

What determines Financial Development? Culture, Institutions, or Trade*

Nils Herger[†] Roland Hodler[‡] Michael Lobsiger[§]

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Abstract

This paper endeavours to explain the vast differences in the size of capital markets across countries, by drawing together theories emphasising cultural values, dysfunctional institutions, or impediments to trade as obstacles to financial development. To account for endogeneity, instrumental variables pertaining to culture, geography, and colonial history are employed. We find that trade openness and institutions constraining the political elite from expropriating financiers exhibit a strong positive effect on the size of capital markets. Conversely, cultural beliefs and the cost of enforcing financial contracts seem not to introduce significant obstacles for financial development.

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[†]Department of Economics, University of Berne, Schanzeneckstrasse 1, CH-3001 Berne, Switzerland (nils.herger@vwi.unibe.ch).

[‡]Department of Economics, University of Melbourne, Victoria 3010, Australia (rhodler@unimelb.edu.au).

[§]Department of Economics, University of Berne (michael.lobsiger@vwi.unibe.ch).

1 Introduction

Economic globalisation has had a particular profound impact upon financial development during the last four decades giving rise to a group of closely intertwined international markets on which banks, corporations, or government agencies trade an increasing amount of assets such as bonds, shares, or currencies. The transaction cost of accessing external funds has shrunk considerably, which facilitates investment and market entry, entails competitive pressures to innovate, mobilises savings to accumulate capital, and eventually induces further economic growth (Levine 1997, 2005). Still, in terms of financial development, considerable heterogeneity continues to exist around the world. While in the period 1990-1999 total capitalisation of stock markets in Hong Kong, Malaysia, or Luxembourg exceeded 100 per cent of GDP, many developing countries did not provide firms the possibility of gaining access to equity finance by selling shares. Moreover, even within the OECD, during the same period, the largest credit markets such as those of Japan or Switzerland granted about ten times more funds to their private sector than the least financially developed member states e.g. Turkey or Poland.

Given the nexus between financial and economic development as well as the relatively high international capital mobility, it is *prima facie* not clear why such differences in the size of financial markets persist. To date, three broad theories have been proposed to explain the absence of financial development in some countries amid the ongoing globalisation.

First, according to Stulz and Williamson (2003), cultural heritage may preserve a shared set of widely self-perpetuating values and beliefs even when these are highly deterrent to financial intermediation. Religions in particular impose numerous rules of moral conduct on matters such as the seeking of enrichment, (illegitimate) financial practices such as usury, or may even prohibit charging interest rates. Thereby, most religions seem to attach more weight to the rights of debtors than those of creditors.

Secondly, institutional theories point out that upholding and credibly enforcing property rights - e.g. the right of property owners to extract returns on investment - stands crucial in conducting financial transactions since potential financiers will be reluctant to surrender funds in the face of risks of being expropriated. Thereby, according to the law and finance theory of La Porta et al. (1997), legal systems differ systematically in proliferating property rights. The common law evolved in 17th century England in order to protect property owners from being dispossessed by the Crown, which gave rise to relatively good investor protection. Conversely, instead of protecting private contracts and property rights, the

development of French civil law rested on the desire to solidify state power by giving the government the right to centrally enact statutes. Despite attempts to eliminate the role of corrupt courts, centralising the legal system resulted instead in increased incentives to abuse public power for private benefit (Beck et al. 2003). Thus, legal origin matters against the background that financiers require, as a last resort, some third party like the court system to prevent entrepreneurs from deferring repayments. However, enforcing arm's-length contracts necessitates the delegation of discretionary power to some authority, which always opens up opportunities for predatory behaviour when bureaucrats, judges, or politicians infringe property rights in order to pocket rents accruing from financial transactions and development (Acemoglu and Johnson 2005).

Finally, when adopting a political economy perspective, establishing open and transparent financial markets might not always serve the interest of the political and economic elite. In particular, Rajan and Zingales (2003) argue that while developed stock markets and banking systems enhance economic wealth in general, they initiate competition and may therefore run contrary to the private interests of powerful groups. In countries sheltered from foreign competition, elites with access to government power and economic rents may indeed have considerable incentives to keep tight control of financial transactions in order to prevent new enterprises from entering the domestic market. Conversely, in countries that are open to international goods trade and well integrated into the global economy, domestic rents are likely to be competed down by foreign firms regardless the efficiency of domestic capital markets. Indeed, Ades and Di Tella (1999) find corruption, as a particular form of rent-seeking, to be more endemic in countries with modest exports and imports relative to the size of their economy.

Hitherto, empirical studies have assessed the determinants of financial development separately against the background of individual theories.

As regards cultural determinants, Stulz and Williamson (2003) suggest that the principal monotheistic religions such as Catholicism, Islam, and Protestantism relate systematically to the establishment and enforcement of creditors' rights and therefore affect the efficiency of capital markets.

La Porta et al. (1997) and Beck et al. (2003) observe that common and civil law systems were spread by means of colonial rule as well as the Napoleonic conquests in the aftermath of

the French revolution.¹ This allows to relate the relatively limited capital markets in French civil law countries directly to legal origin, which causes poor investor protection, without risking that the causality runs from financial underdevelopment undermining investor protection and legal efficiency instead.

Stressing the importance of institutionalised constraints preventing predatory governance rather than the contractual, or legal dimension, Acemoglu and Johnson (2005) attribute the differences across countries' financial development to the colonial strategy of European empires, which largely depended on the disease environment encountered by European settlers. In places with relatively modest health hazards for settlement, colonial powers devised institutions that were similar to those of the home country preventing e.g. the government from having access to excessive levels of power. By comparison, territories too hostile for settlement served merely for extracting resources, and institutions were put in place to maximise state income rather than to promote good governance. In former colonies, both the origin of legal institutions, e.g. which power colonised a territory, and institutions to prevent predatory governance, e.g. for what purpose was a territory colonised for according to the disease environment, continue to determine the size of capital markets (Beck et al. 2003). However, constraining government power seems to matter more when explaining financial development (Acemoglu and Johnson 2005).

Finally, in the empirical part of their studies, Rajan and Zingales (2003) as well as Huang and Temple (2005) find the expected positive relationship between trade openness and financial development, at least in countries open to capital flows, which provides some support for the interest group theory of financial development. However, trade openness might affect financial development through channels other than easing the opposition of incumbent political and economic elites. For example, Do and Levchenko (2006) argue that in countries abundantly endowed with physical capital, specialisation in capital-intensive industries increases the demand for well functioning financial intermediation.

The contribution of the present paper lies in conducting an integrated test on the ability of cultural beliefs and values, institutional quality, and trade to explain cross-country differences in financial development. To avoid our results being affected by regional financial downturns such as the Asian crises in 1997, we employ data on stock market capitalisation and the amount of credit granted to the private sector averaged over the 1990s to measure the

¹The overlap between colonial and legal origin is close but not perfect. E.g. despite a British colonial heritage, Jordan, Egypt, Iraq, Malta, and Mauritius adopted civil law systems.

size of capital markets. Further pitfalls arise from the interdependence between trade and finance (Svaleryd and Vlachos 2002) and institutions and finance, which necessitates drawing up an econometric system embedded in exogenous variables including colonial history, culture, and geography. For the period under consideration, these instrumental variables can be considered as predetermined, e.g. they may serve as sources of exogenous variation uncorrelated with stochastic components of endogenous financial, institutional, and trade variables, allowing to estimate financial development by means of two-stage least squares.

The results suggest that trade openness and institutions hindering elites from amassing rents by infringing property rights of investors provide the basis to set off financial development. Conversely, there is limited support for the hypothesis that cultural beliefs associated with religious affiliation, and burdensome procedures for enforcing contracts rooted in legal heritage, exhibit a direct and determining impact upon the size of capital markets.

The remainder is organised as follows: section 2 draws together the interrelationships between financial development and its determinants into an econometric model meanwhile section 3 prepares the stage further by discussing instrumental variables predicting institutional quality and trade openness. Section 4 assembles exogenous and predicted variables pertaining to culture, institutions, and trade to assess their explanatory power on financial development. Section 5 summarises and concludes.

