common law countries are associated with stronger legal institutions (creditor rights, investor protection, enforcing contracts) than the countries with a French or other civil law tradition. This finding supports the view that common law jurisdictions implement law that strengthens creditor and investor rights. Interestingly, countries that were colonized by settlers, do have stronger legal institutions and also more highly developed banking systems. This result has not been reported in the literature so far.

Surprisingly, however, the econometric results do not provide strong support for the second expected channel from stronger legal institutions to more highly developed banking systems. Albeit we find evidence that stronger creditor rights reduce the costs of banking, the results taken together imply that current legal institutions are not a major determinant of banking system development in African countries. Instead, we find robust evidence that banking system development is related to the institutional development and governance quality as well as to government spending in the respective country. With respect to alternative explanations, although we find that non-extractive colonization has a positive influence on banking sector development, other explanations like initial endowment, culture or ethnic fractionalization are less significant in our context.

This paper makes the following contributions. First, it provides largely missed detailed empirical evidence for Africa on the mechanisms through which laws rooted in legal tradition explain the development of financial legal institutions. Moreover, the impact of the colonial regime is an important ingredient of this study. In addition, we divide civil law countries into French civil law and other civil law countries colonized by Belgium, Portugal, Italy and Spain, and Germany. Similarly, we distinguish between British common law and other common law states.

Finally, this study contributes to the research on bank-based financial systems in developing economies. Specifically, we borrow from the approaches used in Levine (1998), Levine *et al*. (2000), Emenalo *et al*. (2018) and Aluko and Ajayi (2018) to examine the extent to which legal institutions predict the development of African countries' banking systems (depth, breadth and intermediation).

The paper is organized as follows. Section 2 reviews the theoretical and empirical literature linking legal traditions, law development, institutions and banking development. It also reviews the state banking systems development in Africa. Section 3 presents our methodology. Section 4 discusses the estimation and empirical strategy used, and presents findings. Section 5 provides the conclusions, limitations and possible avenues for future research.

2. Review of literature and research propositions

2.1 Legal tradition, colonial heritage and institutional development

According to law and finance theory, legal systems have their origins in either the common law or the civil law legal tradition. Most nations that exist today have either adopted independently, or acquired through conquest or colonization, one or the other of these two legal traditions (La Porta *et al*., 1997, 1998; Parent, 2018). These legal traditions endure and persist over time, producing ancillary institutions that influence economic outcomes (Ang, 2019; Ang and Fredriksson, 2017; La Porta *et al*., 2008).[1]

[1]Maseland (2018) presents a contrasting view that suggests the influence of colonization has been declining over time.

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Common law originates from the British legal tradition that provides higher discretion to the courts to develop laws from already decided cases. Through this use of case law or jurisprudence, judges in common law countries establish legal precedents that are the foundations for the development of the legal system. In contrast, the civil law tradition has its historical roots in the codified laws of the Roman Empire. This canon of Roman laws is the basis for much of the legal development of the civil law countries of Europe, and places emphasis on the use of legislated codes or statutes whereby courts or judges are law enforcers but not law developers. The role of the courts is limited to interpretation and application of statutes and not to the continuing development of laws.

The law and finance literature highlights the channels or mechanisms through which legal traditions affect legal and institutional development. Beck and Levine (2005) suggest that legal origins influence the development of financial systems through political and adaptability channels that are shaped by the specific legal and institutional environment. According to the authors, the political channel reflects the extent to which a country's judiciary/courts make decisions without interference from political authorities. The political independence gives the courts in common law countries the power and freedom to enforce laws that protect small investors or property. Framing new rules by using previous legal cases also causes a higher degree of adaptability in the legal framework. In contrast, in civil law countries judges are restricted from modifying laws through procedural formalism.

Based on an international database capturing judicial independence and law development in 71 countries, Porta *et al.* (2002) propose that a common law tradition is associated with stronger judicial independence *vis-à-vis* a civil law tradition, and the degree of independence predicts higher economic and political freedom. Beck and Levine (2005) use Porta *et al.* (2002)'s database to test whether the described political and adaptability channels through which legal traditions influence the development of financial systems facilitate firms' access to finance.

Proposition 1a: The formal institution common law has a positive impact on the strength of financial legal institutions, such as investor and creditor protection, and enforcement of contracts.

Alternative views explaining institutional development and financial outcomes in colonies come from the endowment school (Acemoglu *et al.*, 2001). This strand of literature suggests that initial endowments (geography, topography and disease environment) in colonies explain the type of European colonization and subsequent institutional development including legal institutions and financial development (Beck *et al.*, 2003). Specifically, those colonies with hospitable conditions (that had lower mortality rates, higher indigenous population density and sufficient resources) influenced the type of colonization. The type of settlement further influenced the development of institutions (property rights and contract enforcement), which later led to variations in economic outcomes across colonies, since European settlers tended to establish institutions that were similar to those of their home countries. In consideration of these studies, we propose for African countries that informal institutions such as the colonial heritage matters:

Proposition 1b: A non-extractive colonization heritage has a positive impact on the strength of financial legal institutions.

2.2 Financial legal institutions and banking systems development

La Porta *et al.* (2006) combine the "Antidirector Rights Index" (ADRI) with laws requiring firms to improve their reporting standards and test whether the constructed scores affect the market capitalization of stock markets. They find a strong link and show the superiority of the common law legal tradition in amplifying this causality link. They infer from this evidence that the combination of the ADRI index and scores representing the quality of reporting standards explains financial development better than the ADRI index alone.

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Creditor protection is the complement to shareholder protection. La Porta *et al.* (1997) constructed a creditor protection index[2] to capture the extent to which creditors are protected in solvency and bankruptcy procedures. They find that higher levels of creditor protection affect financial development more in common law than in civil law countries. Levine *et al.* (2000) assess the effects of creditor rights, contract enforcement and accounting standards on financial intermediation. They find that financial intermediaries only flourish in common law countries in which competent authorities are able to ensure accurate and effective financial reporting and to enforce contracts, and in which the legal system successfully protects creditors when borrowers file for bankruptcy. Djankov *et al.* (2007) construct and test an international sample of 129 countries to study how financial development (measured by private credit to GDP) responds to differences in creditor laws. Their findings reveal that financial systems flourish more when the laws protecting creditors are strong, enforcement is guaranteed, and when enough credit information is available. Once again, this finding is more significant in common law than in civil law countries.

