

## **Historical Kinship Structure and Country-Level Contemporary Financial Reporting Quality**

**Abstract:** This study examines the effect of people's historical kinship structure - the extent to which their ancestors were interdependent on extended family networks - on their country's contemporary financial reporting quality. We argue that the culture of in-group (out-group) trust present in tightly knit (loose) historical kinship systems gets transmitted to future generations, and this culture and related institutional developments promote relationship-based (open market) transactions, which in turn influence financial reporting quality. Using a historical kinship tightness measure based on the social structures of pre-industrialization ethnic groups, we provide robust evidence suggesting that a country's contemporary financial reporting quality is negatively associated with its people's historical kinship tightness. Furthermore, we show that historical kinship tightness is correlated with many contemporary country attributes that have been previously shown to be associated with contemporary financial reporting quality and that controlling for historical kinship tightness significantly diminishes the explanatory power of many of these country attributes. These findings suggest that kinship tightness is an important historical factor underlying the heterogeneity in country-level contemporary financial reporting quality.

**Keywords:** Historical kinship structure; Country-level financial reporting quality; Culture; Institutional development; Relationship-based transactions

# Historical Kinship Structure and Country-Level Contemporary Financial Reporting Quality

## 1. Introduction

Prior studies find that financial reporting quality is related to more than 70 contemporary country attributes. Isidro, Nanda, and Wysocki (2020) show that these attributes are highly co-dependent. In light of the above finding, Leuz and Wysocki (2016, page 596) note that it remains unclear “which are fundamental primitives that underlie firms’ reporting practices,” and addressing this question is “an important task for future research in this area.” Recent work in economics emphasizes the role of historical conditions, especially historical kinship systems, in moving societies to multiple equilibria through distinct trajectories of cultural and institutional evolution (e.g., Tabellini 2008; Enke 2019; Schulz, Bahrami-Rad, Beauchamp, and Henrich 2019; Schulz 2022). This research shows that people’s historical kinship structure can predict their countries’ contemporary social and economic outcomes (Henrich 2020; Nunn 2020; Puttman and Weil 2010). In this study, we examine the effect of people’s historical kinship structure on their countries’ contemporary financial reporting quality.

Social life in pre-industrial societies is primarily organized by kinship systems, which vary in their tightness -- the extent to which people are interdependent in extended family networks (Henrich 2020). Furthermore, people’s systems of value and belief adapt to their social networks. To enforce cooperative behavior that would produce socially desirable outcomes, such as bilateral trade, team production, or public goods provision, societies with tight kinship regulate behavior through a culture that promotes communal moral value, emphasizing in-group trust and loyalty. In loose kinship societies, on the other hand, cooperation is achieved by regulating behavior through a culture that promotes universal moral values, which emphasizes out-group trust (Enke 2019; Schulz et al. 2019). These ancestral

cultural traits get transmitted to future generations and lead to lasting bifurcations in the states of economies through interactions between culture and formal institutions (Bisin and Verdier 2001; Tabellini 2008; Hanlon, Yeung, and Zuo 2022). Contemporary societies with higher ancestral kinship tightness exhibit more in-group and less out-group trust (Enke 2019; Schulz et al. 2019; Henrich 2020). These societies are also characterized by weaker legal institutions, as disputes are generally resolved by kin-based organizations. The lack of generalized trust and weak formal legal systems deter firms from impersonal exchanges in open markets and instead promote relationship-based transactions (Greif 2006; Greif and Tabellini 2017). Transactions within private networks lead to low financial reporting quality because the key stakeholders communicate privately, decreasing the need for high-quality financial reports (Rajan and Zingales 1998; Fan and Wong 2002; Leuz and Wüstemann 2004; Li, Wong, and Yu 2020). Thus, we predict that countries whose contemporary population's historical kinship structure is tighter would exhibit lower accounting quality. Such countries are also less likely to have democratic, participatory institutions because tight kinship deters coalition across kin groups needed to make politicians accountable (Schulz 2022), and firms in such countries are more likely to build political connections to get preferential treatment (Fisman 2001; Wong 2020), such as receiving more government loans and subsidies. Poor reporting quality helps these firms keep such proprietary information private (Chaney, Faccio, and Parsley 2011; Fan and Wong 2002). Figure 1 summarizes the conceptual framework for our prediction.<sup>1,2</sup>

While the above arguments suggest a negative relation between a country's historical

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<sup>1</sup> Note that prior studies suggest similar contemporary cultural, institutional, and political country attributes as determinants of country-level financial reporting quality. Our study contributes by identifying a fundamental primitive that underlies these country attributes and thereby also provides an explanation for their high codependency.

<sup>2</sup> We focus on historical kinship structure as opposed to other initial historical conditions, because anthropological studies suggest that it is human beings' most fundamental institution and it has been the primary structure for organizing social life in most societies around the world (Schulz et al. 2019). It has also been widely used in the recent work in economics that takes a historical perspective for understanding contemporary economic outcomes (Enke 2019; Nunn 2020). To address the concern that other initial historical conditions may be driving our results, our empirical analyses control for a variety of other initial historical conditions and also show that the results are robust to using an instrumental variable approach.

kinship tightness and its contemporaneous financial reporting quality, whether this relation currently exists remains an open issue. This is because historical kinship tightness is deeply rooted in history, and its effect may not have persisted. The effect on country-level financial reporting practices of more recent events unrelated to historical kinship tightness may have undermined the effect of kinship tightness, for example, the recent efforts to harmonize accounting standards across countries (e.g., Barth, Landsman, and Lang 2008; Ramanna and Sletten 2014).

We use the following approach to empirically test our prediction of the negative association between the tightness of people's historical kinship structures and their countries' financial reporting quality. We measure country-level accounting quality in terms of earnings management of financial reports and accounting conservatism. Following Leuz, Nanda, and Wysocki (2003), the earnings management measure captures different dimensions along which firms can exercise their discretion to manage reported earnings. Isidro et al. (2020) view this measure as capturing the opacity or transparency of financial reports. Following Ball and Shivakumar (2005), our accounting conservatism measure reflects asymmetric timeliness in the recognition of economic losses as compared to gains. Managers' incentive to report gain and loss information is not symmetric; thus, accounting conservatism enhances reporting quality (Ball, Robin, and Wu 2003).<sup>3</sup>

Our country-level measure of historical kinship tightness is developed by Enke (2019). Using the Ethnographic Atlas dataset, which contains information on local family structure and descent systems of 1,311 preindustrial ethnic groups across the world (Murdock 1967; Giuliano

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<sup>3</sup> Isidro et al. (2020) also consider market-based measures of reporting quality such as abnormal return and volume at earnings announcements, and stock return synchronicity. We focus on reporting quality measures based on public financial statements (as in Leuz et al. 2003), because we are mainly interested in firms' reporting behavior, as opposed to the prevailing pricing mechanism in the capital market. Isidro et al. (2020) show that market-based and financial statement-based reporting measures are highly correlated, and a single underlying reporting quality factor captures a substantial portion of the variation in all the measures, suggesting that these measures represent the same construct.

and Nunn 2018), Enke (2019) developed an index of kinship tightness that measures the extent to which people in an ethnic group are interdependent in the family system. He coded as one or zero, four measures reflecting family structure and descent systems: extended family or nuclear family; post-marital residence is with parents or is separate; unilineal descent (i.e., only through the maternal or paternal line) or bilateral descent; people are or are not a part of localized clans that live as segmented communities. The aggregate kinship tightness index for a historical ethnic group is computed as the average of these four indicator variables. For calculating a country-level measure of historical kinship tightness, Enke (2019) matches historical ethnic groups to the current population of a country using two approaches: one based on a migration matrix (Putterman and Weil 2010) and the other based on language (Giuliano and Nunn 2018).<sup>4</sup>

Our sample covers the years 1987 to 2019 and consists of 71 and 72 countries for the earnings management and accounting conservatism tests, respectively. Our baseline analysis shows that people's historical kinship tightness is negatively related to their countries' contemporary reporting quality and that this relation is both statistically and economically significant. Going from zero to one (lowest to highest) on the kinship tightness measure increases the country rank for the earnings management measure by 38 and decreases the country rank for the accounting conservatism measure by 36. Also, historical kinship tightness explains 33 and 29 percent of the variation in country-level earnings management and accounting conservatism, respectively.

Given that kinship tightness is measured using historical (pre-industrial period) data, we can rule out the possibility that the observed relation between people's historical kinship tightness and their countries' contemporary financial reporting quality is driven by estimation

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<sup>4</sup> See Section 3 and Appendix 1 for a detailed discussion of the measurement of country-level historical kinship tightness.

bias due to omitted contemporary country attributes or due to reverse causality. However, other primitive factors may have influenced both historical kinship structure and accounting quality. To mitigate this concern, we follow prior research and control for various variables representing other primitive factors: subsistence mode, disease threat, religion, language, and geography. We also control for continent, colony, and legal origin fixed effects. The results are robust to using these controls.

To further strengthen identification, we follow Schulz et al. (2019) and use people's ancestral exposure to the Western Church (i.e., the branch of Christianity that evolved into the Roman Catholic Church) as an instrument for their historical kinship tightness. Western Church systematically transformed European kinship structure by, for example, banning cousin marriages and promoting nuclear families during the Middle Ages (e.g., Greif and Tabellini 2010). Further, church exposure is often influenced by the outcomes of wars, which in medieval times carried a large random component (Schulz et al. 2019). Using the above instrument, our two-stage least squares (2SLS) estimates of the relation between kinship tightness and financial reporting quality remain similar to our baseline estimates. To mitigate the concern that Western Church exposure affects financial reporting through a channel other than kinship tightness, we contrast the effect of the Western Church with that of the Eastern Church (Orthodox Church). The two churches are similar in many aspects, but the Eastern Church did not broadly endorse and actively implement the Western Church's marriage policies (Schulz et al. 2019). We find that the effect on financial reporting quality of Eastern Church exposure is insignificant, and the effect of Western Church exposure is significantly different from zero and from the effect of Eastern Church exposure. Collectively, our results suggest that people's historical kinship tightness is negatively associated with their country's financial reporting quality, that this relation is likely causal, and that its magnitude is economically meaningful.

Next, we examine whether historical kinship tightness is an underlying fundamental

factor behind contemporary country attributes that previous accounting studies have found are associated with financial reporting quality. We first consider four such country attributes for which recent work in economics provides rigorous arguments/evidence suggesting that they are significantly affected by historical kinship tightness. These country attributes are in-group trust relative to out-group trust, rule of law, nepotism in business, and democratic institutions (Enke 2019; Schulz 2022). Consistent with the findings in prior studies, we show that each of these four country attributes is significantly correlated with both financial reporting quality and historical kinship tightness. We further show that the explanatory power of each of these four country attributes for financial reporting quality diminishes significantly in the presence of kinship tightness. These findings suggest that historical kinship tightness is a common underlying factor behind these four contemporary country attributes for explaining country-level financial reporting quality.

Next, we repeat the above analysis for a broader set of contemporary country attributes previously linked to financial reporting quality. In particular, we examine whether historical kinship tightness is an underlying historical factor behind one of the four country factors that Isidro et al. (2020) identify by performing exploratory factor analysis on 72 previously identified country attributes. They show that the four country factors largely subsume the individual explanatory power of all of the contemporary country attributes for explaining financial reporting quality. We find that historical kinship tightness has a significant negative association with one of the country factors, which Isidro et al. (2020) refer to as *Country Factor 1*. This country factor is the most important of the four country factors, accounting for 30.9% of the total variation of the 72 country attributes and consists of 35 “economic, legal, and social variables” (with factor loadings greater than 0.4).<sup>5</sup> We also find that historical kinship tightness

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<sup>5</sup> Variations explained by Isidro et al.’s (2020) other three country factors are significantly smaller, 15.1, 7.0, and 5.1 percent.

is significantly correlated with 30 of these 35 country attributes. Additionally, the explanatory power of *Country Factor 1* for financial reporting quality decreases significantly in the presence of historical kinship tightness. When we consider one at a time, the country attributes that load on *Country Factor 1*, for most attributes (about 80 percent), their explanatory power for financial reporting quality decreases significantly in the presence of historical kinship tightness. Collectively, the above results and the fact that the historical kinship tightness measure is deeply rooted in history suggest that it is a fundamental historical factor underlying most of the contemporary country attributes that load on *Country Factor 1*.<sup>6,7</sup>

Next, we show that the magnitude of the association between historical kinship tightness and country-level financial reporting quality is relatively stable over time during our sample period, 1998 to 2019. Given that the effort to harmonize accounting standards occurred during this period, the above finding suggests that the effect of historical kinship structure on financial reporting quality is quite persistent, presumably because historical kinship tightness leads to long-lasting divergence in culture and institutions (Enke 2019; Schulz et al. 2019; Schulz 2022).