2 An Econometric System for the Determinants of Financial Development

From the 1960s onwards, many countries around the world have witnessed a gradual rise in the size, breadth, and valuation of their capital markets (Rajan and Zingales 2003), which has coincided with a further deepening of international economic integration and efforts to spread institutions to enhance the quality of government. Thus, well functioning capital markets, institutional quality, and trade openness might be determined simultaneously within a system of structural equations rather than exhibiting unilateral, effect-cause relationships. The path diagram of figure 1 attempts to summarise the interrelationships between exogenous and endogenous variables that feature in the theoretical literature on financial development.²

²A similar diagram explaining income levels appears in Rodrik et al. (2004).

Figure 1 about here

The direct determinants of financial development, designated by solid arrows, have been discussed during the outset. To recapitulate, a shift from small-scale personal to complex impersonal financial exchanges requires institutions (*INS*) such as the rule of law or political checks and balances that protect intermediaries from expropriation e.g. when debtors breach contracts or a leviathan political elite interferes with financial transactions to seek self-enrichment (path A). Economic integration provides an alternative way of mitigating against opportunistic behaviour, since trade openness (*TRD*) tends to erode rents and undermine the political opposition of incumbents to financial development (B). Further, culture (*CUL*) directly affects the establishment of capital markets insofar as attitudes are promoted that reduce uncertainties within financial transactions or beliefs are held that sacrifice creditors' or debtors' rights on the altar of religious tenets (C).

Some of the determinants of financial development in figure 1 constitute endogenous variables, which are designated by unshaded boxes, to the extent that they are themselves re-affected by established capital markets or depend on some third variable. For example, institutional quality by definition manifests in lower transaction costs (North 1990: Chapter 4), which in turn fosters international trade (D) therefore exhibiting an indirect effect onto the size of capital markets. Then again, open markets could not only deliver foreign goods but likewise reversely cause sound institutions, e.g. when new ideas travel along trading routes (E). A similar reverse causality as regards the interest group theory occurs when broad capital markets facilitate the access to external funds of both domestic and international entrepreneurs and thereby feed back upon international trade (F). In particular, Feeney and Hillman (2004) as well as Svaleryd and Vlachos (2002) point out that capital markets serve to diversify risk and thus may act as complement for protectionist impediments to trade intended to insure domestic markets against shocks originating in the global economy.

Turning towards sources of exogenous variation (designated by shaded boxes) upon which no other variable impacts, culture (*CUL*) may affect the establishment of capital markets indirectly by enhancing institutional quality (G). According to La Porta et al. (1999), religions such as Catholicism and Islam with a rather centralised interpretation of faith, rely on a hierarchically structured organisation to solidify spiritual power, which breeds intolerance towards modernisation, reduces the quality of government, and tends to retard economic development (see also Landes 1998: Chapters 11, 24).

Other exogenous factors impacting indirectly upon financial development include colonial history (*HIS*) and geography (*GEO*).

Legal and political institutions safeguarding financial transactions have historically been spread through conquest (H). Since institutions typically change only gradually over time (North 1990), the effect of exogenously imposed institutions potentially endures long after the control of an occupying or colonial power has ceased.

Despite steady decreases in transportation costs, trade continues to be in essence a neighbourhood phenomenon related to geographical factors (I). This finding has been exploited by Frankel and Romer (1999) who construct trade shares from a gravity equation regressing bilateral exchanges onto distance, country size, and other geographical variables. Finally, relating institutional quality to geographical factors (J) rests on the striking fact that most (financially) underdeveloped countries are located within the tropics and subtropics rather than in temperate areas. However, we are not aware of any theory linking financial development directly to climatic or ecological conditions. Rather, climate zones, proxied by e.g. a country's latitude, reflect the disease environment encountered during colonial settlement, which determined the incentives to create extractive institutions (Acemoglu and Johnson 2005), or affect agricultural productivity and in turn the proportion of the labour force potentially available for industrial production. Despite substantial research efforts, the importance of geography as a determinant of a country's development remains controversial (among others, Gallup et al. 1999; Landes 1998: Chapters 1,2; Rodrik et al. 2004; Sachs 2003). In particular, the exact path through which a measure like latitude ends up affecting financial development is far from clear. Therefore, we employ geographical latitude as a broad control for economic, institutional, and historical conditions and will assess its impact carefully meanwhile conducting robustness checks.

The relationships of figure 1 can be restated in form of structural equations for each endogenous variable. In particular, econometric equations associate financial development,

$$\alpha_{11}FIN + \alpha_{12}INS + \alpha_{13}TRD + \beta_{11}CUL = c_1 + \epsilon_1 \quad (1)$$

institutional quality,

$$\alpha_{22}INS + \alpha_{23}TRD + \beta_{21}CUL + \beta_{22}GEO + \beta_{23}HIS = c_2 + \epsilon_2 \quad (2)$$

and trade openness,

$$\alpha_{31}FIN + \alpha_{32}INS + \alpha_{33}TRD + \beta_{32}GEO = c_3 + \epsilon_3 \quad (3)$$

with exogenous variables (*CUL*, *GEO*, *HIS*), whose coefficients are designated by β_{ij} with subscripts ij referring to equations respectively variables, endogenous variables, whose coefficients are designated by α_{ij} , stochastic disturbances ϵ_i , and an intercept term c_i . In order not to risk simultaneous equations bias, financial development (1) needs estimating jointly with (2) and (3) within the structural system,

$$y'A + z'B = c' + \epsilon' \quad (4)$$

where y is a 1×3 vector collecting endogenous variables (*FIN*, *INS*, *TRD*) whilst the 1×3 vector z collects the set of exogenous, or instrumental variables (*CUL*, *GEO*, *HIS*). Matrices A and B contain the structural coefficients, some of which can, however, not be retrieved from (4) since endogenous variables, y , affected by reverse causality remain unobservable. Instead, institutional quality (\widehat{INS}) and trade openness (\widehat{TRD}) can be predicted by means of a two stage-stage least squares procedure (2SLS), which, after transforming (4) into its reduced form,

$$y' = c'A^{-1} - z'BA^{-1} + \epsilon'A^{-1} \quad (5)$$

regresses endogenous variables first onto underlying instrumental variables. To the extent that the fitted values (\widehat{INS}) and (\widehat{TRD}) are highly correlated with their actual counterparts, they serve as good proxies to establish the causal impact of institutional quality and trade openness upon financial development during the second stage.

3 Instrumental Variables predicting Institutional Quality and Trade

To prepare the ground for establishing the determinants of financial development, this section extracts the predicted variables for institutional quality and trade openness from first-stage regressions onto underlying instrumental variables within the reduced form (5). We focus on parsimonious models including a small number of exogenous variables, which exhibit a strong and theoretically underpinned correlation with institutional quality and trade since instruments with coefficients close to zero, e.g. weak instruments, might harm the efficiency of subsequent estimates (Staiger and Stock 1997). Unlike other direct determinants of financial development, culture encompasses exogenous variables and therefore does not need to be instrumented for in a first stage.

3.1 Institutional Quality

Institutional quality manifests within financial exchanges in the degree to which humanly devised rules lead to the proliferation of investor protection and facilitate the access of entrepreneurs to external funds. In arm's-length financial transactions, the prospect for enforcing financial contracts depends in turn on the willingness of the state to protect investors from being dispossessed. However, the state itself may infringe property rights when politicians or bureaucrats abuse their discretion in order to seek self-enrichment inducing arbitrariness based uncertainty, which undermines the trust in arm's-length transactions.