Other research, exclusively using firm-level data, focuses on the relationship between creditor institutions and banking development. These studies obtain results that are consistent with the literature that examines the institution/financial development nexus. For instance, Haselmann *et al.* (2009) and Safavian and Sharma (2007) find that creditor protection laws improve lending, reduce interest rates and lengthen loan maturities (Qian and Strahan, 2007). Creditor laws, registries and information sharing also improve firms' access to finance in developing countries (Peria and Singh, 2014), as banks are likely to offer lower lending rates in an environment where lenders are well protected. In sum, the law and finance literature suggests that countries with strong institutions that protect investors and creditors are associated with better and more efficient financial systems. Strong formal institutions are found to be more likely in common law countries than in civil law countries (La Porta *et al.*, 1998). Accordingly, we propose:

Proposition 2: Formal institutions such as investor or creditor protection positively influence the banking system development. African countries' legal tradition and a heritage of a non-extractive colonization amplify this relationship.

An alternative explanation is that banking system development is mainly related to institutional development and governance quality. Therefore, the third proposition that is tested in this paper is:

Proposition 3: Institutional development and governance quality positively affect the development of banking systems in African economies.

Putterman and Weil (2010) propose an alternative way of explaining economic growth by introducing state history and transition to agriculture into the initial endowment conditions. They construct a matrix showing state history population share in each country in year 2000 that is descended from people in different countries in the year 1500. Their analysis shows that human migratory patterns and transition from agriculture do influence current levels of GDP per capita and income inequality in the world.

Another school of thought dealing with the development of institutions focuses on ethnic fractionalization. Proponents of this school argue that countries with higher levels of ethnic diversity are associated with social polarization that adversely affects economic development/growth. The basic concept is that a nation with diverse cultural, linguistic and religious groups will always struggle with

[2]The index was later extended by Djankov *et al.* (2007). It contains four main subconstructs namely (a) the measure of a creditor's capacity to prevent debts from filling for re-organization hence protecting his claims from debtors; (b) the measure of lender's capacity to seize borrowers' assets that were presented as collateral once the bankruptcy process is initiated; (c) if during borrowers' liquidation, the lender is prioritized from other creditors and (d) if there are administrators different from management that will run the firm when it is being reorganized (Deakin *et al.*, 2017: 362–363). Greater values indicate higher levels of creditor protection.

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implementing policies that are pro-growth and developing political consensus may lead to higher levels of patronage by one dominant ethnic group against the weak one(s) (Easterly and Levine, 1997). Typically, a dominant ethnic group emerges and diverts resources, or designs rent-seeking policies for their personal benefit, rather than for the general public good (Alesina *et al.*, 1999: 436; Karnane and Quinn, 2019). More recently, Emenalo *et al.* (2018) combine disease endowment conditions, legal origins and ethnic fractionalization to explain financial development in African countries and find that indeed, these variables explain financial development (in terms of access to finance). Karnane and Quinn (2019) analyze an international sample of 157 countries over the period 1996–2014, to explore the effects of ethnic fractionalization and corruption on economic growth. Their results show that the two measures adversely impact economic growth as they increase political instability, creating an environment that reduces economic growth. There are also strands of literature linking cultural variables to economic outcomes.

One such strand was pioneered by Hofstede (1980). His initial international survey led to the development of four cultural dimensions: individualism, masculinity, uncertainty avoidance and power distance. These four measures were further used to predict economic growth, particularly among rich countries. Kwok and Tadesse (2006) use Hofstede's measures to investigate the determinants of financial systems development using a sample of 41 countries. They find that cultural measures (particularly uncertainty avoidance) led to the development of more bank-based systems than market-based systems. Tabellini (2010) relates cultural variables (trust, confidence, respect for others) to economic development. His findings show that, conditional on literacy rates and historical political institutions since the year 1850, cultural variables strongly predict regional out-put. Given this summary of previous literature, we conjecture:

Proposition 4: Initial endowment conditions and cultural differences explain the development of banking systems in African countries.

2.3 Banking systems in Africa

Since colonial times, African banking systems were dominated by European banks that operated primarily to serve individuals working in the colonial administration. Cull *et al.* (2018) show that soon after independence, most African countries nationalized their banking systems, and the majority of banks became state-owned with the exception of a few European banks that continued operating alongside the nationalized banks. In the 1980s and 1990s, many African countries had to initiate structural adjustment programs which required to privatize their inefficient state parastatals, including banks. This brought about a marked rapid change from the dominance of state-owned banks to the emergence of more private and foreign owned banks.

However, despite reforms and the entry of more efficient foreign and domestic privately-owned banks in Africa, African banks are still small. Beck *et al.* (2011) show that the average total assets for an African bank is USD 220 million, whereas the average total assets of a non-African bank is USD 1 billion. Obviously, there are considerable variations among African countries. For example, the total assets of the Standard Bank in South Africa are estimated at USD 100 billion, while the total assets for a median bank in Madagascar is below USD 200 million. Sissy *et al.* (2017) note that most African countries have small and shallow economies that do not benefit banks and other providers of financial services to gain from providing financing despite the important role of banks in their financial systems. The World Bank study 'Making Finance Work for Africa' highlights that African banking systems are relatively small when compared to the rest of the world, and are the least developed as providers of financing, reaching only about 23% of African households (Beck *et al.*, 2011).