Our study makes the following contributions. A large body of work in international accounting identifies numerous contemporary country attributes related to economic, institutional, and societal characteristics for explaining the variation in country-level financial reporting quality. These attributes exhibit high co-dependency (Isidro et al. 2020), prompting Leuz and Wysocki (2016) to call on future researchers to identify “fundamental primitives” affecting country-level financial reporting quality. We contribute to the literature by providing robust evidence suggesting that historical kinship structure, considered by prior work in

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<sup>6</sup> Isidro et al. (2020, page 295) note that “exploratory factor analysis can result in a solution where factors are difficult to label, since several seemingly unrelated variables load on the same factor,” as is the case with their *Country Factor 1*. We address this issue by providing evidence that suggests that *Country Factor 1* can be labelled as representing contemporary country attributes that are affected by historical kinship tightness.

<sup>7</sup> Our results are not consistent with historical kinship tightness being an underlying factor of contemporary country attributes that load on any of the other three country factors identified by Isidro et al. (2020). We discuss this point in more detail in Section 4.3.



sociology and economics as the “most fundamental human institution” (Schulz et al. 2019), is one such fundamental factor. Specifically, our results suggest that people’s historical kinship tightness has a large and persistent effect on their countries’ financial reporting quality. Moreover, historical kinship tightness is significantly correlated with many contemporary country attributes previously shown to be associated with financial reporting quality, and controlling for kinship tightness significantly decreases most of these country attributes’ explanatory power for financial reporting quality.

Our study is also related to the rapidly growing literature in economics that shows that historical conditions have a persistent impact on contemporary social and economic outcomes (e.g., Acemoglu, Johnson, and Robinson 2001; Dell 2010; Dell, Lane, and Querubin 2018; also see Nunn 2020; Voth 2021; Hanlon et.al. (2022) for reviews). Our study suggests that to understand a country’s contemporary financial reporting practices, it is important to consider its historical conditions, specifically its people’s historical kinship structure. Insights obtained from historical analyses are important because they can help understand current policy and its optimal design (Nunn 2020). For example, our finding that people’s historical kinship tightness is associated with their countries’ financial reporting quality is important to consider when deliberating policies to reduce heterogeneity in financial reporting practices across countries (e.g., Leuz 2010; Wysocki 2011; Hanlon et al. 2022).

The remainder of the paper proceeds as follows. Section 2 discusses the impact of historical kinship structure on contemporary country attributes and develops our empirical prediction of the relation between historical kinship tightness and financial reporting quality. Section 3 discusses variable measurement, data, and sample. Section 4 presents the results. Section 5 concludes.

## **2. The Impact of Historical Kinship Structure on Contemporary Country Attributes**

### **and Financial Reporting Quality**

Differences in historical kinship institutions in otherwise identical societies lead to lasting divergences in the states of economies through the interplay between culture and institutions. Regarding culture, individual values and beliefs adapt to the historical social organizations and are transmitted to future generations (Bisin and Verdier 2001; Tabellini 2008). Enke (2019) presents a theoretical model that suggests that societies with loose kinship ties have stronger incentives to teach universal moral values (relative to communal family-specific values) so that individuals cooperate with strangers and achieve socially desirable outcomes, such as bilateral trade, team production, and public goods provision. Consistent with his model, he empirically shows that for a sample of contemporary societies, tighter ancestral kinship predicts greater communal as opposed to universal moral values and greater in-group favoritism in economic decisions. Moscona, Nunn, and Robinson (2017) and Schulz et al. (2019) show that strangers are trusted less in contemporary societies containing people with more tightly knit historical kinship institutions.

Furthermore, legal institutions develop to complement the social organization and its culture (Tabellini 2008). Specifically, societies with tighter historical kinship structures are less likely to develop legal systems. Greif and Tabellini (2017) provide evidence suggesting that civil adjudications in countries with high historical kinship tightness were mainly conducted by the extended kin-based organization (e.g., clan). Thus, the state did not have much to gain from spending resources on developing elaborate legal infrastructure. On the other hand, countries with loose kinship structures developed effective and impartial legal systems to complement the universal moral values to enforce cooperative behavior among individuals.

Kinship structure also affects business transactions. In societies with tight historical kinship, a lack of generalized trust, together with weak legal institutions, deters economic exchange with strangers in open markets. Such societies rely on personal relations in business

practices (Kranton 1996; Greif and Tabellini 2017; Henrich 2020). When cooperation within kin is insufficient, fictive kinship groups are often created through, for example, surname sharing, common residence or origin, or adopting an adult. Thus, personal relations in business practices are not limited to family ties but can be built on broader social networks. Individuals who transgress the contracts bear high reputation costs within their social networks. As such, investments through personal relations effectively compensate for the weak legal systems and the lack of generalized trust (Allen, Qian, and Qian 2005).

Finally, prior studies provide empirical evidence that tight historical kinship undermines democratic political institutions and leads to more corruption (e.g., Alesina and Giuliano 2011, 2014; Schulz 2022; Henrich 2020). For example, Schulz (2022) argues that tight kinship deters a broad coalition across the boundaries of kin groups to make politicians accountable and shows that kinship tightness is negatively associated with countries' democracy scores. Akbari, Bahrami-Rad, and Kimbrough (2019) show that consanguineous marriage, by intensifying a norm of in-group favoritism as opposed to impartial cooperation, is positively associated with countries' corruption levels.

In sum, prior work suggests that in countries characterized by tight historical kinship systems, individuals are likely to exhibit in-group trust relative to out-group trust, there is a lack of impartial and effective legal institutions, democratic institutions are weak, and firms are likely to carry out their transactions within their networks of related stakeholders rather than in open markets. Prior work further suggests that the effects of historical kinship tightness tend to be persistent, likely because cultural traits are inherently sticky and institutional arrangements continue to reflect and reinforce these slow-moving cultural traditions (Alesina and Giuliano 2014; Greif and Tabellini 2010, 2017; Enke 2019).

Consistent with the above discussion, we predict that countries whose people's historical kinship tightness is greater exhibit lower financial reporting quality. In such countries, business

transactions are primarily conducted through social connections rather than in open markets, and thus, stakeholders are more likely to access firms' information through their private networks, and there is less demand for high-quality publicly reported financial statements. Also, countries with tighter historical kinship have less democratic political institutions and more corruption. Thus, firms profit from building political connections, and poor reporting quality helps keep such proprietary information private.

### **3. Variable Measurement, Data, Sample, and Descriptive Statistics**

We measure country-level financial reporting quality in terms of earnings management and accounting conservatism. We use the approach used by Leuz et al. (2003) and Isidro et al. (2020) to measure country-level earnings management. Specifically, we first calculate four country-level opacity measures, capturing different aspects along which firms can exercise their discretion to manage reported earnings. The first measure is the country's median ratio of the firm-level standard deviation of operating earnings divided by the firm-level standard deviation of cash flow from operations; the second measure is the contemporaneous correlation between changes in accruals and changes in cash flows from operations, calculated using the pooled data of the firms in the country; the third measure is the country's median of the absolute value of firms' accruals scaled by the absolute value of firms' cash flow from operations;<sup>8</sup> and the fourth measure is the ratio of the number of times firms in the country report small profits to the number of times they report small losses. To mitigate the effect of measurement errors, we calculate a country's aggregate earnings management score as the average of the country ranks of the four individual earnings management measures. Our final measure of a country's earnings management, *EM*, is defined as the country's rank of its aggregate earnings

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<sup>8</sup> Throughout this study, we obtain data for cash flow from operations and calculate accruals directly from the statement of cash flows (Hribar and Collins 2002)

management score.

We measure country-level accounting conservatism using the approach developed by Ball and Shivakumar (2005). Specifically, we estimate the following piecewise-linear regression for each country (firm and year subscripts are omitted for brevity):

$$ACC = \beta_0 + \beta_1 DCFO + \beta_2 CFO + \beta_3 DCFO \times CFO + \varepsilon, \quad (1)$$

where *ACC* indicates accruals, *CFO* indicates cash flow from operations, and *DCFO* is a dummy variable that equals one if *CFO* is negative and zero otherwise. The coefficient  $\beta_3$  captures the asymmetric recognition of unrealized losses compared to gains via accruals and is our measure of accounting conservatism. Our final measure of a country's accounting conservatism, *CONSV*, is defined as the country's rank of its  $\beta_3$ .

We adopt Enke's (2019) country-level measure of historical kinship tightness. This measure is based on the Ethnographic Atlas data. This leading anthropological dataset contains information on the social structures of 1,265 pre-industrialization ethnic groups (Murdock 1967), augmented with an additional 46 ethnic groups in Europe by Giuliano and Nunn (2018). To capture the extent to which people in an ethnic group are interconnected in extended family systems (Henrich 2020), Enke (2019) codes four measures that reflect the family structure and descent systems. *Extended family* is a dummy variable that equals one if the domestic organization is around extended families (as opposed to independent nuclear families) and zero otherwise. *Joint residence* is a dummy variable that equals one if the wife is expected to move in with the husband's group or vice versa and zero otherwise. *Unilineal descent* is a dummy variable that equals one if descent is unilineal and zero otherwise. *Clans* is a dummy variable that equals one if people are part of localized clans living in segmented communities and zero otherwise. The kinship index for an ethnic group is calculated as the average of the four dummy variables (the availability of at least three of the four variables is required) and normalized to take values between zero and one. To measure country-level historical kinship tightness, Enke

(2019) matches historical ethnic groups to the contemporary population of a country using two approaches, one based on a migration matrix (Putterman and Weil 2010) and the other based on language (Giuliano and Nunn 2018). Appendix 1 provides a detailed discussion on measuring the country-level historical kinship tightness.

We obtain from Compustat North American and Compustat Global databases financial data of publicly traded firms for fiscal years ending in 1987 to 2019 to construct country-level measures of earnings management and accounting conservatism. After excluding banks and financial institutions (SIC code 6000-6999) and countries with fewer than 300 firm-year observations, we are left with 828,266 firm-year observations consisting of 61,948 firms for calculating country-level measures of earnings management and accounting conservatism. Our final sample consists of 71 countries for the earnings management test and 72 countries for the accounting conservatism test.

Table 1, Panel A presents historical kinship tightness, earnings management, and accounting conservatism values for each country in our sample. The country ranks of country-level earnings management and accounting conservatism are broadly consistent with those in prior studies (e.g., Leuz et al. 2003; Bushman and Piotroski 2006; Ball, Robin, and Sadka 2008). Figure 2 depicts the distribution of the country-level kinship tightness on a world map. Panel B of Table 1 presents summary statistics of the dependent variables, our primary explanatory variable, and the covariates we control for in our analyses. It also presents descriptive statistics of the variables used in our instrumental variable analysis. The mean, median, and standard deviation of our primary explanatory variable, kinship tightness, for our sample countries are 0.44, 0.43, and 0.32, respectively.

## **4. Empirical Analysis**

### **4.1. Historical Kinship Tightness and Accounting Quality**

Our baseline analysis uses a univariate model to examine the effect of historical kinship tightness on country-level contemporary accounting quality (Enke 2019). Panel A of Table 2 presents the results from regressing earnings management on kinship tightness. Column (1) shows that countries with higher historical kinship tightness are associated with significantly higher rank in earnings management. Changing kinship tightness from zero to one increases the country rank of earnings management by 38 (in our sample of 71 countries). Furthermore, kinship tightness explains 33 percent of the variation in country-level earnings management. Panel A of Figure 3 uses a plot to illustrate the positive relation between kinship tightness and country-level earnings management.

The fact that the historical kinship tightness measure is deeply rooted in history rules out estimation bias due to omitted contemporary factors and reverse causality.<sup>9</sup> However, other historical factors may affect both kinship tightness and contemporary accounting practices and potentially bias the results. To mitigate this concern, we follow prior studies (Enke 2019; Schulz et al. 2019) and include other country-level historical factors as controls in Column (2). We list these covariates in Tables 1 and 2, define them in Appendix 2, and discuss them briefly below. Most of these covariates have been suggested by prior studies as potential origins of kinship tightness. *Malaria ecology* and *Parasite stress* measure ecological conditions with greater pathogen threat. Extended kinship ties are beneficial under high pathogen threats because they reduce the need to travel for cooperation and trade, reducing the risk of infection. *Ruggedness* and *Mean distance to waterways* reflect remoteness, which may affect the likelihood of finding an unrelated marriage partner. *Dependence on hunting and gathering*, *Caloric suitability*, and *Irrigation potential* measure a society's historical subsistence mode. Compared with small-scale subsistence mode based on hunting and gathering, advanced

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<sup>9</sup> Moreover, contemporary country-level attributes are “bad controls” since these attributes can be outcomes of historical kinship structure (Angrist and Pischke 2008).

subsistence mode based on agriculture is associated with extended kinship ties. Agriculture requires medium-scale cooperation, such as building irrigation systems and defending territory. The related collective action problem can be resolved in an extended kin network. *Absolute latitude* measures climate, agricultural, and ecological conditions, which may affect kinship tightness. *Tropical climate* is an additional measure of climate conditions. *Neolithic transition timing* measures the onset of agriculture as the primary mode of subsistence. We also control for *Predicted genetic diversity* because genetic diversity has been shown to affect political institutions and cultural fragmentation, which may affect financial reporting quality. Finally, we control for *Log number of years since observation in EA* because societies observed by archeologists at different points in time can differ. Column 2 of Panel A of Table 2 shows that the coefficient on kinship remains significant and relatively stable upon including these controls.