North (1981) addresses the irony of contracting parties relying on the state to protect financial transactions and the risk that a political elite supposed to govern financial markets will extract financial resources instead, by distinguishing a contracting and predatory dimension of institutional quality. Under the contracting view, financiers and entrepreneurs are thought to enter voluntary agreements, e.g. on respecting prespecified property rights, constraining the potential activities inter se to facilitate financial transactions in a mutually beneficial manner. Likewise, state organisations devised to monitor and enforce property rights constitute the product of mutual consent. Conversely, under the predatory view the state is perceived as an agency receiving fiscal revenue from financiers/entrepreneurs in exchange for granting and safeguarding property rights. Then, institutional quality manifests in the degree to which the rule of law and checks and balances constrain the political elite from pursuing their self-interest by manipulating creditors' and debtors' rights, thus undermining secure financial transactions.

Following Acemoglu and Johnson (2005), an index on LEGAL FORMALISM involved in collecting a bounced cheque, which assigns scores to countries from 1 (least cumbersome procedures) to 7 (most cumbersome procedures), measures the quality of contracting institutions. Conversely, predatory institutions are reflected by the CONSTRAINTS ON THE EXECUTIVE as measured by a seven category scale index averaged over the 1990s with higher values designating more constraints.³ Note that an increase in LEGAL FORMALISM translates into a decrease in institutional quality whereas the opposite relationship holds for CONSTRAINTS ON THE EXECUTIVE.

Table 3 reports the estimated impact of various historical, cultural, and geographical instruments upon institutional quality; table 1 of the appendix provides exact definitions

³Acemoglu and Johnson (2005) label the "vertical" or state-entrepreneur/financier dimension as "property rights" rather than "predatory" institutions.

and sources of all variables. Throughout the remainder, variables have been standardised to enable a direct comparison between the magnitude of estimated coefficients.⁴

Table 3 about here

Institutions change only incrementally like society itself wherefore their origin matters. For example, colonial history left a deep imprint on the establishment of legal and political institutions as well as on the religious and linguistic environment in countries formerly controlled by European empires.

In particular, column (1) shows that COMMON LAW heritage tends to significantly reduce LEGAL FORMALISM thus enhancing contracting institutions, which coincides with the findings of Djankov et al. (2002) in their cross-country study on the cost involved in setting up a firm. COMMON LAW evolves around the resolution of disputes by the courts and is only subsequently enacted into legal principles. The absence of an encompassing legal codification could provide judges with the flexibility to focus on the resolution of legal conflicts without having to comply with strict dogmas or potentially burdensome procedural rules. Conversely, the civil law relies on a collection of centrally enacted and authoritative legal principles, which leave judges with less discretion to resolve disputes on a case-by-case basis. Albeit this mitigates against abuses by corrupt judges (which was the basic rationale for designing the French civil law) a comprehensive codification allegedly induces more cumbersome procedures and hence increases the cost of enforcing a contract.

As regards predatory institutions, the fraction of the population having a major EUROPEAN LANGUAGE as the mother tongue has been taken from Hall and Jones (1999) to instrument for the credible enforcement of property rights. Institutions, such as democracy, checks and balances, or the rule of law guarding against usurpatory state power originated in Western Europe and were spread during the colonial era. Therefore, the affiliation with these institutions relates systematically to the influence colonial powers exerted over a territory, which could be preserved in present-day linguistic conditions. Estimates of column (2) indeed find a strong positive relationship between the extent to which EUROPEAN LANGUAGES are spoken and the degree to which a country puts CONSTRAINTS ON THE EXECUTIVE e.g. to prevent investors from being dispossessed. The mortality rates of European settlers before 1850 provide another way to trace the influence of colonial powers and the corresponding spread of institutions mitigating against predatory governance. Despite only relating to former colonies reducing the sample by almost 50 countries, settler

⁴E.g. coefficients designate the conditional impact of a change of one standard deviation upon the change of the standardised dependent variable.

MORTALITY rates enter the regressions of column (3) significantly with the expected negative sign. However, under the joint inclusion with EUROPEAN LANGUAGES in column (4) the coefficient on settler MORTALITY is only marginally significant possibly due to multicollinearity.

Religious affiliation and ethnic diversity constitute two broad measures of cultural differences across countries.

Stulz and Williamson (2003) introduce religious affiliation⁵ to explain differences in investor protection arguing that - compared with Protestantism which allows for multiple, competing churches - Catholic and Muslim belief systems rely more on centrally organised hierarchies entailing wider consequences for the quality of government when institutionalised into other areas of society.⁶ Firstly, the proportion of CATHOLIC believers of a country's population seems to induce a weaker protection of creditors' rights and increase the legal formalities to enforce contracts. This may be attributed to the close association between state and church in some Catholic countries, where bureaucracies originated in religious ranks adopting the hierarchical structure of the Catholic church. Furthermore, Beck et al. (2003) find that in French civil law countries a large share of the population affiliates with Catholicism implying that the positive entry of CATHOLIC might partly reflect legal heritage. Secondly, a centralised interpretation of faith runs contrary to empowering individuals to adopt an attitude of self-responsibility and to question religious authority. Owing to powerful bonds between state and religion that are not congenial to developing institutions to hold elites accountable for the absence of e.g. financial development, column (2) of table 3 suggests that MUSLIM countries in particular tend to place only modest CONSTRAINTS ON THE EXECUTIVE. This coincides with the finding of La Porta et al. (1999) that countries with a large proportion of MUSLIMS tend to suffer from a low quality of government.⁷

Easterly and Levine (1997), La Porta et al. (1999), and Alesina et al. (2003) suggest ETHNIC DIVERSITY to impact negatively upon institutional quality since polarised soci-

⁵Unlike Stulz and Williamson (2003), this study follows La Porta et al. (1999) and Beck et al. (2003) by measuring the impact of religions by the proportion of the population affiliated to a belief system rather than indicating the predominant religion. Employing alternative measures of religious affiliation however did not affect the essence of the aftermentioned results.

⁶For a recent empirical study see La Porta et al. (1999). Landes (1998) provides an economic history perspective on how values and beliefs inherent in religions affect the wealth of nations.

⁷Neither PROTESTANT and MUSLIM nor PROTESTANT and CATHOLIC impact upon LEGAL FORMALISM respectively the CONSTRAINTS ON THE EXECUTIVE in a significant manner. Therefore they do not enter the current first-stage regressions. Including them regardless did not alter the essence of the aftermentioned results.

eties might find it more difficult to agree on a set of rules to prevent political elites from having access to an excessive amount of power. Social conflicts could even induce ethnic groups controlling the government to draw up cumbersome legal procedures, which allow to extract more rents for their coethics along the lines of the tollbooth theory of regulation of Shleifer and Vishny (1993). However, within our sample of countries, ETHNIC DIVERSITY results in a significant deterioration only of predatory but not contracting institutions.

Finally, a country’s institutional quality increases in its LATITUDE. However, possibly due to its aforementioned collinearity with settler MORTALITY, the positive entries of LATITUDE in columns (3) and (4) impact only marginally significant upon the CONSTRAINTS ON THE EXECUTIVE suggesting that the distance from the equator may partly reflect the desire of European colonisers to settle in familiar climatic zones.

To preserve a high number of observations and account for the diversity of countries never subject to colonial rule, the specifications of columns (1) and (2) are employed to extract fitted values on institutional quality (\widehat{INS}). Columns (2) and (4) of table 2 of the appendix report the constructed scores for LEGAL FORMALISM respectively CONSTRAINTS ON THE EXECUTIVE, which exhibit a correlation of 0.69 and 0.74 with their actual counterparts. Furthermore, the F-statistic of the first-stage regressions exceeds the threshold value of 10 suggested by Staiger and Stock (1997) to uncover weak instruments. Finally, the pairwise correlation between the fitted values of the first-stage regressions (\widehat{INS}) is around -0.14 meaning that contracting and predatory institutions do indeed seem to reflect different dimensions of institutional quality.