The African Development Bank report (Nyantakyi *et al.*, 2015) shows that African countries, particularly those south of the Sahara, have shallow financial depth, with only 24% of domestic credit lending to the private sector, which is half of the ratio for North Africa and other parts of the

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world (OECD, Latin America and the Caribbean). Only 21% of firms operating in African obtain credit from African banks, compared to 43% of firms in non-African countries (Beck and Cull, 2014). Mlachila *et al.* (2016) show that the average amount of loans made by banks to the private sector in African countries account for less than 30% of their GDP. This is lower than the average of more than 45% found in other developing counties. Again, there is a high degree of variation among African countries. Banks in South Africa, Mauritius and Morocco loan more than 50% of their GDP, while the Democratic Republic of Congo, Equatorial Guinea, Guinea, Guinea Bissau and South Sudan loan less than 5% of their GDP. The ratio of liquid liabilities to GDP in African countries is 48%, lower than that of other developing countries and developed countries (80–105%). This figure also varies among African countries. Lower levels of bank deposits to GDP, deposits to loans, higher intermediation costs, higher net interest margins and spreads are among other key features of African banking systems (Beck and Cull, 2014; Honohan and Beck, 2007),[3] figures for previous years can be found in Mutarindwa *et al.* (2020b). For an international comparison, refer to Table A1 in Mutarindwa *et al.* (2021).

The stark heterogeneity across banking systems calls for exploring the channels through which those different banking systems have been shaped. Appropriate policy recommendations depend on the knowledge about those channels.

3. Empirical approach

3.1 Data

Table 1 provides the names and descriptions of our variables. The data for our study come from a variety of sources. Institutional development data, macro-economic variables, banking development, governance indicators and population figures are all obtained from the World Bank. The data on the sub-classification of legal origins are from Klerman *et al.* (2011) and Oto-Peralías and Romero-Ávila (2014). In addition, we use the countries' profile of legal systems in Africa provided by the Lex Mundi Law Firm Network. Data pertaining to legal systems development (use of case law) are obtained from Guerriero (2016) who draws heavily on the International Encyclopedia of Comparative Law database. Data on ethnic fractionalization are sourced from the Harvard University Database developed by Drazanova (2019). Data on initial endowment conditions are obtained from Putterman and Weil (2010)'s data on the history of nations and state transition to agriculture and from McCord (2012)'s data on Malaria disease prevalence.

3.2 Description of legal system and financial legal institutions

Table 2 groups the countries in our sample into the four categories. Similar to La Porta *et al.* (1997) and (2008), we use categorical variables to indicate legal traditions. We categorize the countries in our sample based on British common law legal origin, mixed common law, French civil law and mixed civil law. To capture the type of colonization we distinguish between settler communities (*Settler*) and purely extractive colonization regimes (*Extraction*). We indicate the technique of developing the legal system by a dummy variable *Case law* following Beck *et al.* (2003), Guerriero (2016) and La Porta *et al.* (2004). This variable measures whether courts apply legal precedents established by case law when adjusting legal systems to respond to new legal and economic circumstances. A value of 1 is assigned to those countries that use case law and 0 otherwise.

Financial legal development institutions are drawn from the World Bank's Doing Business Reports (DBR) pertaining to minority investor and creditor protection rights. Minority investor's protection rights are measured by the *Investor protection* index capturing how countries' laws protect small shareholders from expropriation by block-holders and management. Creditor rights protection is measured

[3]For details on the state of banking systems development in Africa, see Table A5 in Mutarindwa *et al.* (2021).

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Table 1. Variables description

Variable	Descriptions	Source
Case law	A dummy variable with the value 1 if a country uses case law in its judicial processes and decisions; and 0 otherwise.	(c)
Civil law (French)	Dummy variable with the value 1 if the country was a direct French colony; and 0 otherwise.	(b)
Civil law (mixed)	Dummy variable with the value 1 if the country uses civil-law but not formerly colonized by France; and 0 otherwise.	(b)
Colonial type	Dummy variable for colonization approaches with the value 1 if the country was a settler colony; and 0 if the country was an extraction colony.	(b)
Common law (British)	Dummy variable with the value 1 if the country is a direct British colony; and 0 if a country was colonized by a country using British common law.	(b)
Common law (mixed)	Dummy variable with the value 1 if the country uses common-law but not formerly colonized by Britain; and 0 otherwise.	(b)
Control of corruption	A measure of the extent to which politicians and policy makers use their power and influence for private gains and measured using a scale from −2.5 to +2.5.	(a3)
Creditor rights	Assesses the extent to which credit laws protect both lenders and borrowers to simplify lending, and is measured on a scale of 0 to 10 from 2005 to 2014 and 0 to 12 from 2015 onward, where 10 and 12 are the highest scores for the two periods, respectively.	(a2)
Deposits to GDP	This measures banks' customer deposits as a percentage of a country's GDP.	(a1)
Enforcing contracts	Measured in number of days required to enforce contracts.	(a2)
EFindex	Measures the extent to which people belonging to a certain country differ in terms of ethnic identity even if they are chosen at a random. The index is measured from 0 (no fractionalization) to 1 (high ethnic diversity).	(f)
Government spending	A measure of government consumption in PPP as a share of GDP.	(g)
Investor protection	A composite of measures showing the extent to which minority investors are protected from expropriation with the values. It is measured from 0 to 30 for the 2006–2014 and 0 to 50 for the period 2015 onward. Higher values mean higher levels of minority investor protection.	(a2)
Liquid liabilities to GDP	Liquid, currency, demand and interest-bearing liabilities as a percentage of a country's GDP	(a1)
Loans to deposits	Ratio of lending size to total bank deposits.	(a1)
Log (*GDPpercapitaPPP*)	Gross domestic product per capita population in purchasing power parity terms expressed in natural logarithm form.	(a3)
Log(*Population*)	Population size of a given country and expressed in natural logarithm form.	(a4)
Malaria stability index	Measures malaria prevalence as the proxy for settler mortality. Higher values show higher malaria disease burden.	(e)
NIM	Net interest margin is a measure of the difference between bank interest income and interest expenses. It is expressed as a percentage.	(a1)
Private credit to GDP	Loans to private sector as a percentage of GDP.	(a1)
Regulatory quality	A measure of the extent to which states and governments are able to develop and execute policies that incentivize private sector development measured on a scale from −2.5 to +2.5.	(a3)
State history	A measure of the extent to which current countries had by the year 1500 sub-tribal governments, geographical boundaries and if the countries were ruled by indigenous people or outside countries. The measure	(d)

(*Continued*)

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Table 1. (*Continued.*)

Variable	Descriptions	Source
	ranges from 0 to 1 where a higher values indicates a longer time of state existence.	
Transition to agriculture	An estimate of the number of years (millennia) before the year 2000, when countries' population migrated from hunting activities to agriculture. Higher values indicate earlier transition to agriculture.	(d)

Sources: (a1) Global Financial Development Database; (a2) World Bank: Doing Business projects; (a3) World Development Indicators; (a4) World Population estimates; (a5) World Governance Indicators; (b) Maoz and Henderson (2013), Klerman *et al.* (2011), Oto-Peralías and Romero-Ávila (2014), and La Porta *et al.* (1997); (c) Guerriero (2016); (d) Putterman (2004); (e) McCord (2012), Emenalo *et al.* (2018: 354); (f) Drazanova (2019); (g) Penn World Table 9.1, Groningen University Growth and Development Center.