In Column (3), we further control for the influence of religion by including the following variables: *Percent Catholic*, *Percent Protestant*, *Percent other Christians*, *Percent Orthodox Christian*, *Percent Muslims*, *Percent Hindus*, *Percent Buddhist*, defined as the fraction of the country's population following the corresponding religion in the year 2000. Finally, *Religiousness* is an indicator of the importance of religion. The coefficient on kinship is robust to adding these controls.

In Column (4), we add to the model in Column (2) the variable *Prediction\_FTR*, which is a dummy variable indicating whether languages require future events to be grammatically marked when making predictions or not (Chen 2013). Kim, Kim, and Zhou (2017) show that earnings management is related to this factor. The number of observations is substantially reduced (to 38 countries) by requiring this variable. Nevertheless, the coefficient on kinship is robust to including this additional control variable.

In Columns (5) to (7), we present results after adding to the model in Column (2) three



different sets of fixed effects. In Column (5), we include continent fixed effects, which further control for unobservable geographic factors. In Column (6), we add colony fixed effects, which control for the influence of the country's colonizer (i.e., British, French, Portuguese, Spanish, or other European). In Column (7), we include fixed effects related to countries' legal origins, common law, and subfamilies of civil law, i.e., French, German, socialist, and Scandinavian (La Porta, Lopez-de-Silanes, and Shleifer 2008). Once again, the coefficient on kinship tightness remains significant and stable upon controlling for these fixed effects.<sup>10</sup>

In Panel B, we repeat the analyses in Panel A after replacing earnings management with accounting conservatism as the dependent variable. Column (1) shows that countries with higher historical kinship tightness exhibit significantly lower ranks in accounting conservatism. Changing kinship tightness from zero to one is associated with a decrease in the country rank for accounting conservatism by 36 (in our sample of 72 countries). Moreover, historical kinship tightness explains 29 percent of the variation in country-level accounting conservatism. Panel B of Figure 3 uses a plot to illustrate the negative relation between kinship tightness and accounting conservatism. Columns (2) to (7) show that this relation is also quite stable to including various control variables and fixed effects. In sum, the results in Table 2 suggest a robust negative association between a country's contemporary financial reporting quality and its people's historical kinship tightness.

#### **4.2. Western Church Exposure as Instrumental Variable**

To further strengthen the identification that historical kinship tightness affects country-

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<sup>10</sup> Since country attributes can jointly affect a firm's fundamentals and the reporting of these fundamentals, accounting researchers generally face measurement challenges in separating firm fundamentals from financial reporting quality and separating how they are affected by country attributes (e.g., Isidro et al. 2020). To mitigate this concern, we repeat this analysis by using the ratio of small profits to small losses computed for each country and ranked across countries as the dependent variable, as this measure is more likely to capture financial reporting quality, as opposed to firm fundamentals. On estimating the model in Column (1) of Table 2 using the alternative measure of financial reporting quality, we continue to observe a significant positive coefficient on kinship tightness (21.897,  $t$ -stat = 2.90).

level contemporary accounting quality, we use an instrumental variable approach based on the findings of Schulz et al. (2019). Beginning in the late third to the sixth century CE, the Roman Catholic Church (the Western Church) began systematically undermining Europe's tight kinship structure through its Marriage and Family Program (MFP). The program included policies banning cousin marriage, polygamous marriage, and legal adoption, and requiring newly married couples to form independent households. Because of the MFP, by 1500 CE, Europe was dominated by independent nuclear families. Schulz et al. (2019) calculate the duration of exposure of a European region to the Western Church based on the diffusion of bishoprics between 550 and 1500 CE. They further compute a country-level measure of people's historical exposure to the Western Church using a migration matrix that provides the total flux of populations from country to country between 1500 and 2000 CE. They show that, as expected, their measure of Western Church exposure is negatively associated with country-level measure of historical kinship tightness. Further, historical research suggests that the influence of the Western Church follows outcomes of wars in medieval times and thus carries a substantial random component (Schulz et al. 2019), supporting the exclusion restriction for using it as an instrumental variable for our analysis.

We conduct a 2SLS analysis and present the results in Table 3. Panel A reports the results for earnings management. Column (1) shows the first-stage results. The effect of the Western Church exposure on kinship tightness is negative and significant. A 100-year exposure to the Western Church is associated with a decrease in kinship tightness by 0.056, 13% of the mean level. The weak identification test rejects the null of no relation between the Western Church exposure and kinship tightness. The Cragg-Donald  $F$ -statistic is 33.52, significantly higher than the Stock and Yogo (2005) critical value of 16.38 for a 10% maximal bias of the instrumental variable estimator relative to OLS. Column (2) presents the second-stage result. As expected, the coefficient on the instrumented kinship tightness is significantly positive. In Column (3),

we perform a reduced-form test, which contrasts the effect of the Western Church with that of the Eastern Church (Orthodox Church). While the Eastern Church adopted some of the same policies as the Western Church, it did not endorse the Western Church's broad prohibitions on cousin marriage and did not actively enforce these policies (Schulz et al. (2019)). The results reveal that while Western Church exposure has a significantly negative effect on earnings management, the effect of Eastern Church exposure is insignificant. Moreover, the difference between the two effects is significant at the 1 percent level.

In Panel B, we repeat the above analysis for accounting conservatism. The first-stage result, presented in Column (1), confirms a significant relation between Western Church exposure and kinship tightness. Column (2) shows the second-stage results. The coefficient on the instrumented kinship tightness is significantly negative.<sup>11</sup> The results of the reduced-form test, reported in Column (3), show that while Western Church exposure has a significant positive effect on accounting conservatism, the effect of Eastern Church exposure is insignificant. The difference between the two effects is significant at the 1 percent level. In sum, the results in Table 3 increase our confidence that there is a causal relation between historical kinship tightness and country-level contemporaneous financial reporting quality.

#### **4.3. Historical Kinship Tightness and Contemporary Country Attributes Related to Accounting Quality**

Prior studies in accounting have identified several contemporary country attributes that are correlated with financial reporting quality. However, these attributes are highly co-dependent (Isidro et al. 2020). We examine whether historical kinship tightness is a fundamental factor underlying these country attributes. As a first step, we consider a subset of

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<sup>11</sup> Lee, McCrary, Moreira, and Porter (2022) suggest researchers inflate their 2SLS standard errors by an adjustment factor that depends on the observed first-stage  $F$  statistic. After adjusting the standard errors in this way, the 95% confidence level for the earnings management test is [28.32, 80.12] and that for the conservatism test is [-101.53, -50.37].

these country attributes for which recent studies in economics have provided rigorous arguments and evidence suggesting that these contemporary country attributes are a result of people's historical kinship tightness (see Section 2). Specifically, we consider country attributes related to its political institutions measured by *Democracy* (Schulz 2022), legal institutions measured by *Rule of law*<sup>12</sup>, culture measured by in-group trust relative to out-group trust (*Trust [In-group - Out-group]*) (Enke 2019), and business practices measured by *Nepotism in business* (Enke 2019). The detailed definitions of these variables are provided in Appendix 2. Table 4, Panel A presents the summary statistics of the variables.

Panel B of Table 4 presents the results from regressing these country attributes on kinship tightness. Consistent with our discussion in Section 2, higher historical kinship tightness is associated with lower democracy, lower rule of law, higher in-group trust relative to out-group trust, and higher nepotism in business.

Next, we examine the association of these contemporary country attributes with accounting quality before and after controlling for historical kinship tightness. If kinship tightness is a fundamental historical factor underlying these country attributes and their relation with accounting quality, then their explanatory power should decrease in the presence of kinship tightness. Panel C presents the results for earnings management. Columns (1), (3), (5), and (7) show that earnings management is significantly related to all four country attributes. Columns (2), (4), (6), and (8) show that after controlling for kinship tightness, the coefficients on all four country attributes become significantly smaller in magnitude. Column (9) reports the *p*-value for the difference.

Panel D repeats the analysis after replacing earnings management with accounting

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<sup>12</sup> To our knowledge, prior studies have not documented an empirical relation between kinship and legal institution. As such, we consider the measures of legal institutions in Isidro et al. (2020). Among them, we choose *Rule of law* obtained from the Worldwide Governance Indicators because this measure has the best coverage of countries and is freely available. Nevertheless, our inference remains unchanged if we measure legal institutions with score of law and order or score of judicial independence.

conservatism as the dependent variable. We find that all four country attributes are significantly associated with accounting conservatism. However, after controlling for kinship tightness, the coefficients on all four country attributes become significantly smaller in magnitude. Collectively, the results in Table 4 are consistent with the notion that kinship tightness is a historical factor underlying the four important contemporary country attributes that have been shown by prior studies to be correlated with financial reporting quality.

Next, we repeat the above analysis after considering a broader set of contemporary country attributes that have been shown by prior studies to be correlated with financial reporting quality. Specifically, we examine whether historical kinship structure is a historical factor underlying one of the four country-level latent factors identified by Isidro et al. (2020). These four factors largely subsume the individual explanatory power of the 72 contemporary country attributes previously linked to financial reporting quality. Table 5, Panel A presents the results from regressing these four country factors on kinship tightness. We find that historical kinship tightness has a significantly negative association with *Country Factor 1*.<sup>13</sup> Note that *Country Factor 1* is the most important of Isidro et al.'s (2020) four country factors. It represents a mix of 35 economic, legal, and social variables and accounts for 30.9 percent of the total variation of the 72 country attributes (see Table 4, Panel A of Isidro et al. 2020). In Table 5, Panel B, we examine the relation between historical kinship tightness and each of the 35 contemporary country attributes that load on *Country Factor 1*. Columns (1) and (2) indicate the variable names of the country attributes and their brief descriptions, respectively, and Column (3) reports their factor loadings for *Country Factor 1* (see Appendix C of Isidro et al.

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<sup>13</sup> Column (2) of Panel A of Table 5 reports a positive relation between kinship tightness and *Country Factor 2*. This relation is likely jointly driven by (i) *Country Factor 2* has a negative loading on the percentage of current population that are Catholic (*Catholic*) (Isidro et al. 2020) and (ii) Western Church exposure is negatively correlated with kinship tightness (see Section 4.2) and is positively correlated with *Catholic*, causing kinship tightness to be negatively correlated with *Catholic*. After we control for *Catholic*, we find that kinship tightness is no longer significantly correlated with *Country Factor 2* (see Appendix 3). Thus, it is unlikely that kinship tightness is an underlying historical factor underlying *Country Factor 2*.

2020). We list these country attributes in the descending order of their factor loadings. Column (4) reports the results of regressing the country attributes on historical kinship tightness. The coefficient on kinship tightness is significant for 30 of the 35 country attributes. As expected, the signs of the significant coefficients are negative for the country attributes with positive factor loadings and positive for the country attributes with negative factor loadings. Notably, four of the five insignificant coefficients on kinship tightness are for country attributes with the lowest magnitudes of factor loadings among the 35 country attributes of *Country Factor 1*.<sup>14</sup>

Next, we examine the effect of kinship tightness on the explanatory power of Isidro et al.'s country factors for financial reporting quality. Table 6, Panel A presents the results. We focus on *Country Factor 1*, given our results in Table 5. In Columns (1) and (2), we use earnings management as the measure of reporting quality and report the coefficients on the country factors before and after controlling for kinship tightness, respectively. After including kinship tightness, the magnitude of the coefficient on *Country Factor 1* becomes significantly smaller.<sup>15</sup> Columns (3) and (4) repeat the analysis after replacing earnings management with accounting conservatism as the dependent variable. After including kinship tightness, the magnitude of the coefficient on *Country Factor 1* becomes smaller, and the decrease is marginally significant ( $p$ -value = 0.108).<sup>16</sup>

Finally, in Table 6, Panel B, we examine for each of the 30 country attributes that load on *Country Factor 1* and that are significantly correlated with kinship tightness (see Table 5, Panel B), change in its explanatory power for country-level financial reporting quality after

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<sup>14</sup> In Appendix 4, for each of the contemporary country attribute that is significantly correlated with historical kinship tightness, we provide a plausible explanation for why kinship tightness affects that country attribute. Note that these are conjectures and that rigorous analysis is needed to properly validate these explanations.

<sup>15</sup> Columns (1) and (2) of Panel A of Table 6 show that the coefficient on *Country Factor 2* becomes more negative upon controlling for kinship tightness. This is likely because (i) *Catholic* (percentage of current population that are Catholic) loads negatively on *Country Factor 2* (Isidro et al. 2020) and (ii) *Catholic* is negatively correlated with kinship tightness (see footnote 13).