3.2 Trade Openness

Efforts to adopt an open financial system might coincide with policies to remove impediments to international trade. However, to establish the impact of TRADE OPENNESS, measured by imports and exports as a share of GDP, a country’s propensity to trade needs establishing in a first-stage from underlying exogenous variables. Thereto, Frankel and Romer (1999) observe that international trade between countries associates closely with their geographical proximity and their joint (market) size. To asses the causal impact of economic integration, we employ CONSTRUCTED TRADE shares taken from Frankel and Rose (2002) and extracted from a standard gravity equation regressing bilateral trade flows between country-pairs in 1990 onto the distance between their capital cities, country size in terms of joint area and the population of the target country, a common language and border indicator, as

well as whether or not countries are landlocked. Owing to the relationship with exclusively geographical variables, this offers a measure of the propensity for economic integration that remains unaffected by feed back from e.g. economic or financial development.

As can be observed from columns (5) and (6) of table 2, the constructed degree consistently underestimates the actual degree of economic integration. Frankel and Romer (1999: 384-386) attribute this to the fact that gravity equations do not account for the role of within-country exchanges, which might be of particular importance when domestic markets are large. Nevertheless, the constructed level of trade openness linearly predicts its actual counterpart with an F-statistic of 53.86 achieving a correlation of around 0.5, and - in line with the findings of Frankel and Romer (1999), Frankel and Rose (2002), or Huang and Temple (2005) - seems to provide a strong enough instrument to reveal the causal impact of internationally open goods markets upon financial development.

4 Determinants of financial development

4.1 Baseline Results

Firms wishing to invest in physical capital, product innovations, or entering new (geographical) markets can raise external finance by assuming debt or selling equity. Unfortunately, comparable measures on the degree to which financial intermediaries facilitate the access to external funds in different countries are, to our knowledge, currently unavailable. To nonetheless establish the causal impact of culture, institutions, and trade upon financial development, we follow Beck et al. (2003) and look at the size of capital markets, which is supposed to indicate the degree to which they shape up to their expected economic purposes such as mobilising capital, allocating funds, exerting corporate control, or easing the trade of goods (see also Levine 1997: 691). Furthermore, countries differ considerably as regards the relative importance of bank loan and equity finance. For example, compared with the US and the UK, companies in Germany and Japan rely more often on banks than stock markets for financial intermediation. Moreover, in developing countries assuming debt is still the predominant form to access external finance (La Porta et al. 1997). To account for the different modes of raising funds, two commonly employed measures proxy for financial development (Acemoglu and Johnson 2005; Beck et al. 2003): CREDIT reflects the total amount of financial resources that establish a claim for repayment (loans, trade credits, non-equity securities, etc.) granted to the private sector whereas STOCK measures the market capitalisation in terms of the total value of shares traded on the domestic stock market.

To account for economic size and mitigate against fluctuation inherent in financial markets, both variables are expressed in terms of a fraction of GDP and have been averaged over the years 1990-99. The final two columns of table 2 of the appendix list financial development variables.

Table 4 reports the results of regressing variables pertaining to institutional quality, economic integration, and culture onto CREDIT and STOCK.

Table 4 about here

For reference, columns (1) and (4) report estimates based on the actual rather than predicted values of respectively institutional quality and trade openness. The difference between the coefficients estimated by OLS and two-stage least squares (2SLS) of column (2) and (5) provides the basis for conducting a Hausman test, which, with a χ^2 statistic of 41.85 respectively 179.2, allows indeed rejecting the hypothesis of no correlation between the errors and regressors at any conventional level.

Stock market development exhibits properties of a censored variable in the sense that 32 countries of our common sample report a value of zero⁸, e.g. they do not offer firms the possibility of selling equity on domestic stock exchanges. To account for the censored distribution, column (3) of table 4 applies Tobit estimates to uncover the effect of instrumental and exogenous variables onto STOCK and confirm the robustness of the results.

The significant coefficients of table 4 widely shape up to theoretical priors and reveal the following patterns inherent in financial development around the world:

First, there is only weak evidence that religious affiliation promotes values and beliefs that directly undermine the development of financial markets. Countries with a large MUSLIM population even seem to allocate relatively more CREDIT to the private sector, which could be attributed to their generally modest level of economic development making bank lending the preferred mode of finance. Conversely, in accordance with the findings of Stulz and Williamson (2003) and Beck et al. (2003), CATHOLIC countries seem to have somewhat narrower capital markets even after controlling for their weaker protection of creditors' rights during the first stage. However, the effect is only significant upon equity finance. Contrary to the widely held theory that PROTESTANT tenets (in particular those of Calvinism) such as predestination, professional success as a divine sign for future salvation, and the prohibition

⁸Employing standardised values shifts the accumulation of countries from a value of zero towards the corresponding z-value.

to live a life in dissipation and luxury foster capital accumulation, present results find neither a significant nor a systematic effect on financial development.⁹

Secondly, regardless the estimation method and at any conventional level of rejection, TRADE OPENNESS tends to enlarge the size of capital markets for both equity and debt finance in a statistically significant manner. Furthermore, the magnitude of the coefficients imply that an increase in trade relative to GDP of one standard deviation entails an increase in financial development of between one third and half a standard deviation. The positive entry of economic integration lends support to the interest group theory of Rajan and Zingales (2003), e.g. reducing impediments to trade increases the contestability of domestic markets, reduces monopoly rents, and thereby disciplines domestic elites not to corrupt the benefits of financial development away. However, in countries with comparative advantages in capital intensive industries, the nexus between the size of financial market and economic integration may also be attributed to an increase in the demand for external funds.

Finally, placing more CONSTRAINTS ON THE EXECUTIVE consistently and significantly enhances the relative size of capital markets with economically large coefficients accruing in particular to the amount of CREDIT granted to the private sector. Similarly to the way which international economic integration competes away monopoly rents, a high quality of predatory institutions constrains political power that might be abused by the elite to usurp rents from financial transactions. TRADE OPENNESS and the CONSTRAINTS ON THE EXECUTIVE, hence, may serve the same goal of protecting current and future investors from being expropriated by a leviathan government emphasising, however, the role of excessive monopoly rents respectively political power as an obstacle to financial development. Conversely, contracting institutions inherent in LEGAL FORMALISM exhibit a far smaller impact upon financial development, with rather modest and far from significant coefficients estimated by 2SLS. Therefore, the nexus between investor protection and the common law seems not to provide the crucial determinant to explain why some countries remain financially underdeveloped. Rather, as suggested by Acemoglu and Johnson (2005), financial markets can work without prominent contracting institutions, albeit, due to the widely negative entry of LEGAL FORMALISM, an effective enforcement of contracts seems to facilitate financial transactions made at arm's-length to some extent.

⁹Easterly and Levine (1997) find a positive correlation between ETHNIC and CREDIT. We have not included ETHNIC as we would expect its effect on financial development to occur primarily via the quality of institutions. Including ETHNIC nevertheless resulted in an insignificant coefficient which did not affect the significance or direction of impact of the remaining variables.

4.2 Robustness Checks

The accuracy of two-stage least squares estimates rests on the quality of the instrumental variables employed. Given that the predicted values for institutional quality and trade openness of table 2 correlate closely with their actual counterparts, and F-statistics of the first-stage regressions exceed the threshold value of 10 proposed by Staiger and Stock (1997), there is a priori no evidence that the present results suffer from weak instruments. However, the recent literature on economic and financial development has given rise to a variety of alternative historical and geographical variables related to institutional quality and trade openness, some of which serve in table 5 to run robustness checks on the baseline results. First-stage results are not reported here as the essence of section 3 carries over when employing alternative instruments.

Table 5 about here

To mitigate against reverse causality and simultaneous equations bias, Acemoglu and Johnson (2005) as well as Beck et al. (2003) restrict their sample to ex-colonies. Columns (1) and (2) of table 5 follow their approach by introducing settler MORTALITY rates and the POPULATION DENSITY in former colonies to predict the quality of predatory institutions. To recapitulate, greater health hazards for settlement altered the colonial strategy insofar as European powers used some territories only to extract resources, which called for government authority not subject to effective institutional checks and balances. Likewise, the POPULATION DENSITY in 1500 of column (2) impinges on the colonial strategy as sparsely populated territories such as Australia, Canada, or New Zealand served as destinations for a vast number of European emigrants, who installed institutions imposing constraints on excessive state power similar to those in their countries of origin.