Table 2. Legal traditions classifications

Civil-French	Civil-mixed	Common-British	Common-mixed
Benin	Angola (Portugal)	Gambia	Botswana (British + Dutch)
Burkina Faso	Burundi (Belgium)	Ghana	Namibia (British + Dutch)
Central African Rep.	Cameroon (French + British)	Kenya	South Africa (British + Dutch)
Chad	Cape Verde (Portugal)	Lesotho	Swaziland[a] (British + Dutch)
Cote d'Ivoire	Democratic Rep. of Congo (Belgium)	Malawi	Zimbabwe (British + Dutch)
Djibouti	Equatorial Guinea (Spain)	Nigeria	
Gabon	Eritrea (Italy)	Sierra Leone	
Guinea-Conakry	Guinea-Bissau (Portugal)	Tanzania	
Madagascar	Mozambique (Portugal)	Uganda	
Mali	Rwanda (Belgium)	Zambia	
Mauritania	Togo (French + Germany)		
Niger			
Senegal			

Source: Oto-Peralías and Romero-Ávila (2014); Klerman *et al.* (2011) and, Lex Mundi.
[a]Swaziland changed its name in 2018 to Eswatini.

using the index *Creditor rights*. This variable captures the extent to which regulation and laws protect creditors from losses arising from loan defaults (Djankov *et al.*, 2007). *Enforcing contracts* measures the time that it takes creditors in a given country to enforce debt contracts. We also use Kaufman and Kraay (2008)'s measures of countries institutional development namely: *Control of corruption*, and *Regulatory quality*.

3.3 Measurement of initial endowments and culture

We follow Acemoglu *et al.* (2001) and Putterman and Weil (2010) in measuring precolonial conditions by initial endowments. Acemoglu *et al.* (2001) argue that European colonizers adopted different colonization strategies depending on the initial conditions found in the colonized region, such as the relative prevalence of tropical diseases and the population density of the indigenous people. Oto-Peralías and Romero-Ávila (2014) also explore the population density measure, and suggest that some densely populated precolonial regions limited European occupation, while other densely

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populated regions were favorable to European settlement and were used for resource extraction. We were unable to access Acemoglu *et al.* (2001)'s data on population density, so we opted for Putterman and Weil (2010)'s data on population migration and statehood from the year 1500 measured in the year 2000. Two measures are derived from this database, namely: state history and transition to agriculture. State history is a binary variable that measures whether a country had sub-tribal governments, geographical boundaries and/or if the country was governed by its indigenous people or by outside countries, by the year 1500.

In addition, we adopt McCord (2012)'s malaria prevalence variable to capture settler mortality. Recently, Emenalo *et al.* (2018) employed this measure to explore the effect of disease burden on the development of financial systems in African countries. Finally, we add the dummy variable *EFindex* which indicates the extent to which people belonging to a certain country differ in terms of ethnic identity, where 0 indicates no fractionalization and 1 high ethnic diversity.

3.4 Measurement of banking systems development

We use data from the Global Financial Development Database (GFDD) (Demirguc-Kunt *et al.*, 2018) to measure the development of a country's banking system. The World Bank's typology includes three characteristics of a bank: depth, breadth and intermediation. Two ratios, the ratio of private credit provided by domestic banks to the private sector to Gross Domestic Product (GDP) (*Private credit*),[4] and the ratio of liquid liabilities to GDP (*Liquid liabilities to GDP*) measure bank depth. The amount of deposit resources mobilized by banks as a percentage of a country's GDP (*Deposits to GDP*) represents the banking system's breadth. Two other variables, namely *Loans to deposits* and *Net interest margins (NIM)*, indicate the level of bank intermediation. A higher value of *Loans to deposits* and a lower value of *NIM* indicate a more developed banking system.

3.5 Control variables

We control for the macro-economic environment by using a proxy of the country's average income level, *log(GDPpercapita)*. Following Oto-Peralías and Romero-Ávila (2014) and Emenalo *et al.* (2018), we propose that higher incomes increase demand for financial services which ultimately drive differences in countries' financial development. We use GDP per capita, which is converted to international dollar using purchasing power parity rates (Emenalo *et al.*, 2018). The size of a country's population is also included as a control variable expressed as a natural logarithm of the country's population size, denoted as *log(Population)*. Allen *et al.* (2014) argue that higher population densities create scale economies and improve financial development. The extension is that higher population densities provide a higher number of depositors allowing financial institutions to accumulate more savings, and this in turn increases intermediation and a more efficient provision of financial services. We also use the variable share of government spending relative to GDP as a measure of state activity and provision of public goods.

4. Analysis and results

4.1 Sample description

In our sample, lending to private sector and liquid liabilities to GDP are, on average, 16.4 and 28.7%, respectively. These findings closely corroborate previous results in Beck *et al.* (2014), who find that

[4]It should be noted that, based on a sample of developed and emerging economies, Cecchetti and Kharroubi (2012) find that the ratio of private sector credit to GDP is supporting economic growth only up to a certain point. Beyond that point, a high ratio is a drag on growth. Pineda (2017) argues that a rising private sector borrowing was an important ingredient for the Asian financial crisis in the most affected four developing Asian economies. Private sector borrowing became unsustainable as the value of financial and real assets deteriorated when the 1997/1998 Asian financial crisis unfolded.

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private credit and liquid liabilities to GDP in Africa are, on average, 18 and 32%, respectively. These averages are considerably less than 34 and 47% (respectively) found in developing countries outside of Africa.