<sup>16</sup> Table 6 also shows that historical kinship tightness has significant incremental explanatory power beyond the four country factors of Isidro et al. (2020). This is notable given Isidro et al.'s finding that their four country factors "largely subsume the explanatory power of 72 candidate country attributes in explaining reporting quality levels across countries."

controlling for kinship tightness. In Columns (1) and (2), we use earnings management as the measure of reporting quality and report the coefficients on the country attributes before and after controlling for kinship tightness, respectively. Column (1) shows that 26 of 30 country attributes are significantly associated with earnings management. As expected, the signs of the significant coefficients are negative for the country attributes with positive factor loadings and positive for the country attributes with negative factor loadings on *Country Factor 1*. Columns (2) and (3) show that after controlling for kinship tightness, the magnitudes of the coefficients of 23 of the 26 country attributes decrease significantly. Columns (4) to (6) report results with accounting conservatism as the measure of reporting quality. All 30 country attributes are significantly associated with accounting conservatism with expected signs, and the magnitudes of the coefficients of 24 of the country attributes significantly decrease after controlling for kinship tightness. These results suggest that the explanatory power for financial reporting quality of most country attributes that load on *Country Factor 1* becomes significantly weaker after controlling for kinship tightness. Collectively, the results in Tables 5 and 6 are consistent with the notion kinship tightness is a historical factor underlying most of the contemporary country attributes that load on Isidro et al. (2020) latent *Country Factor 1*.

#### **4.4. Persistence of the Relation between Kinship Tightness and Accounting Quality**

In this section, we examine the association between people's historical kinship tightness and their countries' financial reporting quality on an annual basis, from 1998 to 2019. Given the recent major effort at a global level to harmonize accounting standards across countries, this analysis can shed some light on the persistence of the effect of historical kinship tightness on financial reporting quality. For this test, we measure earnings management and accounting conservatism for each country year. Our procedure for calculating earnings management remains the same as before, except that we use a five-year rolling window from year  $t-4$  to year

$t$  to compute the first component (a country's median ratio of the firm-level standard deviation of operating earnings divided by the firm-level standard deviation of cash flow from operations) and the fourth component (the ratio of small profits to small losses) of earnings management for year  $t$ . To calculate accounting conservatism for year  $t$  for a country, we use a five-year rolling window from year  $t-4$  to year  $t$  and require at least 30 observations to perform the Ball and Shivakumar (2005) regression. We exclude country years without variation in the signs of cash flow from operations. Finally, given that we cannot calculate accounting quality measures for many of the countries in the early years of our sample period, we start our sample period from 1998. This enables us to obtain 33 (45) countries with country-year earnings management (accounting conservatism) measures available from 1998 to 2019.

Figure 4 plots the coefficient on kinship tightness and the adjusted R-squared obtained from the annual cross-sectional regression of accounting quality on historical kinship tightness. Panel A presents the results for earnings management. The coefficient on kinship tightness is positive and significant for all years and the adjusted R-squared values suggest that kinship tightness explains a meaningful portion of the variation in earnings management for all years. Also, the magnitudes of the coefficient and the adjusted R-squared do not exhibit a decreasing trend over time. Panel B presents the results for accounting conservatism. The coefficient on kinship tightness is negative and significant for all years and the adjusted R-squared values suggest that kinship tightness explains a meaningful portion of the variation in accounting conservatism for all years. Once again, the magnitudes of the coefficient and the adjusted R-squared do not exhibit a decreasing trend over time. Collectively, the results in this section suggest that the association between historical kinship tightness and financial reporting quality is quite persistent.

## 5. Conclusions



Using a sample of over 70 countries, we show that people's historical kinship tightness – interdependence on extended family networks – is negatively associated with their countries' contemporary financial reporting quality. Specifically, country-level historical kinship tightness explains 33 percent and 29 percent of the variation in country-level earnings management and accounting conservatism, respectively. An instrumental variable approach that exploits the Western Church's transformation of the kinship system by banning cousin marriages and promoting nuclear families during the Middle Ages yields consistent inference. We also show that historical kinship tightness is significantly correlated with several contemporaneous country attributes shown by prior studies to be significantly correlated with financial reporting quality. Furthermore, we document that the explanatory power of these country attributes for financial reporting quality decreases significantly upon controlling for historical kinship tightness. In addition, we do not find evidence suggesting that the association between historical kinship tightness and country-level accounting quality decreases during the period 1998 to 2019. Given that this period is characterized by global effort to harmonize accounting standards across countries, the above finding suggests that the relation between historical kinship tightness and financial reporting quality is quite persistent.

Our study contributes to the literature by showing that people's historical kinship tightness affects their countries' contemporary financial reporting quality and that this effect is economically significant and persistent. Our study also suggests that historical kinship tightness underlie many contemporary country attributes that have been shown by prior studies to be correlated with financial reporting quality. More broadly, our study contributes to the economics literature on the role of historical conditions in contemporary economic outcomes by documenting the effect of historical kinship systems on contemporary accounting practices.

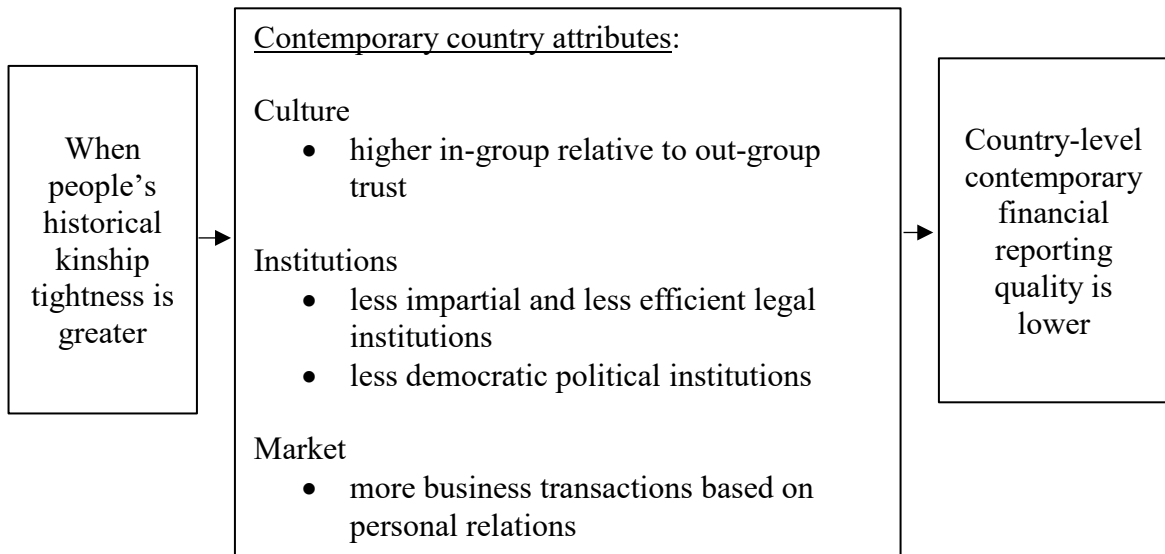
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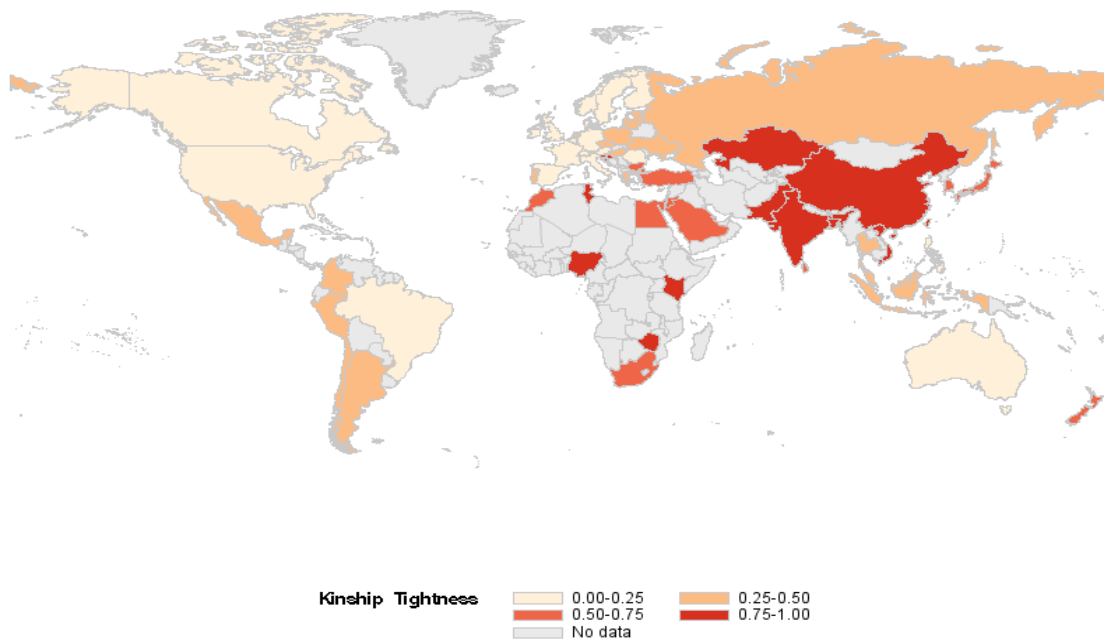
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**Figure 1**  
**The Effect of Historical Kinship Structure on Country-level Contemporary Financial Reporting Quality - Conceptual Framework**



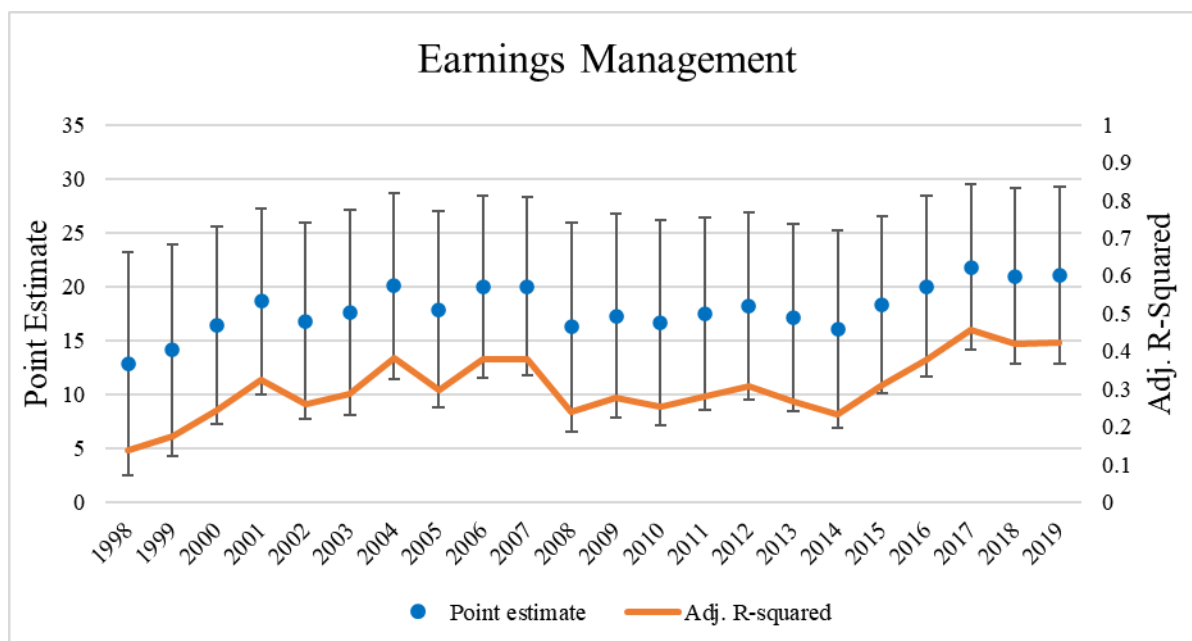
**Figure 2**  
**Distribution of Country-level Historical Kinship Tightness**



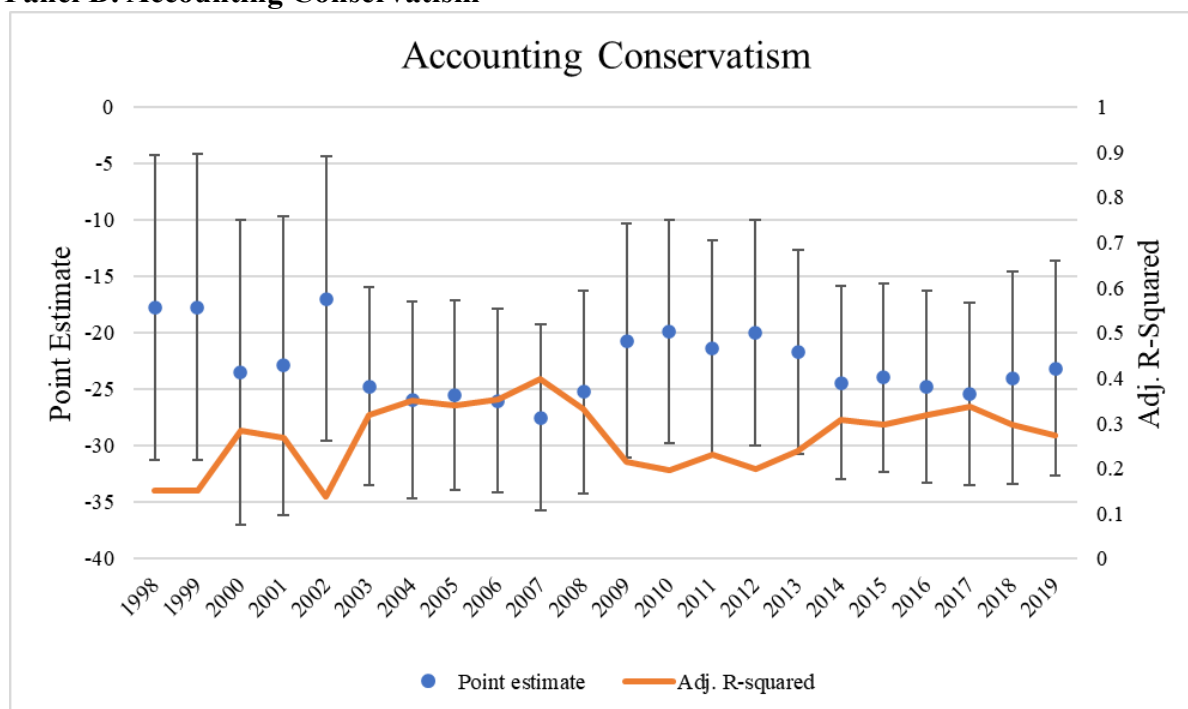


**Figure 4**  
**The Effect of historical Kinship Tightness on Country-Level**  
**Financial Reporting Quality by Year, 1998-2019**

**Panel A: Earnings Management**



**Panel B: Accounting Conservatism**



Coefficient estimates (with 5% confidence intervals) and adjusted R-squared values obtained from regressing country-level earnings management (Panel A) and accounting conservatism (Panel B) on historical kinship tightness by year.