Sachs (2003) has argued that LATITUDE leaves major geographical factors unaccounted for. In particular, the distance from the equator does not relate to the poor agricultural productivity of tropical red soils compared with the brown and black soils predominating in temperate zones, or the vast climatic differences between countries located on the western or eastern sides of a continent. Therefore, two alternative instruments for geographical obstacles to development are employed. Against the background that financially and institutionally underdeveloped countries are located predominantly around the equator, column (3) of table 5 employs the percentage of land located in TROPIC zones and column (4) uses the proportion of the population living with the risk of contracting MALARIA as geographical control variable.

Due to the controversy arising around the exact theoretical underpinning and empirical direction of the impact of geography upon a country's development (Gallup et al. 1999; Sachs 2003; Rodrik et al. 2004), column (5) of table 5 drops LATITUDE altogether from the set of variables instrumenting for contracting and predatory institutions.

Finally, meanwhile relating TRADE OPENNESS to proximity variables between country pairs, column (6) of table 5 follows Frankel and Romer (1999: 385), who account for within-country trade by introducing country size in terms of population and area as additional instruments to CONSTRUCTED TRADE shares.

Above all, employing alternative sets of instrumental variables to circumvent the endogeneity of institutional quality and trade openness lends further support to the previous findings that reducing the risk of expropriation within the vertical, state-entrepreneur/financier relationship stands crucial to achieve a high degree of financial development. Predatory institutions and international economic integration fail only to produce a significant impact upon the development of STOCK markets when dropping respectively LATITUDE in column (5) and accounting for within-country trade in column (6). Meanwhile, the quality of the legal protection and enforcement of property rights within the horizontal, financier-entrepreneur relationship seems to be beneficial, but not to constitute a prerequisite for establishing well functioning capital markets. Finally, yet again there is some evidence that CATHOLIC countries have somewhat smaller capital markets. Moreover MUSLIM belief relates to the composition of financial markets insofar as Islamic countries tend to rely more on debt finance.

The final two columns of table 5 follow Huang and Temple (2005) to split the sample into lower and lower-middle income countries as well as high and upper middle-income countries. This reduces the number of observations and the heterogeneity within the corresponding subgroup thereby lowering the regression-fit. Investor protection is better proliferated by high income countries, which - aside from oil-exporting countries - score mostly the maximum value of 7 in constraining the state from having access to excessive levels of power. Conversely, the quality of contracting institutions is less strongly associated with income levels. With an average value of 3.9, low income countries score only 0.5 points higher on the extent of LEGAL FORMALISM, which does not translate into significantly smaller capital markets for neither group of countries. Conversely, TRADE OPENNESS continues to affect financial development in a significantly positive manner regardless the difference in income levels. For low income countries, this concurrence between internationally open mar-

kets and financial development is unlikely to result from an increased demand for financial intermediation by export-orientated industries specialising in capital intensive production, as proposed by Do and Levchenko (2006). Finally, column (8) of table 5 suggests that the detrimental impact of CATHOLIC on the size of capital markets arises mainly in high income countries.

Alternative measures have been suggested to proxy for institutional quality. In particular, Acemoglu and Johnson (2005: 967-975) consider additional indices such as the RISK OF EXPROPRIATION on foreign direct investments and PRIVATE PROPERTY RIGHTS to measure the quality of predatory institutions as well as the PROCEDURAL COMPLEXITY and the NUMBER OF PROCEDURES involved in collecting commercial debt to measure the quality of contracting institutions.

Table 6 about here

Table 6 reports the results when different indices are employed to proxy for the quality of contracting and predatory institutions. Once again, the essence of our previous results is confirmed. In particular, mitigating against the risk that elites with access to political power appropriate rents by expropriating financiers increases the willingness for financial intermediaries to surrender funds. However, meanwhile internationally open markets seem all-important to financial development, according to the results of table 6, institutions to prevent predatory governance seem more important when undertaking equity finance. Moreover, in contrast to bank-loan finance, countries dominated by Catholicism tend to have smaller stock markets. Other religious and contracting institutions seem to exhibit only an insignificant direct impact upon financial development.

5 Concluding Remarks

By drawing together theories emphasising the role of cultural values and beliefs, dysfunctional institutions, or impediments to trade as obstacles to financial development, this paper has endeavoured to shed more light on the reasons why some countries lack well functioning capital markets, despite the benefits financial markets offer for establishing new enterprises and fostering economic growth. Two-stage least squares, which estimate the joint effects of financial development, institutional quality, and trade openness, suggest that controlling the risk that an incumbent elite with access to government power will appropriate rents by

expropriating investors stands crucial in establishing well functioning financial intermediaries. Primarily, leaving domestic markets open to foreign trade and competition, but also institutions devised to prevent predatory governance - e.g. by strengthening checks and balances, democratic accountability, or the rule of law - provide mechanisms to undermine the ability of domestic elites to pocket rents by dispossessing financiers. Conversely, contracting institutions seem to be less important insofar as some capital markets apparently thrive in the absence of safeguarded financial contracts between investors and entrepreneurs. Furthermore, cultural values and beliefs affecting creditors' and debtors' rights seem to play only a minor role in directly determining the size of capital markets. Only Catholic affiliation in high income countries tends to restrain the size of capital markets to some degree. However, cultural factors such as religion or ethnic diversity affect the quality of predatory institutions thereby exhibiting an indirect effect onto financial development.

Two-stage least squares attribute endogenous variables such as institutional quality or trade to exogenous factors such as culture, colonial history, or geography before evaluating their impact upon the size of stock and credit markets. This, however, does not imply that exogenous factors predetermine financial development but merely constitutes a statistical procedure to offset reverse causality. In particular, different countries have pursued different strategies relying e.g. more on checks and balances, reducing impediments to trade, or fostering democratic accountability to prevent rent-seeking governance. However, implementing credible policies to reduce the risk of financiers being expropriated by the state could be highly beneficial when financial intermediaries surrender more funds towards new businesses, which in turn tends to foster economic growth.

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A Data Appendix

Table 1: Description of the Data Set

This table summarises the data set collected for up to 129 countries as averages over the 1990s unless otherwise stated.

<u>Variable</u>	<u>Description</u>	<u>Source</u>
CREDIT	Financial resources provided to the private sector as a fraction of GDP. Financial resources include loans, purchases of nonequity securities, trade credits, and other accounts receivable, that establish a claim for repayment.	Compiled from World Development Indicators (WDI).
STOCK	Average market value of all traded stocks as a fraction of GDP.	Compiled from WDI.
CATHOLIC	Share of the population affiliated to Catholicism in 2001.	Encyclopedia Britannica, 2001.
MUSLIM	Share of the population affiliated to Islam in 2001.	Encyclopedia Britannica, 2001.
PROTESTANT	Share of the population affiliated to Protestantism in 2001.	Encyclopedia Britannica, 2001.
ETHNIC	Ethnic fractionalisation computed for the years 1965 - 1995 as one minus the Herfindahl index of ethnic group shares ($Ethnic = 1 - \sum s^2$) reflecting the probability that two randomly selected individuals belong to different ethnolinguistic groups.	Alesina et al. (2003).
LEGAL FORMALISM	Index of formality in legal procedures for collecting a bounced cheque in 2004. Index scores range between 1 and 7 with higher values designating more legal formalism.	Acemoglu and Johnson (2005).
PROCEDURAL COMPLEXITY	Index of complexity in collecting commercial debt in 2004. Index scores range from 0 to 10 with higher values designating more complex procedures.	Acemoglu and Johnson (2005).
NUMBER OF PROCEDURES	Number of procedures involved in collecting commercial debt in 2004.	Acemoglu and Johnson (2005).
CONSTRAINTS ON EXECUTIVE	Index on the institutional limitations put on the executive authority in terms of average for the years 1990-1999. Index scores range from 0 to 7 with higher values designating more constraints on exerting executive power.	Acemoglu and Johnson (2005).
PROPERTY RIGHTS	Index on the protection of private property. Index scores range from 0 to 7 with higher values designating more secure property rights.	Heritage Foundation.
RISK OF EXPROPRIATION	Index on the risk of expropriation of private foreign investment by the government in terms of average over the years 1985-1995. Index scores range from 0 to 10. To make the results more intuitive, scores have been reversed with higher values designating more risk.	Political Risk Service.
EUROPEAN LANGUAGE	Fraction of the population speaking one of the major languages of Western Europe: English, French, German, Portuguese or Spanish.	Hall and Jones (1999).
POPULATION DENSITY	Population density in 1500.	Acemoglu et al. (2001).