Thirty-five percent of the sample are countries that were once French colonies and use civil law as the basis of their legal system. Countries that were colonized by other European states but still practice civil law account for 28% of the sample. British colonies that use common law as the basis for their legal system account for 28% of the sample. Countries that were not British colonies but use common law as their legal basis make up 10% of the sample. An examination of the initial conditions variables reveals that settler colonies account for 33% of the countries in our sample, while 67% belong to the extraction colonies group (see Tables A2 and A3 in the online supplementary materials of Mutarindwa *et al.*, 2021).

Minority shareholders and creditors (creditor rights and enforcement of contracts) are relatively more protected in common law than in civil law countries. Our results reveal that common law countries have higher regulatory quality and reduced levels of corruption as compared to civil law countries, indicating superior governance institutions. Our banking development variables indicate that private credit to GDP in common law countries is higher than in civil law countries (see Table A4 in Mutarindwa *et al.* (2021) summarizing descriptive statistics for the legal traditions origin and also provides *t*-tests on differences between the legal traditions).

There are remarkable differences in the sample with respect to private sector lending. South Africa has the highest ratio of private credit to GDP (above 60%), while countries such as the Democratic Republic of Congo, Chad, Guinea and Guinea Bissau have the lowest (below 10%). A longitudinal comparison reveals that Botswana and Cape Verde's private credit to GDP ratio show observable improvements over time, while this ratio has decreased over time in Chad, Congo and Gabon. Some countries have banks with extremely large liquid liabilities to GDP, and a larger proportion of loans to deposits. Our intermediation variable indicates that countries such as Angola, Central African Republic, Democratic Republic of Congo, Gabon, Ghana, Liberia, Malawi, Siera Leone, Tanzania, Uganda and Zimbabwe have relatively higher interest margins (see Table A5 in Mutarindwa *et al.* (2021) which summarizes the development of our banking systems' indicators by country over time).

4.2 Econometric models

To test the four propositions, we use the CRE approach (Mundlak, 1978; Wooldridge, 2010). This econometric model has the advantage that it allows to estimate the effects of time-invariant variables, such as, legal origin or colonial settlement type. Furthermore, it relaxes the requirement of the random effects model that unobserved heterogeneity may not be correlated with the explanatory variables as those correlations are explicitly modeled by including the group-specific averages of time-variant explanatory variables into the model which is known as Mundlak formulation.

The CRE model can be written as (Schunck, 2013; Schunck and Perales, 2017):

$$y_{it} = \beta_0 + \beta_w x_{it} + \beta_2 c_i + \pi \bar{x}_i + \mu_i + \lambda_t + \nu_{it} \tag{1}$$

where y_{it} is the dependent variable for country i in year t, β_w corresponds to the within estimates, $\bar{x_i}$ are group specific means of variables and π indicates the difference between within and between estimates, $\pi = \beta_w - \beta_b$. μ_i denote individual random effects uncorrelated with the error term ν_{it}, λ_t denotes time effects and x_{it} the other explanatory variables of the model. It should be noted that if H_0: $\pi = 0$ is not rejected, a pure random effects model would be the appropriate model. Under the alternative H_1: $\pi \neq 0$, the CRE specification is supported. It is also worth noting that the CRE formulation corresponds to an augmented regression model test where a Hausman test on the random versus fixed effects specification is conducted.

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Schunck (2013) shows that the CRE model is numerically equivalent to a so-called hybrid model specification that encompasses both within and between estimates of time-variant variables:

$$y_{it} = \beta_0 + \beta_w(x_{it} - \bar{x}_i) + \beta_2 c_i + \beta_b \bar{x}_i + \mu_i + \lambda_t + \nu_{it}. \tag{2}$$

Because the between group estimates $\hat{\beta}_b$ have a direct interpretation, we prefer to report the results from the hybrid model over the CRE specification results.[5] The within estimate $\hat{\beta}_w$ shows the effect of a time-varying variable on the outcome at the country level, while the between estimate $\hat{\beta}_b$ is interpreted as the long-term impact of that variable. At the same time we can identify the impact of time-invariant variables denoted as c_i with this approach.

In the first set of estimates using the CRE model, time-invariant legal tradition and colonial type as well as other time-varying country controls are used as explanatory variables as shown below:

$$\begin{aligned} \textit{Creditor/Investor protection}_{it} = & f(\textit{Legal tradition}_i, \textit{Colonial type}_i, \textit{Controls}_{it}) \\ & + \mu_i + \lambda_t + \omega_{it} \end{aligned} \tag{3}$$

where the dependent variables describe countries $i = 1, \ldots N$ financial legal development in year t.

The variable *Legal tradition*$_i$ represents the legal origins category consisting of common law (British), common law (mixed), civil law (French) and civil law (mixed), and the variable *Colonial type*$_i$ describes settler versus extraction colonization. *Controls*$_{it}$ denotes the country controls including country's population size (using log) and macro-economic variables including growth rate and GDP per capita in country i at time t. ω_{it} denotes the error term.

The second set of estimations contains our main results. We explain depth, breadth and the level of intermediation of the countries' banking sectors with legal tradition, financial legal institutions, colonial type, initial endowment, culture and institutional development and quality and additional control variables such as population size and GDP per capita.

$$\begin{aligned} \textit{Banking System Development}_{it} = & f(\textit{Creditor/Investor protection}_{it}, \textit{ Legal tradition}_i, \\ & \textit{Colonial type}_i, \textit{ Initial Endowment}_i, \textit{Culture}_i, \\ & \textit{Institutional development and governance quality}_{it}, \\ & \textit{Controls}_{it}) + \mu_i + \lambda_t + \varepsilon_{it} \end{aligned} \tag{4}$$

where μ_i and λ_t denote country- and years-effects, respectively, and ε_{it} denotes the error term. These models are also estimated by employing the CRE estimator which allows identification of the effect of time-invariant variables as well as provides within and between estimates for the time-varying variables.