**Table 1**  
**Descriptive Statistics**

**Panel A: Values of Key Variables by Country**

Country	<i>Kinship tightness</i>	<i>EM</i>	<i>CONSV</i>	Country	<i>Kinship tightness</i>	<i>EM</i>	<i>CONSV</i>
Argentina	0.26	23	49	Latvia	0.36	55	27
Australia	0.08	2	65	Lithuania	0.42	53.5	6
Austria	0.05	27	69	Luxembourg	0.00	13.5	66
Bangladesh	0.94	70	10	Malaysia	0.48	43	23
Belgium	0.08	35.5	63	Mauritius	0.86	28	30
Bermuda	0.00	6	41	Mexico	0.32	32	37
Brazil	0.11	30	52	Morocco	0.75	44	42
Bulgaria	0.50	61.5	36	Netherlands	0.26	17.5	57
Canada	0.13	7	71	New Zealand	0.61	1	62
Cayman Islands	0.00	16	59	Nigeria	0.95	65	20
Chile	0.40	25.5	32	Norway	0.01	17.5	61
China	0.83	53.5	8	Pakistan	0.81	63	12
Colombia	0.30	40	5	Peru	0.33	22	15
Croatia	1.00	66	29	Philippines	0.08	30	33
Cyprus	0.36	45	55	Poland	0.50	46	35
Czech Republic	0.50	N/A	50	Portugal	0.50	59	40
Denmark	0.00	4	54	Qatar	0.72	56	3
Egypt	0.59	61.5	24	Romania	0.07	57	31
Estonia	0.29	12	4	Russia	0.33	38	13
Finland	0.06	11	58	Saudi Arabia	0.65	37	25
France	0.20	30	67	Singapore	0.63	42	43
Germany	0.01	25.5	51	Slovenia	0.99	67	7
Greece	0.25	47.5	22	South Africa	0.69	8	34
Hong Kong	0.78	47.5	38	Spain	0.22	34	28
Hungary	0.49	19	19	Sri Lanka	0.64	40	11
India	0.78	68	18	Sweden	0.00	3	56
Indonesia	0.45	64	16	Switzerland	0.00	15	68
Ireland	0.25	21	70	Taiwan	0.78	58	39
Israel	0.66	13.5	64	Thailand	0.29	40	21
Italy	0.06	52	53	Tunisia	1.00	49	45
Jamaica	0.43	20	44	Turkey	0.71	60	26
Japan	0.58	50	46	Ukraine	0.41	24	2
Jordan	0.73	69	17	United Kingdom	0.02	9	60
Kazakhstan	0.88	35.5	9	United States	0.16	5	72
Kenya	0.88	33	48	Viet Nam	0.86	71	14
Korea, Republic of	0.75	51	47	Zimbabwe	0.90	10	1



**Panel B: Summary Statistics**

Variable	N	Mean	Std. Dev.	25%	Median	75%
<u>Dependent Variable</u>						
<i>EM</i>	71	36.00	20.64	17.50	35.50	53.50
<i>CONSV</i>	72	36.50	20.93	18.50	36.50	54.50
<u>Test Variable</u>						
<i>Kinship tightness</i>	72	0.44	0.32	0.14	0.43	0.73
<u>Covariates</u>						
<i>Malaria ecology</i>	70	1.35	3.62	0.00	0.02	0.24
<i>Parasite stress</i>	68	-0.92	2.49	-3.04	-1.80	0.69
<i>Ruggedness</i>	72	1.24	0.99	0.40	0.99	1.91
<i>Mean distance to nearest waterway</i>	66	0.24	0.44	0.04	0.09	0.26
<i>Dependence on hunting and gathering</i>	72	0.09	0.05	0.05	0.08	0.12
<i>Caloric suitability</i>	69	1201.08	632.15	818.54	1286.05	1597.37
<i>Irrigation potential</i>	70	0.14	0.26	0.00	0.03	0.16
<i>Absolute latitude</i>	70	35.20	17.13	23.00	36.50	49.00
<i>Tropical climate</i>	72	20.68	37.04	0.00	0.00	21.30
<i>Neolithic transition timing</i>	69	6109.15	1796.93	5000.00	5990.00	7401.92
<i>Predicted genetic diversity</i>	69	0.72	0.02	0.72	0.73	0.74
<i>Log number of years since observation in EA</i>	69	4.57	0.52	4.26	4.43	4.63
<i>Percent Catholic</i>	70	0.30	0.35	0.01	0.09	0.67
<i>Percent Protestant</i>	70	0.14	0.22	0.01	0.02	0.21
<i>Percent Orthodox Christian</i>	70	0.07	0.20	0.00	0.00	0.02
<i>Percent other Christian</i>	70	0.09	0.12	0.01	0.04	0.14
<i>Percent Muslims</i>	70	0.17	0.31	0.00	0.02	0.12
<i>Percent Hindi</i>	70	0.03	0.11	0.00	0.00	0.01
<i>Percent Buddhist</i>	70	0.05	0.16	0.00	0.00	0.01
<i>Religiousness</i>	65	1.89	0.68	1.30	1.82	2.39
<i>Prediction_FTR</i>	41	0.65	0.47	0.00	1.00	1.00
<u>Instrumental Variable Analysis</u>						
<i>Western Church exposure</i>	70	2.744	3.243	0.000	1.270	5.391
<i>Eastern Church exposure</i>	70	0.461	1.398	0.000	0.000	0.088

Panel A presents the values of key variables (kinship tightness, earnings management, and accounting conservatism) by country. Panel B presents summary statistics of the variables used in the regression analyses reported in Tables 2 and 3. See Appendix 2 for variable definitions.

**Table 2**  
**The Effect of Historical Kinship Tightness on Country-Level Contemporary Financial Reporting Quality**

**Panel A: Earnings Management**

Dependent Variable	<i>EM</i>						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Kinship tightness</i>	37.974*** (6.14)	39.226*** (7.60)	31.437*** (4.96)	29.014*** (3.55)	40.203*** (6.47)	38.096*** (5.50)	44.671*** (9.86)
<i>Malaria ecology</i>		0.492 (0.89)	1.386*** (3.35)	-11.133* (-1.79)	0.347 (0.52)	0.350 (0.54)	0.764 (1.39)
<i>Parasite stress</i>		3.095** (2.09)	1.774 (1.25)	4.109* (1.75)	2.755 (1.49)	2.756 (1.56)	2.224 (1.43)
<i>Ruggedness</i>		2.152 (1.19)	1.757 (1.08)	3.650 (1.20)	1.862 (0.97)	1.502 (0.79)	1.979 (0.98)
<i>Mean distance to nearest waterway</i>		-10.110 (-1.63)	-12.797* (-1.97)	-0.572 (-0.08)	-7.495 (-1.30)	-7.956 (-1.22)	-12.062** (-2.16)
<i>Dependence on hunting and gathering</i>		-58.125 (-1.34)	-4.977 (-0.10)	-102.246* (-1.74)	-46.154 (-1.09)	-56.963 (-1.26)	-41.875 (-0.76)
<i>Caloric suitability</i>		0.004 (0.96)	-0.000 (-0.02)	0.009 (0.95)	0.002 (0.43)	0.003 (0.62)	-0.003 (-0.66)
<i>Irrigation potential</i>		18.163 (1.43)	6.855 (0.52)	-10.776 (-0.30)	20.043 (1.40)	12.942 (0.85)	8.015 (0.73)
<i>Absolute latitude</i>		0.908** (2.56)	0.757* (1.71)	0.413 (0.49)	0.459 (1.17)	0.663 (1.63)	0.937** (2.59)
<i>Tropical climate</i>		0.319*** (3.02)	0.125 (1.05)	0.448 (0.86)	0.239* (1.74)	0.265** (2.49)	0.351*** (3.72)
<i>Neolithic transition timing</i>		0.005*** (4.51)	0.002 (1.66)	-0.000 (-0.05)	0.004** (2.04)	0.005*** (3.89)	0.004*** (4.26)
<i>Predicted genetic diversity</i>		-104.957 (-1.48)	-58.926 (-0.70)	16.439 (0.08)	-153.437 (-1.44)	-60.685 (-0.62)	-62.332 (-0.84)
<i>Log number of years since observation in EA</i>		-7.987*** (-2.82)	-7.106 (-1.18)	-4.307 (-1.09)	-7.139** (-2.31)	-7.203** (-2.35)	-9.268*** (-3.79)
<i>Prediction_FTR</i>				9.893* (1.81)			

Religion Controls	No	No	Yes	No	No	No	No
Continent Fixed Effects	No	No	No	No	Yes	No	No
Colony Fixed Effects	No	No	No	No	No	Yes	No
Legal Origin Fixed Effects	No	No	No	No	No	No	Yes
N	71	63	59	38	63	61	62
Adj. R-squared	0.333	0.598	0.737	0.582	0.598	0.590	0.657

### Panel B: Accounting Conservatism

Dependent Variable	<i>CONSV</i>						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Kinship tightness</i>	-36.229*** (-6.34)	-35.606*** (-4.31)	-44.671*** (-4.74)	-41.977*** (-3.89)	-43.448*** (-5.03)	-39.445*** (-4.70)	-38.321*** (-3.87)
<i>Malaria ecology</i>		1.660** (2.49)	1.243 (1.30)	12.944 (1.54)	1.974*** (3.00)	2.150*** (3.41)	1.479** (2.15)
<i>Parasite stress</i>		-6.632*** (-3.68)	-7.607*** (-3.51)	-9.692** (-2.45)	-6.639*** (-3.47)	-6.211*** (-3.17)	-5.850*** (-3.20)
<i>Ruggedness</i>		0.760 (0.33)	0.187 (0.08)	-3.445 (-1.07)	0.370 (0.18)	1.979 (0.92)	1.160 (0.48)
<i>Mean distance to nearest waterway</i>		3.443 (0.57)	13.150 (1.60)	8.940 (0.99)	-0.770 (-0.16)	1.371 (0.26)	3.341 (0.54)
<i>Dependence on hunting and gathering</i>		-42.182 (-0.70)	-39.718 (-0.54)	13.989 (0.25)	-36.895 (-0.71)	-57.312 (-1.16)	-69.873 (-0.92)
<i>Caloric suitability</i>		-0.008 (-1.48)	-0.001 (-0.15)	-0.014 (-1.34)	-0.004 (-0.79)	-0.004 (-0.72)	-0.004 (-0.52)
<i>Irrigation potential</i>		-21.045 (-1.50)	-33.230* (-1.89)	-63.499 (-1.04)	-24.887** (-2.02)	-9.351 (-0.62)	-14.020 (-0.99)
<i>Absolute latitude</i>		-1.142** (-2.51)	-1.421** (-2.28)	-1.881 (-1.64)	-0.443 (-0.96)	-0.712 (-1.35)	-1.017** (-2.05)
<i>Tropical climate</i>		-0.356*** (-2.75)	-0.471** (-2.36)	-1.024* (-1.72)	-0.245 (-1.59)	-0.325** (-2.50)	-0.366** (-2.69)
<i>Neolithic transition timing</i>		-0.002 (-1.06)	-0.001 (-0.55)	0.002 (0.54)	0.000 (0.03)	-0.001 (-0.90)	-0.002 (-0.95)

<i>Predicted genetic diversity</i>		92.264 (0.71)	101.499 (0.52)	-30.472 (-0.10)	75.473 (0.51)	-97.524 (-0.64)	30.112 (0.21)
<i>Log number of years since observation in EA</i>		6.832** (2.40)	7.756 (1.07)	2.975 (0.57)	5.065 (1.58)	7.905** (2.63)	6.488** (2.28)
<i>Prediction_FTR</i>				-2.856 (-0.36)			
Religion Controls	No	No	Yes	No	No	No	No
Continent Fixed Effects	No	No	No	No	Yes	No	No
Colony Fixed Effects	No	No	No	No	No	Yes	No
Legal Origin Fixed Effects	No	No	No	No	No	No	Yes
N	72	64	60	39	64	62	63
Adj. R-squared	0.289	0.480	0.507	0.493	0.541	0.537	0.475

This table reports regression results for the relation between historical kinship tightness and country-level contemporary accounting quality. Panel A and B report earnings management and accounting conservatism results, respectively. Column (3) controls for the influence of religion by including the following additional variables: *Percent Catholic*, *Percent Protestant*, *Percent other Christians*, *Percent Orthodox Christian*, *Percent Muslims*, *Percent Hindus*, *Percent Buddhist*, and *Religiousness*. The number of observations is different across columns because of data availability. Variable definitions are in Appendix 2. The *t*-statistics are reported in parenthesis and are based on heteroskedasticity-robust standard errors. \*\*\*, \*\*, and \* indicates significance at the 1%, 5%, 10%, respectively, based on two-tailed tests.