Table 1 Continued

MORTALITY	Estimated mortality of European settlers in colonies before 1850. Mortality rates refer to European-born soldiers, sailors, and bishops when stationed in colonies. It measures the effects of local diseases on people without inherited or acquired immunities.	Acemoglu et al. (2001).
TRADE OPENNESS	International economic integration measured by cumulated exports and imports as a share of real GDP per capita (calculated with the Laspeyres method).	Penn World Table Version 6.1.
CONSTRUCTED TRADE	Trade openness extracted from a gravity equation on distance, country size, and other geographical controls.	Frankel and Rose (2002).
LATITUDE	Country's distance from the equator scaled to take values between 0 and 1, where 0 designates the location of the equator and 1 designates the poles.	La Porta et al. (1999).
TROPIC	Land surface located in tropical climatic zone (defined after the classification of Koeppen and Geiger).	Gallup et al. (1999).
MALARIA	Population living in areas with malaria in 1994.	Gallup et al. (1999).
POP	Population of a country	WDI.

Table 2: Basic Data

Country	High and Upper Middle Income Countries						Credit to Private Sector	Stock market Capital.
	Contracting Institutions		Predatory Institutions		Trade Openness			
	Actual	Constr.	Actual	Constr.	Actual	Constr.		
Argentina	5.40	4.39	5.18	6.57	0.18	0.03	0.19	0.13
Australia	1.80	2.68	7.00	6.67	0.38	0.02	0.71	0.63
Austria	3.52	4.00	7.00	7.47	0.73	0.16	0.95	0.13
Bahamas		2.84		5.98	1.11	0.12	0.57	0
Bahrain	4.40	2.74	1.73	3.31	1.64	0.38	0.57	1.05
Barbados	2.37	2.73	6.18	6.04	1.05	0.47	0.49	0.38
Belgium	2.73	4.33	7.00	6.33	1.43	0.66	0.67	0.46
Chile	4.57	4.32	7.00	6.62	0.52	0.04	0.55	0.83
Costa Rica	5.48	4.71	7.00	5.72	0.77	0.14	0.14	0.07
Czech Rep.	4.06	3.82	7.00	6.26	0.85	0.13	0.72	0.23
Denmark	2.55	3.28	7.00	6.85	0.71	0.28	0.37	0.38
Dominica		3.28		6.07	1.25	0.02	0.54	
Finland	3.14	3.19	7.00	7.11	0.57	0.10	0.70	0.51
France	3.23	4.02	6.00	7.38	0.43	0.15	0.90	0.40
Gabon		4.89	2.00	3.66	1.05	0.04	0.10	0
Greece	3.99	3.57	7.00	6.01	0.43	0.11	0.34	0.28
Grenada	2.80	3.20		5.86	1.08	0.36	0.60	
Hong Kong	0.73	2.55		5.46	2.42	1.36	1.53	2.07
Hungary	3.42	3.94	7.00	6.38	0.82	0.10	0.29	0.13
Iceland	4.13	3.14	7.00	7.22	0.68	0.10	0.55	0.24
Ireland	2.63	2.82	7.00	7.48	1.26	0.31	0.65	0.58
Israel	3.30	2.57	7.00	5.14	0.59	0.22	0.67	0.37
Italy	4.04	4.12	7.00	6.23	0.46	0.14	0.60	0.22
Japan	2.98	3.52	7.00	6.12	0.17	0.07	1.99	0.76
Korea (South)	3.37	3.55	6.00	6.17	0.54	0.14	0.72	0.35
Kuwait	3.88	2.79	2.80	3.14	0.99	0.32	0.47	0.63
Luxembourg	3.56	4.39	7.00	5.95	2.21		1.08	1.43
Malaysia	2.34	3.16	4.46	2.80	1.93	0.12	1.32	1.85
Malta	2.44	3.04	7.00	6.06	1.20	0.66	0.97	0.16
Mauritius		3.01	7.00	5.11	1.27	0.40	0.47	0.30
Mexico	4.71	4.74	4.55	5.80	0.38	0.04	0.24	0.30
Morocco	4.71	3.87	2.82	3.20	0.52	0.09	0.45	0.18
Netherlands	3.07	3.59	7.00	6.57	1.08	0.44	0.95	0.83
New Zealand	1.58	2.55	7.00	6.77	0.62	0.04	0.93	0.44
Norway	2.95	3.17	7.00	7.13	0.71	0.11	0.76	0.28
Oman		4.00	1.91	3.05	0.87	0.14	0.31	0.22
Panama	5.84	4.87	6.00	5.12	1.67	0.12	0.70	0.16
Poland	4.15	4.06	6.36	6.68	0.40	0.12	0.22	0.05
Portugal	3.93	4.21	7.00	7.29	0.60	0.17	0.73	0.23
Qatar		2.90	1.00	2.64	0.79	0.15	0.40	0.35
Saudi Arabia		3.80	1.00	3.38	0.78	0.03	0.55	0.34
Singapore	2.50	3.05	3.00	3.94	3.31	0.92	1.06	1.40
South Africa	1.68	2.87	7.00	4.88	0.46	0.04	1.13	1.43
Spain	5.25	4.23	7.00	6.49	0.43	0.10	0.80	0.36
St. Kitts & Nevis		2.75		6.19	1.27	0.33	0.68	
St. Lucia		3.33		5.86	1.22	0.35	0.64	0
St. Vincent & Gren.	3.63	2.81		6.02	1.27	0.39	0.48	
Sweden	2.98	3.18	7.00	7.08	0.65	0.07	1.09	0.71
Switzerland	3.13	4.04	7.00	6.74	0.68	0.29	1.67	1.35
Trinidad & Tobago	4.05	2.94	3.00	6.07	0.93	0.25	0.45	0.25
Turkey	2.37		5.00	0.37	0.37	0.09	0.20	0.18
Utd. Arab Emirates		2.85	3.00	2.73	1.26	0.09	0.47	0.15
United Kingdom	2.58	3.40	7.00	7.74	0.47	0.14	1.16	1.21
United States	2.62	2.70	7.00	6.56	0.20	0.02	1.09	0.94
Uruguay	4.05	4.32	7.00	6.75	0.35	0.07	0.31	0.01
Venezuela	6.01	4.95	5.82	5.34	0.37	0.05	0.18	0.12