4.3 The relationship between legal origin, colonial settlement type and financial legal institutions

Table 3 reports the results for the CRE model. Our main interest is to examine whether the strength of the financial legal institutions is strongly linked to the legal tradition. As is common in the research initiated by La Porta *et al.* (1997, 1998) (hereafter LLSV), the variable *Legal tradition* describes only the dichotomous categories of common and civil law. The significance of the *Legal tradition* coefficients strongly confirms Proposition 1a. Common law is linked to stronger investor protection and creditor rights and to more prompt enforcement of debt contracts. Not entirely surprisingly, results for the dichotomous categories of legal origin are in line with previous findings in the LLSV literature (Beck *et al.*, 2003; Djankov *et al.*, 2003; La Porta *et al.*, 1997). The type of colonization (settler versus

[5]Because of the equivalence of hybrid and CRE model, we will refer to the CRE model even if the concrete specification is hybrid according to Schunck (2013).

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Table 3. Relationship between legal traditions, colonial settlement type and investor/creditor protection (CRE model estimates)

	(1)	(2)	(3)	(4)	(5)	(6)
	Creditor rights	Investor protection	Enforcing contracts	Creditor rights	Investor protection	Enforcing contracts
Legal tradition: Common	2.536***	4.636***	−129.5*	–	–	–
Law (*t*)	(7.05)	(4.75)	(−1.84)			
Legal tradition: Common	–	–	–	2.517***	4.712***	−102.4
Law (British) (*t*)				(6.08)	(4.91)	(−1.48)
Legal tradition: Common	–	–	–	1.976***	6.315**	−17.77
Law (mixed) (*t*)				(3.91)	(2.56)	(−0.11)
Legal tradition: Civil	–	–	–	−0.306	1.054	104.9
Law (mixed) (*t*)				(−0.61)	(1.00)	(0.80)
Colonial type: settler (*t*)	−0.0234	2.250***	193.4***	−0.00590	2.246***	197.2***
	(−0.05)	(3.13)	(2.75)	(−0.01)	(2.74)	(2.63)
log(*Population*) (*b*)	0.333**	1.295***	−51.30	0.322**	1.336***	−49.77
	(2.35)	(2.77)	(−1.24)	(2.20)	(2.82)	(−1.22)
log(*GDPpercapita*) (*w*)	−0.0745	2.401*	−36.32*	−0.0824	2.383*	−36.64*
	(−0.13)	(1.71)	(−1.85)	(−0.14)	(1.69)	(−1.85)
Cons	−0.381	−13.53	1,806.6*	−0.749	−12.77	1,852.5*
	(−0.11)	(−1.25)	(1.78)	(−0.21)	(−1.35)	(1.83)
Country random effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	535	511	566	535	511	566
No. of countries	40	40	40	40	40	40
Log-likelihood	−888.7	− 1,277.2	− 3,202.9	−888.4	− 1,277.5	− 3,202.2
χ^2	47,653.1	2,137.1	6,506,822.0	76,691.2	2,087.8	9,547,627.0
p-value	0.000	0.000	0.000	0.000	0.000	0.000
BIC	1,915.5	2,685.4	6,551.5	1,927.6	2,698.5	6,562.8

Notes: Cluster robust *t* statistics in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Reference categories: Legal origin: Civil law (French), Colonial type: extraction, (*t*) denotes time invariant, (*b*) denotes between, (*w*) within estimates. Parameters log(*GDPpercapita*) (b) and log(*Population*) (*w*) not reported.
Enforcing contracts in days, see Table 1.

extraction) also matters. The coefficient of the variable *Colonial type:settler* is in line with Proposition 1b as it is related to a higher level of investor protection. Interestingly, former settler colonies are associated with weaker contract enforcement mechanisms, in the sense that in those countries it takes, on average, more days to enforce a contract.

The other macro indicators are of minor relevance in the CRE regression approach. The level of economic development (measured by GDP per capita) has no significant impact on any of the dependent variables. For the sake of brevity, we only report for this variable the within estimate, since it reflects improvement of income in the respective country. The size of a country's population affects the existence of strong creditor rights positively. For this variable we only report the between estimates, as it reflects differences across countries in terms of different market sizes.

Table 3 also reports in columns 4–6 results using the legal origins sub-groups as explanatory variables in the CRE approach. It can be seen that British common law judicial origins have stronger creditor rights and better investor protection than civil law countries. Overall, the Bayesian information criterion (BIC) values indicate that the models shown in columns 1–3 are superior as increasing the models' complexity in columns 4–6 is not compensated by a much better model fit. Therefore, in our attempt to explain banking sector development, the following analyses focus only on the common law *versus* civil law distinction, and we disregard the mixed legal origins subgroups.

4.4 Determinants of banking system development in African countries

We turn now to our main question of interest: How do legal institutions shape the evolution of banking sectors in African countries and what role does the legal and colonial heritage play?

Table 4 reports the regression results from the CRE model. *Creditor rights* (*b*) and *Enforcing contracts* (*b*) influence banking system development, however, creditor rights have, in contrast to Proposition 2, a negative effect on the depth and breadth of the banking system. Only the within estimates of *Creditor rights* (*w*) show the expected influence on breadth and intermediation. It should be noted that an increase in *Creditor rights* (*w*) lowers the cost of banking. Clearly, as many coefficients of the legal institutions are insignificant or have an unexpected sign, the obtained results from the CRE estimation do not support Proposition 2.

Proposition 2 is only partly confirmed with respect to formal institutions. The indicator *Legal tradition* shows a significant influence on development, in particular banking sectors in countries with a *Common Law* origin have a significant higher depth and breadth. However, in terms of intermediation, the cost of banking is higher and the loans to deposit ratio is lower for countries with common law origin.

Colonial heritage affects banking system development. Countries that were settled by colonizers have deeper and broader financial systems than countries that experienced purely extractive colonization. Those findings confirm the second part of Proposition 2, and are compatible with the notion that, in contrast to the native population, settlers had the power to influence political and judicial decision making in support of constructing and developing a decent banking system in the colony where they settled. Although legal origin and colonial heritage matter, current legal institutions show only a modest impact on banking system development in African countries.

The set of estimates shown in Table 5 describes the role played by institutional development and governance quality in the development of banking systems in African countries. Specifically, we employ the variables *Regulatory quality* and *Control of corruption* as measures for the overall governance quality in the respective country. We also include the share of government spending as an additional control to investigate the degree to which the government contributes to banking sector development, relative to the private sector.