**Table 3**  
**The Effect of Historical Kinship Tightness on Contemporary**  
**Financial Reporting Quality - Instrumental Variable Approach**

**Panel A: Earnings Management**

Dependent Variable	<i>Kinship tightness</i>	<i>EM</i>	<i>EM</i>
	(1)	(2)	(3)
<i>Western Church exposure</i>	-0.056*** (-6.18)		-2.977*** (-4.03)
<i>Kinship tightness</i> (Predicted value)		54.223*** (4.67)	
<i>Eastern Church exposure</i>			0.527 (0.60)
N	69	69	69
Adj. R-squared	0.324	0.219	0.208

Cragg-Donald *F*-stat: 33.52. Stock-Yogo critical value for 10% maximal IV size: 16.38  
*p*-value for the difference *Western Church exposure* vs. *Eastern Church exposure*: <0.001

**Panel B: Accounting Conservatism**

Dependent Variable	<i>Kinship tightness</i>	<i>CONSV</i>	<i>CONSV</i>
	(1)	(2)	(3)
<i>Western Church exposure</i>	-0.055*** (-6.14)		4.235*** (7.77)
<i>Kinship tightness</i> (Predicted value)		-75.952*** (-6.64)	
<i>Eastern Church exposure</i>			0.707 (0.49)
N	70	70	70
Adj. R-squared	0.316	0.403	0.396

Cragg-Donald *F*-stat: 32.90. Stock-Yogo critical value for 10% maximal IV size: 16.38  
*p*-value for the difference *Western Church exposure* vs. *Eastern Church exposure*: 0.016

This table reports the 2SLS regression results for the relation between historical kinship tightness and country-level accounting quality using Western Church exposure as the instrument for historical kinship tightness. Panel A and B report earnings management and accounting conservatism results, respectively. All variable definitions are in Appendix 2. The *t*-statistics are reported in parenthesis and are based on heteroskedasticity-robust standard errors. \*\*\*, \*\*, and \* indicates significance at the 1%, 5%, 10%, respectively, based on two-tailed tests.

**Table 4**  
**The Relation between Contemporary Country Attributes and Financial Reporting Quality**  
**before and after Controlling for Historical Kinship Tightness**

**Panel A: Summary Statistics**

Variable	Mean	Std. Dev.	25%	Median	75%
<i>Democracy</i>	3.877	5.978	-1.322	6.000	9.000
<i>Rule of law</i>	0.019	0.985	-0.771	-0.131	0.832
<i>Trust [In-group - Out-group]</i>	1.061	0.265	0.844	1.034	1.211
<i>Nepotism in business</i>	-0.031	0.995	-0.730	0.020	0.615

**Panel B: The Effect of Historical Kinship Tightness on Contemporary Country Attributes**

Dependent Variable	<i>Democracy</i> (1)	<i>Rule of law</i> (2)	<i>Trust [In-group - Out-group]</i> (3)	<i>Nepotism in business</i> (4)
<i>Kinship tightness</i>	-10.101*** (-9.15)	-1.138*** (-5.21)	0.387*** (4.41)	1.156*** (4.40)
N	144	196	72	112
Adj. R-squared	0.286	0.136	0.221	0.130

**Panel C: The Relation between Contemporary Country Attributes and Earnings Management before and after Controlling for Historical Kinship Tightness**

Dependent Variable	<i>EM</i>								<i>p</i> -value difference in coefficients
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<i>Democracy</i>	-1.447*** (-3.69)	-0.253 (-0.56)							0.000
<i>Rule of Law</i>			-9.809*** (-3.88)	-3.898 (-1.48)					0.000
<i>Trust [In-group - Out-group]</i>					53.712*** (5.84)	33.813*** (2.95)			0.013
<i>Nepotism in business</i>							15.779*** (8.30)	12.327*** (5.02)	0.024
<i>Kinship tightness</i>		35.362*** (4.08)		33.701*** (5.10)		26.001** (2.65)		19.797*** (2.79)	

N	65	65	70	70	51	51	68	68
Adj. R-squared	0.135	0.307	0.195	0.382	0.374	0.468	0.459	0.522

**Panel D: The Relation between Contemporary Country Attributes and Accounting Conservatism before and after Controlling for Historical Kinship Tightness**

Dependent Variable	<i>CONSV</i>								<i>p</i> -value difference in coefficients
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<i>Democracy</i>	1.942*** (5.35)	0.979** (2.56)							0.001
<i>Rule of Law</i>			15.341*** (9.66)	12.222*** (6.08)					0.009
<i>Trust [In-group - Out-group]</i>					-44.169*** (-3.27)	-22.223 (-1.58)			0.001
<i>Nepotism in business</i>							-14.031*** (-5.94)	-10.156*** (-3.79)	0.004
<i>Kinship tightness</i>		-28.765*** (-3.78)		-17.850*** (-2.72)		-28.674*** (-3.93)		-22.251*** (-3.01)	
N	66	66	71	71	51	51	69	69	
Adj. R-squared	0.233	0.335	0.472	0.517	0.240	0.351	0.336	0.410	

Panel A provides summary statistics for the four contemporary country attributes for which recent studies provide rigorous arguments and/or evidence suggesting that they are influenced by historical kinship tightness (see Section 2). Panel B provides regression results for the relation between historical kinship tightness and contemporary country attributes. Panels C and D provide the regression results of the relation between contemporary country attributes and accounting quality before and after controlling for historical kinship tightness. The number of observations used to estimate a model varies because of data availability. All variables definitions are in Appendix 2. The *t*-statistics are reported in parenthesis and are based on heteroskedasticity-robust standard errors. \*\*\*, \*\*, and \* indicates significance at the 1%, 5%, 10%, respectively, based on two-tailed tests.

**Table 5**  
**The Effect of Historical Kinship Tightness on**  
**the Country Factors of Isidro et al. (2020)**

**Panel A: The Effect of Historical Kinship Tightness on the Country Factors**

Dependent Variable	<i>Country</i> <i>Factor 1</i> (1)	<i>Country</i> <i>Factor 2</i> (2)	<i>Country</i> <i>Factor 3</i> (3)	<i>Country</i> <i>Factor 4</i> (4)
<i>Kinship tightness</i>	-1.690*** (-2.95)	1.434** (2.60)	-0.814 (-1.24)	-0.095 (-0.16)
N	35	35	35	35
Adj. R-squared	0.183	0.124	0.019	-0.030

**Panel B: The Effect of Historical Kinship Tightness on Country Attributes Related to**  
**Country Factor 1 of Isidro et al. (2020)**

Country Attribute (1)	Description of the Country Attribute (2)	Factor Loading (3)	Coefficient on <i>Kinship tightness</i> (4)
<i>CCorr</i>	Score of control of corruption (average 1998-2013)	0.938	-2.009*** (-4.53)
<i>Law</i>	Score of the quality of the rule of law (average 1998-2013)	0.938	-1.795*** (-4.31)
<i>Gdpc</i>	GDP per capita (average 1998-2013)	0.928	-33450.863*** (-5.69)
<i>LPolitR</i>	Index of political risk multiplied by minus one	0.914	-22.238*** (-4.35)
<i>LawO</i>	Score of law and order	0.907	-4.568*** (-4.70)
<i>RegQ</i>	Score of regulatory quality	0.901	-1.518*** (-3.70)
<i>LRepContr</i>	Score of repudiation of contracts by the government multiplied by minus one	0.891	-2.742*** (-3.58)
<i>CCorrL</i>	Control of corruption	0.888	-3.538*** (-3.73)
<i>PolitScore</i>	Index of political quality based on 8 dimensions (average 2002-2012)	0.887	-47.238*** (-6.34)
<i>PolitStab</i>	Score of political stability (average 1998-2013)	0.883	-1.612*** (-3.92)
<i>LExprR</i>	Score of risk of expropriation by the government multiplied by minus one	0.875	-2.633*** (-4.18)
<i>ProprR</i>	Score of property rights	0.843	-1.427*** (-2.96)
<i>JudIndep</i>	Score of judicial independence	0.802	-1.568*** (-2.83)
<i>JudEff</i>	Score of judicial efficiency	0.794	-2.151** (-2.42)
<i>Latitude</i>	Geographic latitude	0.749	-0.320*** (-4.24)
<i>Media</i>	Average rank of the media development (print and television)	0.735	-39.344*** (-3.30)
<i>InfoKnow</i>	Score of information and knowledge based on 9 dimensions (average 2002-2012)	0.722	-17.057*** (-4.01)



Country Attribute	Description of the Country Attribute	Factor Loading	Coefficient on <i>Kinship tightness</i>
(1)	(2)	(3)	(4)
<i>EnforAudS</i>	Score of auditing enforcement (average 2002, 2005, 2008)	0.702	-9.056*** (-3.16)
<i>IndividH</i>	Hofstede individualism score	0.696	-54.726*** (-6.09)
<i>Trust</i>	Index equal to 100 + %(most people can be trusted) - %(can't be too careful)	0.635	-38.973** (-2.26)
<i>Democracy</i>	Democracy score (autocracy multiplied by minus one)	0.585	-8.360*** (-3.19)
<i>Protestant</i>	Percentage of population that is protestant	0.571	-35.500** (-2.51)
<i>LTaxEv</i>	Score of low prevalence of tax evasion	0.554	-0.416 (-0.40)
<i>IntHoldFor</i>	Percentage of holdings by foreign institutional investors	0.530	-2.805* (-1.95)
<i>BankPriv</i>	Bank money in private sector to GDP	0.530	-0.299 (-1.48)
<i>TaxComp</i>	Tax avoidance spread multiplied by minus one	0.507	-0.002 (-0.04)
<i>CreditR</i>	Legal protection of creditors and borrowers	0.457	0.964 (0.96)
<i>PolitConn</i>	Percentage of firms connected to politicians	-0.508	2.969 (1.01)
<i>IndividW</i>	Index equal to 100 + %(completely agree we need large income difference) - %(completely agree with income should be equal)	-0.533	40.339* (1.98)
<i>LangFract</i>	One minus the Herfindahl index of language measure	-0.540	0.325** (2.41)
<i>Muslim</i>	Percentage of population that is muslim	-0.569	27.009** (2.23)
<i>EthFract</i>	One minus the Herfindahl index of ethnicity	-0.580	0.241* (1.89)
<i>Secrecy</i>	Uncertainty avoidance plus power distance minus individualism	-0.694	89.187*** (3.91)
<i>PowerD</i>	Hofstede power distance score	-0.707	30.784*** (2.83)
<i>Religness</i>	Principal component of religious attendance and importance of religion in life	-0.847	1.394* (1.81)

Panel A provides the results from regressing the four country factors in Isidro et al. (2020) on kinship tightness. See Appendix 3 for a detailed analysis of the effect of kinship tightness on *Country Factor 2*. Panel B provides the results from regressing on kinship tightness the 35 country attributes that load on *Country Factor 1* of Isidro et al. (2020). Column (3) reports the factor loadings of the country attributes for Isidro et al.'s *Country Factor 1* (see Isidro et al. Appendix C). Variables definitions are in Appendix 2 and Column (2) of Panel B. The *t*-statistics are reported in parenthesis and are based on heteroskedasticity-robust standard errors. \*\*\*, \*\*, and \* indicates significance at the 1%, 5%, 10%, respectively, based on two-tailed tests.