Low and Lower Middle Income Countries

Country	Contracting Institutions		Predatory Institutions		Trade Openness		Credit to Private Sector	Stock-market Capital.
	Actual	Constr.	Actual	Constr.	Actual	Constr.		
Algeria	4.62	3.84	2.45	3.28	0.63	0.06	0.13	0
Angola		4.75	3.00	4.06		0.02	0.04	0
Bangladesh	3.24	3.72	4.72	3.71	0.26	0.09	0.19	0.03
Benin	4.46	4.56	5.00	3.68	0.52	0.06	0.11	0
Bhutan		4.02	2.00	4.93	0.75	0.03	0.07	0.09
Bolivia	5.75	4.94	7.00	4.72	0.43	0.02	0.47	0.03
Brazil	3.06	4.63	6.00	5.37	0.18	0.02	0.48	0.21
Bulgaria	4.57	3.66	7.00	5.59	0.79	0.13	0.11	0.03
Burkina Faso	4.64	4.38	2.00	3.24	0.47	0.02	0.10	0
Burundi		4.69	2.14	4.37	0.14	0.03	0.18	0
Cameroon	4.77	4.76	2.00	3.22	0.47	0.15	0.13	0
Canada	2.09	2.72	7.00	7.04	0.70	0.03	0.80	0.65
Cen. African Rep.		4.58	3.91	3.46	0.62	0.03	0.05	0
Chad		4.51	1.90	2.92	0.57	0.01	0.04	0
Colombia	4.11	5.07	6.36	5.04	0.39	0.06	0.33	0.13
Comoros		3.87	4.30	3.05	0.55	0.12	0.14	
Congo Dem. Rep.		4.90	1.00	3.39	0.11	0.02	0.01	0
Congo Rep.		4.89	3.10	3.44	0.67	0.04	0.11	0
Djibouti		4.37	2.18	1.93	1.71	0.11	0.45	
Dominican Rep.	4.08	4.67	5.46	5.78	0.41	0.09	0.26	0
Ecuador	4.92	5.14	6.91	4.59	0.65	0.08	0.22	0.09
Egypt	3.79	2.52	3.00	3.62	0.47	0.09	0.38	0.14
El Salvador	4.60	3.33	5.00	5.93	0.48	0.24	0.20	0.09
Gambia		3.14	2.82	2.09	2.16	0.10	0.11	0
Ghana	2.65	3.22	3.30	3.73	0.89	0.05	0.06	0.15
Guatemala	5.68	4.72	4.36	5.20	0.41	0.16	0.17	0.01
Guinea		4.41	2.46	2.27	0.47	0.04	0.05	0
Guinea Bissau		4.47	3.78	3.05	1.02	0.06	0.11	
Guyana		3.20	4.27	4.69	0.06	0.06	0.35	0
Haiti		4.35	4.50	5.38	0.29	0.08	0.13	0
Honduras	4.90	4.61	5.00	5.93	0.96	0.16	0.30	0.08
India	3.34	2.78	7.00	4.64	0.20	0.05	0.24	0.27
Indonesia	3.90	4.45	2.82	1.99	0.79	0.04	0.48	0.20
Iran		3.99	3.36	2.93	0.50	0.04	0.28	0.14
Iraq		2.57	1.00	3.44	0.14	0.06		
Ivory Coast	3.65	4.60	2.80	3.02	0.68	0.04	0.23	0.07
Jamaica	2.34	2.87	7.00	5.84	1.12	0.13	0.29	0.33
Jordan	3.52	3.97	3.00	3.06	1.34	0.23	0.72	0.66
Kenya	3.09	3.47	3.00	3.36	0.56	0.03	0.33	0.16
Laos		4.10	3.00	4.65	0.44	0.06	0.08	
Madagascar	4.32	4.31	5.90	4.07	0.78	0.06	0.13	0
Malawi	2.95	3.17	3.55	3.83	0.62	0.06	0.09	0.02
Mali	4.72	4.22	4.60	2.48	0.53	0.02	0.13	0
Mauritania		4.13	3.00	2.51	1.01	0.03	0.31	
Mongolia		3.60	6.64	5.95	1.37	0.03	0.12	0.04
Mozambique	4.49	4.41	3.64	3.85	0.42	0.02	0.14	0
Myanmar		2.82	3.00	4.77		0.10	0.08	
Nepal	4.19	4.04	6.00	4.79	0.50	0.07	0.20	0.05
Nicaragua	4.96	4.72	6.09	5.22	0.54	0.13	0.47	0
Niger	4.32	4.21	4.40	2.52	0.43	0.01	0.07	0
Nigeria	3.19	3.25	1.80	2.96	0.45	0.04	0.11	0.07
Pakistan	3.76	2.81	5.73	2.82	0.31	0.14	0.27	0.15
Papua New Guinea		3.10	7.00	4.53	0.94	0.04	0.19	0
Paraguay	5.91	4.50	6.18	5.40	0.83	0.03	0.24	0.03
Peru	5.60	4.99	3.70	4.76	0.30	0.05	0.18	0.15
Philippines	5.00	4.64	6.18	4.75	1.01	0.11	0.40	0.53
Romania	4.42	3.60	5.46	6.14	0.01	0.01	0.10	0.01
Rwanda		4.72	1.70	4.26	0.63	0.03	0.08	0
Senegal	4.72	4.31	3.27	2.31	0.75	0.05	0.21	0
Sierra Leone		3.20	2.14	2.58	0.27	0.06	0.02	0
Somalia		3.16	1.00	1.81	0.04	0.03		
Sri Lanka	3.78	3.01	5.00	4.21	0.76	0.18	0.21	0.15
Sudan		3.07	1.00	2.72	0.17	0.03	0.03	0
Suriname		5.08	6.36	3.76	1.69	0.05	0.22	0
Syria		3.87	1.18	3.52	0.68	0.11	0.10	0
Tanzania	3.82	3.43	3.00	3.09	0.48	0.03	0.08	0
Thailand	3.14	4.22	6.27	4.30	0.98	0.12	1.25	0.52
Togo		4.54	1.89	3.67	0.75	0.07	0.21	
Tunisia	2.53	3.49	7.00	4.10	0.93	0.15	0.66	0.11
Uganda	2.61	3.71	2.46	3.17	0.33	0.02	0.04	0
Zambia	2.13	3.20	4.64	4.18	0.58	0.03	0.08	0.04
Zimbabwe	3.11	2.81	3.00	5.01	0.59	0.05	0.31	0.25

B Figures and Tables

Figure 1: Path Diagram of Financial Development

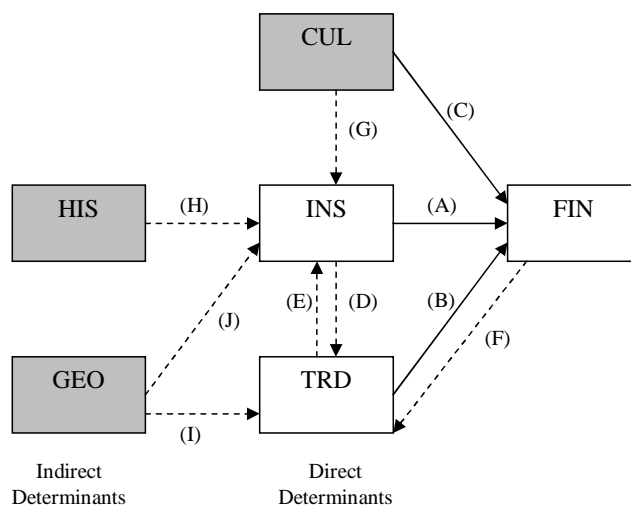


Table 3: First Stage: Institutional Quality Variables

Dependent Variable	Legal Formalism (1)	Constraints on Executive		
		(2)	(3)	(4)
Common Law	-0.56*** (0.08)			
European Language		0.20*** (0.06)		0.25** (0.10)
L.(Mortality)			-0.26*** (0.11)	-0.21* (0.11)
Catholic	0.26*** (0.08)			
Muslim		-0.38*** (0.07)	-0.35*** (0.09)	-0.23** (0.10)
Ethnic	0.15 (0.09)	-0.18** (0.09)	-0.19* (0.10)	-0.17 (0.10)
Latitude	-0.25*** (0.09)	0.33*** (0.07)	0.20* (0.10)	0.17* (0.10)
Adj R^2	0.46	0.53	0.42	0.47
F-Statistic	21.96	37.75	15.51	14.74
Obs.	103	129	82	80

Notes: All regressions are cross-sectional. Estimation is by OLS. Table 1 contains definitions and sources of all variables. Standard errors are in parentheses. They are heteroscedasticity robust by the method of White. Coefficients pertain to standardised variables (beta coefficients) and are significant at the 10% level when labelled with *, at the 5% level when labelled with **, and at the 1% level when labelled with ***.