The CRE results highlight that governance quality matters for most dimensions of banking system development, and even renders some of the previously significant factors as insignificant. This shows that the positive effect of the common law tradition on financial development is captured by a higher degree of institutional development and governance quality in those countries. Thus, a better

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Table 4. Institutional determinants of banking system development (CRE model estimates)

	Depth		Breadth	Intermediation	
	Private credit	Liquid liab to GDP	Deposits to GDP	Loans to deposits	NIM
Legal tradition: Common Law (t)	1.367	16.07**	14.41***	−30.42***	2.324**
	(0.35)	(1.99)	(2.65)	(−2.63)	(2.00)
Colonial type: Settler (t)	8.651**	12.71**	11.01***	0.0633	0.291
	(2.14)	(2.10)	(2.86)	(0.01)	(0.47)
Creditor rights (*b*)	−2.655*	−7.457**	−5.486**	5.060**	0.203
	(−1.68)	(−2.26)	(−2.46)	(1.99)	(0.65)
Investor protection (*b*)	1.159*	−0.208	0.189	1.584	−0.0236
	(1.67)	(−0.23)	(0.30)	(1.41)	(−0.23)
Enforcing contracts (*b*)	−0.0121**	−0.0189	−0.0134**	−0.00910	0.000251
	(−2.51)	(−1.53)	(−2.25)	(−0.68)	(0.23)
Creditor rights (*w*)	0.357	0.648*	0.992***	1.257*	−0.257**
	(1.45)	(1.70)	(2.97)	(1.83)	(−2.57)
Investor protection (*w*)	−0.0296	−0.172	−0.561***	−0.0188	−0.0146
	(−0.29)	(−1.21)	(−3.51)	(−0.07)	(−0.32)
Enforcing contracts (*w*)	−0.00195	0.00989	0.0124	−0.0126	−0.00164
	(−0.37)	(1.16)	(1.61)	(−0.80)	(−0.97)
log(*GDPpercapita*) (*w*)	0.922	−4.151	1.712	−6.351	0.290
	(0.28)	(−1.14)	(0.27)	(−0.82)	(0.18)
log(*Population*) (*b*)	−3.266*	−6.185***	−4.824**	0.700	0.138
	(−1.69)	(−2.59)	(−2.37)	(0.23)	(0.43)
Cons	57.88	183.6***	112.4**	43.28	11.58*
	(1.25)	(3.18)	(2.16)	(0.59)	(1.68)
Country random effects	Yes	Yes	Yes	Yes	Yes

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Year fixed effects	Yes	Yes	Yes	Yes	Yes
N	437	430	428	440	424
No. of countries	40	40	39	40	40
Log-likelihood	− 1,181.9	− 1,297.5	− 1,383.8	− 1,677.7	−853.5
χ^2	26,107.8	2,898,194.8	729,759.0	105,622.7	248.9
p-value	0.000	0.000	0.000	0.000	0.000
BIC (df = 26, *n* = 430)	2,521.4	2,752.7	2,925.3	3,513.0	1,864.6

Notes: See Table 3.

governance quality is conducive for banking system development, which supports Proposition 3. We also find that the governmental spending is conducive to banking sector development, in particular in terms of private credit and loans to deposit. Government spending is a signal for the importance of the state in the economy. For one, it is conducive for the supply of liquid and safe assets. Such assets are essential for banks. Accordingly, a positive relationship arises naturally between the spending variable and the development of the banking system. Moreover, the flourishing of the banking sector depends on the quality of regulation and supervision (Mutarindwa *et al.*, 2020a), and thus on governmental money for the regulatory and supervisory infrastructure. Also, we find that across countries, those countries with a higher share of government spending as a percentage of GDP have lower banking costs.

A BIC comparison of the models presented in Table 5 with the models presented in Table 4 reveals that the models that include institutional development and governance quality variables have a similar or even somewhat lower BIC score. This indicates that those models are slightly better in explaining banking sector development considering the increased model complexity due to including more variables.

Proposition 4 is a consideration of alternative explanations of banking sector development and concludes our empirical analysis. These estimations are reported in Table A6 (Mutarindwa *et al.*, 2021). We include four additional time-invariant variables compared to our baseline estimates of Table 4: initial endowment proxied by *Malaria* variable, ethnic diversity captured by the *EFindex*, *State history* and *Transition to agriculture*. We add the variable *Case law* to indicate whether the country uses case law to establish legal precedent.[6]

No clear pattern emerges that helps to explain which parts of banking sector development are influenced by these four additional variables. Although higher *EFindex* values have a positive effect on private credit and loans to deposit ratios, malaria occurrence and late transition to agriculture have a detrimental effect on banking sector development. Surprisingly, the application of case law appears to have a negative influence on all variables of banking sector development, except for the cost of banking. What is even more striking is that the BIC score for all models using the four additional time-invariant variables are lower when compared to baseline models reported in Table 4, which we view as supporting Proposition 4.

4.5 Robustness tests

The first set of robustness checks concern potential endogeneity of financial institutions. Although legal origin, colonization type or initial endowment is less of a concern, the legal institutions (*Creditor rights, Investor protection* and *Enforcing contracts*) are potentially endogenous in explaining banking sector development. The Hausman–Taylor estimator (Hausman and Taylor, 1981) uses instruments to explain depth, breadth and the level of intermediation in the countries' banking sectors. Specifically, we instrument *Creditor rights*, *Investor protection* and *Enforcing contracts* with all exogenous variables in the specification (Table A7, Mutarindwa *et al.*, 2021).

By using instruments, in particular the legal origin, we follow earlier scholarly study, e.g. Levine *et al.* (2000), La Porta *et al.* (2006), Caprio *et al.* (2007) and Beck *et al.* (2006) who use legal tradition to explain minority investor protection, creditor rights, contract enforcement and property rights. By including the colonial type as an instrument, we borrow from Acemoglu *et al.* (2001). Using instruments change the results considerably, see Table A7 in Mutarindwa *et al.* (2021), but overall the support for Proposition 2 remains still quite weak.[7]

Another potential concern is that cluster robust standard errors might be downward biased as the number of clusters is 40 or below and several regressors vary only at the country level. To investigate this issue, we computed bootstrap standard errors with asymptotic refinement, which are expected to

[6]Note that many civil law countries are applying case law as well.