**Table 6**  
**The Relation between Country Factors in Isidro et al. (2020) and Accounting Quality after Controlling for Kinship Tightness**

**Panel A: The Relation between the Country Factors of Isidro et al. (2020) and Accounting Quality after Controlling for Kinship Tightness**

Dependent Variable	<i>EM</i>		<i>CONSV</i>	
	(1)	(2)	(3)	(4)
<i>Country Factor 1</i>	-11.383*** (-4.44)	-7.725*** (-4.57)	13.666*** (8.04)	12.056*** (8.73)
<i>Country Factor 2</i>	-2.897 (-1.41)	-6.002*** (-3.99)	0.094 (0.05)	1.460 (0.89)
<i>Country Factor 3</i>	-5.930*** (-3.01)	-4.168** (-2.23)	4.902*** (3.06)	4.127** (2.73)
<i>Country Factor 4</i>	-9.630*** (-6.05)	-9.426*** (-4.89)	3.258* (1.98)	3.168* (1.77)
<i>Kinship tightness</i>		29.796*** (2.80)		-13.115* (-1.89)
N	35	35	35	35
Adj. R-squared	0.621	0.721	0.648	0.663
<i>p</i> -value for the difference in coefficients on <i>Country Factor 1</i> :	0.041		0.108	

**Panel B: The Relation between the Country Attributes Related to *Country Factor 1* of Isidro et al. (2020) and Accounting Quality after Controlling for Kinship Tightness**

Country attribute ( $v_i$ )	<i>EM</i>			<i>CONSV</i>		
	Coefficient on $v_i$ before controlling for <i>Kinship tightness</i>	Coefficient on $v_i$ after controlling for <i>Kinship tightness</i>	<i>p</i> -value difference in coefficients on $v_i$	Coefficient on $v_i$ before controlling for <i>Kinship tightness</i>	Coefficient on $v_i$ after controlling for <i>Kinship tightness</i>	<i>p</i> -value difference in coefficients on $v_i$
	(1)	(2)	(3)	(4)	(5)	(6)
<i>CCorr</i>	-9.544*** (-4.26)	-6.687*** (-2.82)	0.047	13.420*** (8.12)	11.684*** (6.26)	0.075
<i>Law</i>	-8.456*** (-3.02)	-4.603 (-1.59)	0.021	14.978*** (8.27)	13.114*** (6.28)	0.072
<i>Gdpc</i>	-0.001*** (-4.15)	-0.000** (-2.66)	0.044	0.001*** (7.99)	0.001*** (5.81)	0.393
<i>LPolitR</i>	-0.752*** (-3.01)	-0.435 (-1.62)	0.051	1.410*** (9.73)	1.236*** (7.68)	0.071
<i>LawO</i>	-3.324*** (-2.94)	-1.755 (-1.58)	0.031	5.987*** (9.58)	5.353*** (8.05)	0.119
<i>RegQ</i>	-9.910** (-2.26)	-5.350 (-1.19)	0.017	17.046*** (8.04)	14.631*** (5.58)	0.049
<i>LRepContr</i>	-3.994** (-2.28)	-1.576 (-1.02)	0.020	8.177*** (6.77)	6.856*** (5.51)	0.026
<i>CCorrL</i>	-5.595*** (-6.04)	-4.517*** (-4.15)	0.111	6.451*** (8.78)	5.514*** (7.07)	0.056
<i>PolitScore</i>	-0.617*** (-6.95)	-0.472*** (-3.21)	0.197	0.739*** (9.90)	0.730*** (7.59)	0.907
<i>PolitStab</i>	-8.065*** (-3.08)	-4.097 (-1.58)	0.017	14.289*** (6.97)	11.913*** (5.70)	0.035
<i>LExprR</i>	-4.454** (-2.33)	-1.517 (-0.84)	0.024	9.554*** (6.70)	8.259*** (5.27)	0.063
<i>ProprR</i>	-6.690** (-2.14)	-3.501 (-1.14)	0.031	12.859*** (6.37)	10.561*** (5.01)	0.019

Country attribute ( $v_i$ )	<i>EM</i>			<i>CONSV</i>		
	Coefficient on $v_i$ before controlling for <i>Kinship tightness</i>	Coefficient on $v_i$ after controlling for <i>Kinship tightness</i>	<i>p</i> -value difference in coefficients on $v_i$	Coefficient on $v_i$ before controlling for <i>Kinship tightness</i>	Coefficient on $v_i$ after controlling for <i>Kinship tightness</i>	<i>p</i> -value difference in coefficients on $v_i$
	(1)	(2)	(3)	(4)	(5)	(6)
<i>JudIndep</i>	-6.864*** (-3.12)	-4.669** (-2.08)	0.054	10.729*** (6.54)	8.924*** (5.39)	0.031
<i>JudEff</i>	-5.125*** (-4.81)	-4.065*** (-3.98)	0.081	5.687*** (7.87)	4.625*** (6.45)	0.057
<i>Latitude</i>	-36.604*** (-3.49)	-16.268 (-1.52)	0.013	52.332*** (4.22)	35.513** (2.40)	0.024
<i>Media</i>	-0.219 (-1.37)	0.010 (0.06)	0.004	0.562*** (3.84)	0.430** (2.69)	0.032
<i>InfoKnow</i>	-1.035*** (-3.05)	-0.519 (-1.26)	0.029	1.372*** (6.88)	1.085*** (3.82)	0.117
<i>EnforAudS</i>	-1.572*** (-3.51)	-1.001** (-2.51)	0.018	1.825*** (5.88)	1.407*** (4.11)	0.026
<i>IndividH</i>	-0.539*** (-6.65)	-0.368*** (-2.91)	0.055	0.639*** (9.81)	0.623*** (7.52)	0.798
<i>Trust</i>	-0.188** (-2.53)	-0.097 (-1.43)	0.032	0.256*** (3.65)	0.163** (2.18)	0.027
<i>Democracy</i>	-1.500* (-1.88)	-0.243 (-0.24)	0.030	3.239*** (5.64)	2.450*** (3.51)	0.025
<i>Protestant</i>	-0.432*** (-6.30)	-0.332*** (-3.95)	0.046	0.311*** (4.67)	0.180** (2.10)	0.009
<i>IntHoldFor</i>	-1.555* (-1.78)	-0.881 (-1.13)	0.142	2.279** (2.75)	1.724** (2.21)	0.082
<i>IndividW</i>	0.115 (1.48)	0.028 (0.41)	0.053	-0.232*** (-3.61)	-0.153*** (-2.77)	0.059
<i>LangFract</i>	9.953 (0.87)	-3.583 (-0.35)	0.040	-18.225* (-1.96)	-5.101 (-0.51)	0.040
<i>Muslim</i>	0.426*** (5.79)	0.294*** (3.28)	0.029	-0.348*** (-4.42)	-0.195** (-2.27)	0.004
<i>EthFract</i>	8.637 (0.69)	-3.458 (-0.35)	0.073	-26.293** (-2.46)	-15.149 (-1.39)	0.055
<i>Secrecy</i>	0.262*** (7.92)	0.196*** (4.53)	0.025	-0.281*** (-8.35)	-0.248*** (-6.05)	0.149
<i>PowerD</i>	0.563*** (5.30)	0.407*** (3.63)	0.060	-0.640*** (-8.24)	-0.549*** (-6.78)	0.069
<i>Religness</i>	4.320** (2.03)	2.098 (1.23)	0.080	-7.029*** (-3.97)	-5.062*** (-3.11)	0.087
Number of significant coefficients:	26			30		
Number of significant differences in coefficients (conditional on coefficients in Columns (1) and (4) being significant):	23			24		

Panel A provides the regression results of the relation between the four country factors in Isidro et al. (2020) and accounting quality (earnings management and conservatism) before and after controlling for kinship tightness. Panel B provides the results from regressing accounting quality (earnings management and conservatism) on country attributes related to *Country Factor 1* of Isidro et al. (2020) before and after controlling for kinship tightness. The 30 country attributes in Panel B are the ones that are significantly correlated with kinship tightness (see Table 5, Panel B). Variable definitions are in Appendix 2. Description of country attributes are in Panel B of Table 5. The *t*-statistics are reported in parenthesis and are based on heteroskedasticity-robust standard errors. \*\*\*, \*\*, and \* indicates significance at the 1%, 5%, 10%, respectively, based on two-tailed tests.

## **Appendix 1**

### **Historical Kinship Tightness Measure**

We adopt the country-level historical kinship tightness measure from Enke (2019). It is constructed using variables in the Ethnographic Atlas, the leading anthropological dataset that contains information on the social structures of 1,265 pre-industrialization ethnic groups (Murdock 1967). Murdock coded ethnic groups for the earliest period for which ethnographic data are available or can be reconstructed. Giuliano and Nunn (2018) augmented the data with an additional 46 ethnic groups in Europe. The data provide information about the subsistence mode, family structure, religious beliefs, etc., for these ethnic groups and has been validated using data from descendants of the portrayed ethnic groups (Bahrami-Rad, Becker, and Henrich 2021). Enke (2019) follows the discussion in Henrich (2020) and develops for each ethnic group an index of kinship tightness that measures the extent to which ancestors were interdependent in the family systems. Specifically, he starts by coding four items that reflect family structure and descent systems, two important dimensions of kinship, as detailed below:

#### *(A) Family Structure*

*Extended family* is a dummy variable that equals one if the domestic organization is around extended families (as opposed to independent nuclear families) and zero otherwise. Extend family represents a large interconnected family network.

*Joint residence* is a dummy variable that equals one if the wife is expected to move in with the husband's group or vice versa and zero otherwise. A social norm that prescribes residence with the husband's or wife's group represents a stronger kinship tie, compared with a social norm that allows couples to live either by themselves or allows flexibility to live with either the husband's or the wife's group.

#### *(B) Descent System*

*Unilineal descent* is a dummy variable that equals one if descent is unilineal (as opposed to bilateral) and zero otherwise. The unilineal descent system tracks descent either through the maternal or paternal line, but not both. This system makes people feel closer to one part of their family and induces loyalty to that family.

*Clans* is a dummy variable that equals one if people are part of localized clans living in segmented communities and zero otherwise. Clans enable people across lineages to recognize their "broad relatedness."

The kinship tightness index for an ethnic group is calculated as the average of the four dummy variables (the availability of at least three of the four variables is required) normalized to take values between zero and one.

For computing a country-level measure for ancestral kinship tightness, Enke (2019) matches historical ethnic groups to the contemporary population of a country using two approaches, one based on a migration matrix (Putterman and Weil 2010) and the other based on language (Giuliano and Nunn 2018). The migration matrix for each contemporary country provides the population share that descends from a given country of origin. Enke (2019) calculates the kinship tightness measure for a country based on the migration matrix as the average of the kinship index of all countries of origin, weighted by their population shares, where the kinship index of a country of origin is computed as the simple average of the kinship tightness index across all ethnic groups in the Ethnographic Atlas that reside within the country's contemporary borders. For example, suppose 50 percent of the U.S. population descend from the U.K. and 50 percent from Germany, and the average kinship index across ethnic groups in the Ethnographic Atlas that reside in the contemporary U.K. (Germany) border is 0.2 (0.1). In that case, the ancestral kinship tightness for the U.S. is  $0.5 \times 0.2 + 0.5 \times 0.1 = 0.15$ . To calculate the kinship tightness for a country based on language, Enke (2019) uses data from Giuliano and Nunn (2018), who match the historical ethnic groups to contemporary populations with the language people speak. The kinship tightness measure is calculated by averaging the kinship index across ethnic groups that share similar languages with the people in the country, weighted by the population share. For example, suppose 50 percent of the U.S. population speaks English and 50 percent speaks German, and the average kinship index across ethnic groups that speak languages closest to English (German) is 0.2 (0.1). In that case, the historical kinship tightness for the U.S. is  $0.5 \times 0.2 + 0.5 \times 0.1 = 0.15$ . Enke (2019) combines the two approaches using the following rule. When the two approaches allow the classification of at least 80% of the country's population, he takes the average of the values from the two approaches to obtain the country-level measure of historical kinship tightness. When only one approach allows the classification of at least 80% of the country's population, he uses the value from that approach. If neither approach allows the classification of at least 80% of the country's population, the value for that country is set to missing.

## Appendix 2 Variable Definitions

Variable	Definition
<i>Absolute latitude</i>	The absolute latitude of a country's approximate geodesic centroid (Ashraf and Galor 2013).
<i>Caloric suitability</i>	The average potential agricultural output (measured in calories) based on crops that were available for cultivation after 1500 CE (Galor and Özak 2016).
<i>CONSV</i>	<p>A country's rank of its coefficient <math>\beta_3</math>, estimated using the following regression for the firms in the country:</p> $ACC = \beta_0 + \beta_1 DCFO + \beta_2 CFO + \beta_3 DCFO \times CFO + \varepsilon.$ <p><i>CFO</i> indicates operating cash flows (from continuing operations) taken from the statement of cash flows. <i>ACC</i> indicates accruals, calculated as earnings before extraordinary items and discontinued operations minus <i>CFO</i>. <i>ACC</i> and <i>CFO</i> are scaled by the beginning of the period total assets. <i>DCFO</i> is a dummy variable that equals one if <i>CFO</i> is negative and zero otherwise. Both <i>ACC</i> and <i>CFO</i> are trimmed at the 1% and 99% levels by country (Ball and Shivakumar 2005).</p>
<i>Country Factor 1/2/3/4</i>	Isidro et al. (2020) perform factor analysis on the 72 country variables that prior studies find to be correlated with accounting quality and extract the first four orthogonal factors.
<i>Democracy</i>	The Polity IV democracy index averaged over 20 years from 1996 to 2015. The measure ranges from -10 (hereditary monarchy) to 10 (consolidated democracy) (Schulz 2022).
<i>Dependence on hunting and gathering</i>	A country-level measure of its people's historical dependence on hunting and gathering (Enke 2019).
<i>Eastern Church exposure</i>	The duration of exposure (in 100 years) to the Eastern Church based on the diffusion of bishoprics between 550 and 1500 CE, after accounting for population migrations after 1500 CE (Schulz et al. 2019).
<i>EM</i>	A country's rank of its aggregate earnings management score, which is calculated as the average of the ranks of the four individual earnings management measures: (i) country's median ratio of the firm-level standard deviation of operating earnings divided by the firm-level standard deviation of operating cash flows, (ii) the contemporaneous correlation between changes in accruals and changes in operating cash flows for the pooled set of firms in each country, (iii) a country's median of the absolute value of firms' accruals scaled by the absolute value of firms' operating cash flows, and (iv) the ratio of small profits to small losses computed for each country. See <i>CONSV</i> for definitions of accruals and operating cash flows. Small profits and small losses are defined to be in the range [0.00, 0.01] and [-0.01, 0.00) of after-tax earnings scaled by total assets, respectively (Leuz et al. 2003).