Table 4: Determinants of Financial Development

Dependent Variable	Stock Market Capitalisation			Credit to Private Sector	
	OLS	2SLS	Tobit	OLS	2SLS
Estimation Method	(1)	(2)	(3)	(4)	(5)
Legal Formalism	-0.29*** (0.11)	-0.07 (0.15)	-0.08 (0.12)	-0.29*** (0.09)	0.01 (0.10)
Constraints on Executive	0.19** (0.09)	0.25* (0.14)	0.25* (0.14)	0.41*** (0.08)	0.63*** (0.14)
Trade Openness	0.39*** (0.13)	0.40*** (0.10)	0.48*** (0.09)	0.25*** (0.08)	0.35*** (0.06)
Protestant	0.06 (0.09)	-0.01 (0.09)	-0.02 (0.09)	0.02 (0.11)	0.02 (0.12)
Catholic	-0.02 (0.11)	-0.26** (0.12)	-0.26** (0.11)	0.02 (0.11)	-0.18 (0.16)
Muslim	0.06 (0.10)	-0.02 (0.12)	-0.02 (0.11)	0.09 (0.08)	0.23* (0.12)
Adj R^2	0.29	0.38	-	0.32	0.39
Obs.	99	112	112	103	122
χ^2		41.85			179.2

Notes: All regressions are cross-sectional. Table 1 contains definitions and sources of all variables. In columns (2), (3) and (5) Legal Formalism, Constraints on the Executive, and Trade Openness have been instrumented for by the corresponding proxies of table 2. Standard errors are in parentheses. They are heteroscedasticity robust, applying the method of White. Coefficients pertain to standardised variables (beta coefficients) and are significant at the 10% level when labelled with *, at the 5% level when labelled with **, and at the 1% level when labelled with ***.

Table 5: Robustness Checks I: Alternative Instruments

Dep. Variable	Stock Market Capitalisation						Low Income	High Income
	Colonies	Colonies	Full Sample					
Sample	Mortal.	Pop. Dens.	Tropic	Malaria	No Latit.	Pop, Area		
Instruments	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Legal Formalism	0.03 (0.13)	-0.08 (0.13)	-0.24* (0.14)	-0.15 (0.13)	-0.04 (0.13)	-0.18 (0.12)	-0.04 (0.17)	-0.02 (0.13)
Constr. Execut.	0.43*** (0.12)	0.37*** (0.12)	0.35*** (0.16)	0.29*** (0.10)	0.21 (0.14)	0.30*** (0.15)	0.11 (0.21)	0.01 (0.31)
Trade Openness	0.38*** (0.12)	0.41*** (0.10)	0.19** (0.09)	0.49*** (0.07)	0.48*** (0.14)	0.25 (0.16)	0.43* (0.23)	0.38** (0.15)
Protestant	-0.12 (0.14)	-0.23** (0.11)	0.14 (0.10)	0.11 (0.09)	0.03 (0.09)	-0.11 (0.10)	-0.15 (0.15)	-0.20 (0.13)
Catholic	-0.48*** (0.15)	-0.38** (0.15)	-0.05 (0.13)	-0.13 (0.11)	-0.26** (0.13)	-0.24 (0.13)	-0.15 (0.23)	-0.53*** (0.18)
Muslim	-0.15 (0.14)	-0.15 (0.12)	0.11 (0.13)	0.08 (0.09)	-0.02 (0.12)	-0.05 (0.15)	-0.26 (0.26)	-0.20 (0.25)
Loglikelihood	-74.21	-81.61	-133.1	-121.5	-136.7	-141.1	-80.63	-57.43
Obs.	70	75	107	111	116	112	62	49

Dep. Variable	Credit to Private Sector						Low Income	High Income
	Colonies	Colonies	Full Sample					
Sample	Mortal.	Pop. Dens.	Tropic	Malaria	No Latit.	Pop, Area		
Instruments	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Legal Formalism	0.12 (0.13)	-0.20* (0.11)	-0.01 (0.12)	0.06 (0.12)	0.09 (0.12)	-0.06 (0.11)	0.22 (0.17)	-0.03 (0.17)
Constr. Execut.	0.67*** (0.12)	0.43*** (0.12)	0.67*** (0.15)	0.71*** (0.14)	0.57*** (0.16)	0.67*** (0.14)	0.21 (0.22)	0.37 (0.26)
Trade Openness	0.38** (0.07)	0.43*** (0.07)	0.22** (0.09)	0.31*** (0.06)	0.36*** (0.07)	0.18* (0.10)	0.34* (0.19)	0.24* (0.13)
Protestant	-0.09 (0.14)	0.08 (0.08)	0.06 (0.13)	0.05 (0.13)	0.04 (0.12)	-0.05 (0.12)	-0.01 (0.14)	-0.25 (0.25)
Catholic	-0.28 (0.19)	0.07 (0.09)	-0.24 (0.20)	-0.33* (0.19)	-0.30* (0.16)	-0.17 (0.16)	-0.11 (0.27)	-0.52* (0.30)
Muslim	0.22 (0.18)	0.23** (0.10)	0.23* (0.13)	0.23** (0.11)	0.17 (0.12)	0.21 (0.14)	0.20 (0.38)	0.12 (0.23)
Adj R^2	0.48	0.49	0.36	0.42	0.33	0.31	0.11	0.20
Obs.	76	86	111	115	126	122	68	53

Notes: All regressions are cross-sectional. Table 1 contains definitions and sources of all variables. Estimation is by 2SLS. Estimates of the top panel account for the censored nature of STOCK. Standard errors are in parentheses. They are heteroscedasticity robust by the method of White. Coefficients pertain to standardised variables (beta coefficients) and are significant at the 10% level when labelled with *, at the 5% level when labelled with **, and at the 1% level when labelled with ***.

Table 6: Robustness Checks II: Alternative Institutional Quality Variables

Dep. Variable	Stock Market Capitalisation			
	(1)	(2)	(3)	(4)
Procedural Compl.	-0.11 (0.12)		-0.10 (0.13)	
Nr. of Procedures		-0.02 (0.15)		-0.06 (0.15)
Risk of Expropri.	-0.16 (0.10)			-0.15 (0.17)
Private Prop. Rights		0.18 (0.17)	0.17 (0.10)	
Trade Openness	0.48*** (0.09)	0.50*** (0.10)	0.48*** (0.10)	0.49*** (0.10)
Protestant	-0.01 (0.09)	-0.01 (0.09)	-0.02 (0.09)	-0.004 (0.09)
Catholic	-0.20* (0.11)	-0.28*** (0.10)	-0.22* (0.12)	-0.26** (0.10)
Muslim	-0.11 (0.09)	-0.14 (0.09)	-0.14 (0.09)	-0.11 (0.09)
Log Likelihood	-130.1	-130.0	-129.7	-130.4
Obs.	112	112	112	112
Dep. Variable	Credit to Private Sector			
	(1)	(2)	(3)	(4)
Procedural Compl.	-0.05 (0.11)		-0.02 (0.11)	
Nr. of Procedures		0.02 (0.13)		-0.04 (0.13)
Risk of Expropri.	-0.42*** (0.10)			-0.40** (0.14)
Private Prop. Rights		0.44*** (0.14)	0.43*** (0.10)	
Trade Openness	0.36*** (0.06)	0.37*** (0.07)	0.36*** (0.06)	0.36*** (0.07)
Protestant	0.03 (0.12)	-0.02 (0.12)	0.02 (0.12)	0.03 (0.12)
Catholic	-0.07 (0.15)	-0.14 (0.13)	-0.13 (0.16)	-0.09 (0.13)
Muslim	-0.01 (0.12)	0.06 (0.13)	-0.06 (0.13)	0.004 (0.13)
Adj R^2	0.37	0.38	0.38	0.37
Obs.	122	122	122	122

Notes: All regressions are cross-sectional. Table 1 contains definitions and sources of all variables. Estimation is by 2SLS. Estimates of the top panel account for the censored nature of STOCK. Standard errors are in parentheses. They are heteroscedasticity robust by the method of White. Coefficients pertain to standardised variables (beta coefficients) and are significant at the 10% level when labelled with *, at the 5% level when labelled with **, and at the 1% level when labelled with ***.