[7]More results based on HT estimator can be found in a previous version of this paper, see Mutarindwa *et al.* (2020b).

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Table 5. Institutional determinants of banking system development with government quality indicators and share of government spending in GDP (CRE model estimates)

	Depth		Breadth	Intermediation	
	Private credit	Liquid liab to GDP	Deposits to GDP	Loans to deposits	NIM
Legal tradition: Common law (*t*)	−2.733	4.183	8.753*	−31.47***	3.512***
	(−0.75)	(0.76)	(1.88)	(−2.97)	(3.79)
Colonial type: settler (*t*)	4.603	4.694	4.738	−3.033	0.903
	(1.52)	(1.07)	(1.37)	(−0.51)	(1.41)
Regulatory quality (*b*)	11.21*	16.07*	15.83*	15.70	−1.932***
	(1.73)	(1.93)	(1.93)	(1.33)	(−2.72)
Control of corruption (*b*)	2.753	−0.554	1.034	0.309	0.927
	(0.40)	(−0.06)	(0.13)	(0.03)	(1.17)
Government spending (*b*)	49.74*	36.93	37.29	49.87	−14.68***
	(1.79)	(1.13)	(1.32)	(0.80)	(−3.17)
Regulatory quality (*w*)	2.074	−3.995	−3.024	14.48**	1.475*
	(1.22)	(−1.34)	(−1.34)	(2.53)	(1.86)
Control of corruption (*w*)	0.136	0.00341	−1.461*	1.231	−0.224
	(0.25)	(0.00)	(−1.69)	(0.74)	(−0.81)
Government spending (*w*)	13.06**	19.99**	16.75*	18.09	−2.780
	(2.09)	(2.22)	(1.91)	(1.07)	(−0.70)
Creditor rights (*b*)	−1.606	−4.352*	−5.084**	4.570**	−0.140
	(−1.16)	(−1.87)	(−2.55)	(2.36)	(−0.66)
Investor protection (*b*)	0.736	0.355	0.173	0.840	−0.0746
	(1.46)	(0.76)	(0.38)	(0.68)	(−1.09)
Enforcing contracts (*b*)	−0.00726*	−0.00396	−0.00792	−0.0105	−0.000694
	(−1.70)	(−0.67)	(−1.55)	(−0.72)	(−1.06)
Creditor rights (*w*)	0.267	0.690*	1.117***	0.798	−0.274***
	(1.13)	(1.87)	(3.33)	(1.20)	(−3.00)
Investor protection (*w*)	−0.0563	−0.164	−0.545***	−0.145	−0.0206
	(−0.54)	(−1.23)	(−3.36)	(−0.59)	(−0.47)
Enforcing contracts (*w*)	−0.00198	0.00903	0.0116	−0.0112	−0.00132
	(−0.37)	(0.99)	(1.43)	(−0.81)	(−0.77)
log(*GDPpercapita*) (*w*)	−0.508	−2.138	3.649	−13.23	−0.196
	(−0.17)	(−0.56)	(0.54)	(−1.60)	(−0.11)
log(*Population*) (*b*)	−0.778	−5.067***	−3.027*	2.957	−0.0254
	(−0.51)	(−3.02)	(−1.93)	(0.68)	(−0.08)
Cons	15.36	132.2***	85.41**	35.55	19.50***
	(0.40)	(3.00)	(2.15)	(0.36)	(2.75)

(*Continued*)

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Table 5. (*Continued.*)

	Depth		Breadth	Intermediation	
	Private credit	Liquid liab to GDP	Deposits to GDP	Loans to deposits	NIM
Country random effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
N	430	423	427	433	421
No. of countries	39	39	39	39	39
Log-likelihood	− 1,139.0	− 1,235.1	− 1,368.8	− 1,638.4	−836.9
χ^2	78,318.7	1,345,285.4	373,585.1	145,201.3	687.3
p-value	0.000	0.000	0.000	0.000	0.000
BIC (df = 32, *n* = 430)	2,472.1	2,664.2	2,931.7	3,470.9	1,867.8

Notes: See Table 3.

have lower finite sample bias, see Cameron *et al.* (2008).[8] The findings of this exercise reveal that the estimated standard errors reported in Table 4 are quite accurate showing little downward bias and most significant results remain using the bootstrap standard errors.

5. Conclusions

Some of the law and finance literature claims that a country's legal tradition (common law *versus* civil law) explains the development of legal systems, institutions and financial systems. This study examines whether this claim holds for banking system development in African countries. We hypothesize that it is not only the legal tradition that is important, but the type of colonization also matters. We use a sample of 40 African countries and focus exclusively on banking system development, rather than considering the entire financial system, as is commonly done in extant literature.

As expected, we find confirmation for the legal tradition channel, and show that a common law tradition leads to stronger financial legal institutions (Proposition 1). Surprisingly, however, we find little evidence that the second expected channel of stronger legal institutions, e.g. investor protection or creditor rights, leads to a more highly developed banking system (Proposition 2). Despite this, one finding that emerges is that stronger creditor rights reduce the cost of banking in African countries.

Overall, our study confirms the conjecture that legal history matters in African countries, and that both the legal tradition and the type of colonization determine the strength of current legal institutions, e.g. creditor rights and investor protection. We also find support that colonial initial endowment, culture and ethnic diversity matter as well (Proposition 4), although the results are not very precise regarding these influences. The results also highlight that institutional development and governance quality significantly promotes banking system development in African countries (Proposition 3). Whether or not current governance quality itself is determined by the legal origin and/or colonial history is a question left for future research.

These findings have important policy implications. The law and finance literature concludes that the common law and civil law legal traditions are main drivers of differences in financial outcomes. This literature also suggests that the common law tradition promotes improved financial outcomes. Findings from our study, however, indicate that banking system development in Africa depend on governance quality and institutional development for both the civil and common law traditions. This implies that policy makers should focus less on strengthening existing legal institutions (creditor rights

[8]We use 999 replications with cluster-paired bootstrap and the percentile-*t* method.

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or investor protection), but rather focus on improving overall institutional and regulatory quality as a way of promoting banking system development.

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