Variable	Definition
<i>Irrigation potential</i>	The fraction of land that would have experienced at least a doubling of yields if irrigation were to be introduced into an area where agriculture was previously rainfed, constructed using data from the global Agro-Ecological Zones 2002 database of the Food and Agriculture Organization (Bentzen, Kaarsen, and Wingender 2017).
<i>Kinship tightness</i>	The kinship tightness index for each historical ethnic group is calculated as the average of the following four dummy variables (the availability of at least three of the four variables is required) and is normalized to take values between zero and one: <i>Extended family</i> equals one if the domestic organization is around extended families and zero otherwise; <i>Joint residence</i> equals one if the wife is expected to move in with the husband's group or vice versa, and zero otherwise; <i>Unilineal descent</i> equals one if descent is unilineal; <i>Clans</i> equals one if people are part of localized clans that live as segmented communities. The historical ethnic groups are then matched to the contemporary population of a country to produce a country-level measure of kinship tightness. Matching is done using two approaches, one based on a migration matrix and the other based on language (Enke 2019). See Appendix 1 for details.
<i>Log number of years since observation in EA</i>	Natural logarithm of the number of years since the ethnic groups in the Ethnographic Atlas are observed (Enke 2019).
<i>Malaria ecology</i>	Malaria ecology index from Kiszewski et al. (2004).
<i>Mean distance to nearest waterway</i>	Distance (in 1,000 km) from a grid cell to the nearest ice-free coastline or sea-navigable river, averaged across the grid cells of a country (Gallup, Sachs, and Mellinger 1999).
<i>Nepotism in business</i>	The fraction of jobs assigned based on kin relations as opposed to personal qualifications, based on a cross-country survey of managers in large companies by the World Economic Forum (Enke 2019).
<i>Neolithic transition timing</i>	The number of years (until the year 2000 CE) the majority of the population residing within the country's modern national borders started practicing sedentary agriculture as the primary mode of subsistence (Putterman 2008).
<i>Parasite stress</i>	A combined parasite-stress indicator, including non-zoonotic and zoonotic parasites, constructed based on the Global Infectious Disease & Epidemiology Network database (Fincher and Thornhill 2012).
<i>Percent Catholic/Protestant/Orthodox Christian/other Christian/Muslims/Hindus/Buddhist</i>	A measure of adherents in a country to Catholicism, Protestantism, Orthodox Christianity, other Christian denominations, Islam, Hinduism, and Buddhism as fractions of the country's population in the year 2000 (Barro and McCleary 2003).
<i>Predicted genetic diversity</i>	An indicator of the expected genetic diversity of the country's population, measured by migratory distance from East Africa (Ashraf and Galor 2013). This measure is ancestor adjusted using the migration

Variable	Definition
	matrix developed by Putterman and Weil (2010).
<i>Prediction_FTR</i>	A dummy variable indicating whether the country's languages require future events to be grammatically marked when making predictions (Chen 2013).
<i>Religiousness</i>	An indicator variable on the importance of religion in the country, from World Values Survey.
<i>Ruggedness</i>	The square-root of the sum of the squared differences in elevation between the central point and the eight adjacent points for a grid cell, averaged across the grid cells of the country (Nunn and Puga 2012).
<i>Rule of law</i>	Perceptions of the extent to which individuals in the country have confidence in and abide by the rules of society, and in particular, the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence, averaged from 1996 to 2019 (Worldwide Governance Indicators).
<i>Tropical climate</i>	Kottek, Grieser, Beck, Rudolf, and Rubel (2006) classify each 30-arcminute grid cell of the Earth's land area into one of the 31 climates in the widely accepted Köppen-Geiger tropical climate classification. Based on this classification, Nunn and Puga (2012) construct a tropical climate measure by calculating each country's percentage of the land surface area with any of the four Köppen-Geiger tropical climates.
<i>Trust [In-group - Out-group]</i>	The difference between average trust in in-group members (family, neighbors, people one knows) and in out-group members (strangers, people of another religion, foreigners), according to the WVS survey, averaged across survey participants in the country (Enke 2019).
<i>Western Church exposure</i>	The duration of exposure (in 100 years) to the Western church based on the diffusion of bishoprics between 550 and 1500 CE, after accounting for population migrations after 1500 CE (Schulz et al. 2019).



**Appendix 3**  
**The Effect of Historical Kinship Tightness on *Country Factor 2* of Isidro et al. (2020)**

Dependent Variable	<i>Catholic</i>	<i>Predicted Country Factor 2</i>	<i>Residual Country Factor 2</i>
	(1)	(2)	(3)
<i>Kinship tightness</i>	-56.706*** (-3.25)	0.868*** (3.25)	0.566 (1.14)
N	35	35	35
Adj. R-squared	0.131	0.131	0.007

This table provides an explanation for the positive association between *Country Factor 2* of Isidro et al. (2020) and *Kinship tightness* (reported in Panel A of Table 5). The table shows that *Kinship tightness* is negatively correlated with *Catholic* (the percentage of the Catholic population) and after controlling for *Catholic*, the association between *Country Factor 2* and *Kinship tightness* becomes insignificant. *Predicted Country Factor 2* and *Residual Country Factor 2* indicate the predicted values and residual values from the regression of *Country Factor 2* on *Catholic*. *t*-statistics are reported in parenthesis and are based on heteroskedasticity-robust standard errors. \*\*\*, \*\*, and \* indicates significance at the 1%, 5%, 10%, respectively, based on two-tailed tests.

**Appendix 4**  
**Plausible Explanations for the Relation between Kinship Tightness and Contemporary Country Attributes**  
**Related to *Country Factor 1* of Isidro et al. (2020)**

Country Attribute	Description of the Country Attribute	Coefficient on <i>Kinship tightness</i>	Plausible Explanations for the Significant Relations
(1)	(2)	(3)	(4)
<i>CCorr</i>	Score of control of corruption (average 1998-2013)	-2.009***	Tight historical kinship undermines democratic political institutions and leads to more corruption (e.g., Alesina and Giuliano 2011, 2014; Schulz 2022; Henrich 2020). For example, Schulz (2022) argues that tight kinship deters a broad coalition across the boundaries of kin groups to make politicians accountable and shows that it is negatively associated with countries' democracy scores. Relatedly, Akbari et al. (2019) show that consanguineous marriage, by intensifying a norm of in-group favoritism as opposed to impartial cooperation, is positively associated with corruption level across countries (hereafter referred to as Explanation [A])
<i>Law</i>	Score of the quality of the rule of law (average 1998-2013)	-1.795***	Civil adjudication in countries with tight kinship is mainly conducted by the extended kin-based organization. Thus, the state has not much to gain from creating an effective and impartial legal system. Further, communal morality deters impersonal exchange decreasing the gain from investing in legal institutions (Greif and Tabellini 2017). (hereafter referred to as Explanation [B])
<i>Gdpc</i>	GDP per capita (average 1998-2013)	-33450.863***	Loose kinship promotes specialization, residential mobility, knowledge exchange in the labor market, and trading with strangers, all of which are rewarded by the technological changes associated with the Industrial Revolution (Enke 2019).
<i>LPolitR</i>	Index of political risk multiplied by minus one	-22.238***	See Explanation [A]
<i>LawO</i>	Score of law and order	-4.568***	See Explanation [B]
<i>RegQ</i>	Score of regulatory quality	-1.518***	See Explanation [A]
<i>LRepContr</i>	Score of repudiation of contracts by the government multiplied by minus one	-2.742***	See Explanation [A]
<i>CCorrL</i>	Control of corruption	-3.538***	See Explanation [A]

<i>PolitScore</i>	Index of political quality based on 8 dimensions (average 2002-2012)	-47.238***	See Explanation [A]
<i>PolitStab</i>	Score of political stability (average 1998-2013)	-1.612***	See Explanation [A]
<i>LExprR</i>	Score of risk of expropriation by the government multiplied by minus one	-2.633***	See Explanation [A]
<i>ProprR</i>	Score of property rights	-1.427***	See Explanation [B]
<i>JudIndep</i>	Score of judicial independence	-1.568***	See Explanation [B]
<i>JudEff</i>	Score of judicial efficiency	-2.151**	See Explanation [B]
<i>Latitude</i>	Geographic latitude	-0.320***	Latitude determines the ecological environment that influences kinship tightness (Enke 2019).
<i>Media</i>	Average rank of the media development (print and television)	-39.344***	See Explanation [A]. Also, lower kinship tightness by being associated with higher democracy encourages a free press.
<i>InfoKnow</i>	Score of information and knowledge based on 9 dimensions (average 2002-2012)	-17.057***	See Explanation [A]. Also, lower kinship tightness by being associated with higher democracy encourages free information flow.
<i>EnforAudS</i>	Score of auditing enforcement (average 2002, 2005, 2008)	-9.056***	See Explanation [B]
<i>IndividH</i>	Hofstede individualism score	-54.726***	Intensive kinship norms reward in-group loyalty and discourage individualism (Schulz et al. 2019).
<i>Trust</i>	Index equal to 100 + %(most people can be trusted) - %(can't be too careful)	-38.973**	In societies with loose kinship ties, stronger incentives exist to teach universal moral values (relative to communal family-specific values) so that individuals are more willing to trust strangers and behave cooperatively (Enke 2019; Schulz et al. 2019).
<i>Democracy</i>	Democracy score (autocracy multiplied by minus one)	-8.360***	See Explanation [A]
<i>Protestant</i>	Percentage of population that is protestant	-35.500**	The Western Church influence reduces ancestral kinship tightness (Schulz et al. 2019) and is also related to the current percentage of population that is protestant.
<i>LTaxEv</i>	Score of low prevalence of tax evasion	-0.416	
<i>IntHoldFor</i>	Percentage of holdings by foreign institutional investors	-2.805*	Kinship tightness reduces accounting transparency and discourages foreign investment.

<i>BankPriv</i>	Bank money in private sector to GDP	-0.299	
<i>TaxComp</i>	Tax avoidance spread multiplied by minus one	-0.002	
<i>CreditR</i>	Legal protection of creditors and borrowers	0.964	
<i>PolitConn</i>	Percentage of firms connected to politicians	2.969	
<i>IndividW</i>	Index equal to 100 + %(completely agree we need large income difference) - %(completely agree with income should be equal)	40.339*	Intensive kinship norms reward in-group loyalty (Schulz et al. 2019), which may discourage income redistribution with strangers.
<i>LangFract</i>	One minus the Herfindahl index of language measure	0.325**	Intensive kinship norms reward in-group cooperation (Enke 2019), which may increase language diversity.
<i>Muslim</i>	Percentage of population that is muslim	27.009**	The Western Church influence reduces kinship tightness (Schulz et al. 2019) and is also negatively related to the percentage of the population that is Muslim.
<i>EthFract</i>	One minus the Herfindahl index of ethnicity	0.241*	Intensive kinship norms reward in-group cooperation (Enke 2019), which may increase ethnic diversity.
<i>Secrecy</i>	Uncertainty avoidance plus power distance minus individualism	89.187***	Intensive kinship norms reward in-group loyalty, which increases power distance and reduces individualism (Schulz et al. 2019).
<i>PowerD</i>	Hofstede power distance score	30.784***	Intensive kinship norms encourage conformity, which increases power distance (Schulz et al. 2019).
<i>Reliness</i>	Principal component of religious attendance and importance of religion in life	1.394*	Higher investment in moralizing religion made during the preindustrial period by loose kinship societies to induce broad cooperation becomes functionally redundant as time passes because these societies build up a high stock of universal, impersonal morality. The tight kinship society exhibits an opposite pattern. As broader cooperation yields higher efficiency with technological changes, individuals in these societies are incentivized to invest in moralizing religion. Thus, in the contemporary period, a tight kinship society is equally or more religious than a loose one (Enke 2019).

This table reproduces from Panel B of Table 5 the coefficients on *Kinship tightness* from the regressions with contemporary country attributes related to *Country Factor 1* of Isidro et al. (2020) as the dependent variables. The table then provides plausible explanations for each of the statistically significant relations.