



Culture, openness, and finance[☆]

René M. Stulz^{a,*}, Rohan Williamson^b

^a *Fisher College of Business, The Ohio State University, Columbus, OH 43210, USA*

^b *McDonough School of Business, Georgetown University, Washington, DC 20057, USA*

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Abstract

Differences in culture, proxied by differences in religion and language, cannot be ignored when examining why investor protection differs across countries. We show that a country's principal religion predicts the cross-sectional variation in creditor rights better than a country's natural openness to international trade, its language, its income per capita, or the origin of its legal system. Catholic countries protect the rights of creditors less well than Protestant countries. A country's natural openness to international trade mitigates the influence of religion on creditor rights. Culture proxies are also helpful in understanding how investor rights are enforced across countries.

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1. Introduction

In his review of the literature, Levine (1997) shows there is substantial evidence that financial development promotes economic growth. Among countries, there are

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*Corresponding author. Tel.: +1-614-292-1970; fax: +1-614-292-2359.

E-mail address: stulz@cob.osu.edu (R.M. Stulz).

significant differences in the importance of capital markets, in firms' ability to access external finance, and in the ownership of publicly traded firms. As La Porta et al. (LLSV, 2000) show, a common element in these differences is the extent to which investors are protected from expropriation by managers, controlling shareholders, or governments. Many policymakers, economists, and journalists have argued that the appropriate model for protecting the rights of investors is the so-called Anglo-Saxon model. Nevertheless, countries that protect their investors according to this model, as the U.S. and the U.K. do, are in the minority. Yet, as the competition for capital becomes more global, countries with poor protection of investor rights apparently lose out to countries with better protection of investor rights. Why is it then that the degree of investor protection differs among countries?

This paper explores whether differences in culture should be taken seriously as a possible explanation for differences in investor protection. For our purpose, a suitable definition of culture is the one that North (1990) cites from the work of Boyd and Richerson (1985): culture is defined as “transmission from one generation to the next, via teaching and imitation, of knowledge, values, and other factors that influence behavior.” The view that culture is an important determinant of economic growth has a long tradition, dating back at least to the work of Weber (1930). In his influential work, Weber argued that cultural changes, namely the Calvinist Reformation, played a critical role in the development of capitalism and its institutions.¹ Many others have emphasized the importance of Western individualism as an explanation for the growth of markets in the West; see, for instance, Lal (1999) and the references therein. In a seminal paper on the role of culture as a determinant of institutions, Greif (1994, p. 914) compares Maghribi traders of the 11th century and Genoese traders of the 12th century and concludes that “differences in the societal organization of the two trading societies can be consistently accounted for as reflecting diverse cultural beliefs.” North (1990, p. 36) views culture as the source of informal constraints that guide our daily interactions and points out that the importance of these informal constraints “can be observed from the evidence that the same formal rules and/or constitutions imposed on different societies produce different outcomes.” Most recently, Landes (2000, p. 2) states that “Max Weber was right. If we learn anything from the history of economic development, it is that culture makes almost all of the difference.”

Is finance a channel through which culture affects economic growth? Despite a long tradition showing that culture matters, the impact of culture on finance has not been investigated directly. If one believes, like Merryman (1985, p. 2), that “the legal tradition relates the legal system to the culture of which it is a partial expression,” then work showing that the origin of a country's legal tradition matters is evidence that culture matters. However, a more direct investigation is called for to determine whether there is evidence that culture matters for finance beyond its relation with legal origins.

¹ Weber's work has been controversial. Novak (1993), in reviewing some of the recent controversy, states that “The Japanese have proved conclusively that in order to embody the spirit of capitalism, human beings do not have to be protestant.” (xiii).

We examine whether simple proxies for culture are helpful in explaining how investor rights differ among countries. Religion is a common proxy for culture. For instance, La Porta et al. (LLSV, 1999) use religion as a proxy for culture in their study of government quality. In addition to religion, we use language on the basis that beliefs are more easily communicated among countries that share the same language (though some could share the same language because of being colonized by the same country) and therefore are more likely to be common among such countries. It seems difficult to argue that our proxies depend on the current degree of financial development, so that we do not have to worry about reverse-causation arguments.

We use these extremely simple proxies of culture for three reasons. First, as we will show, there is a theoretical basis for their use. Second, since our study uses 49 countries, there is a substantial risk of overfitting. Some combination of a suitable number of cultural variables could end up explaining the diversity in shareholder and creditor rights spuriously. Overfitting is not a problem with our choice of proxies and there is much precedent for using them in social sciences. Third, providing a complete explanation of how culture is related to the diversity in investor rights is beyond the scope of this paper. Rather, we want to investigate whether culture should be taken seriously in explaining that diversity. Strikingly, after controlling for income per capita, language and/or religion are almost always significant in regressions attempting to predict the degree of investor protection.

La Porta et al. (LLSV, 1998) show that the legal origin of a country's legal framework helps explain the degree of investor protection in that country. The work of LLSV raises the question of whether the impact of culture on finance is captured by a country's legal origin. We find no correlation between the LLSV shareholder rights index and our culture proxies when we control for legal origin, but the culture proxies perform well in explaining how individual shareholder rights vary among countries. The reason for the different performance of the culture proxies when we look at the index and when we look at individual rights is that Catholic countries are more likely to have preemptive rights and cumulative voting than are Protestant countries, while Protestant and English-speaking countries are more likely to have the other shareholder rights in the LLSV index. Religion is strongly correlated with the LLSV creditor rights index when we control for legal origin. Creditor rights are stronger in countries where the main religion is Protestant rather than Catholic regardless of legal origin. Within civil law countries, the protection of creditor rights is weaker in Catholic countries. There is no difference in creditor protection between common law Protestant countries and civil law Protestant countries, but there is a strong difference among civil law countries between Catholic countries and Protestant countries. Surprisingly, the LLSV creditor rights index is even higher in non-Christian countries than in Protestant countries—but perhaps as an indication that institutions change slowly, this result is due to countries that were colonies of Protestant countries in the 20th century. Finally, when we consider the enforcement of rights, there is clear evidence that religion, language, and legal origins all play a role. Protestant countries have better enforcement of rights than do Catholic countries, but for some variables this difference disappears once we also allow language to play a role.

We would expect that the importance of culture, when it is adverse to investor rights, should decline with a country's ability to benefit from international trade, for at least three reasons. First, to capture the benefits from international trade, a country has to enforce rights so that international trade partners are willing to enter into contracts with firms or individuals in the country. Second, as a country takes advantage of the benefits of trade, it becomes more subject to foreign influences that dilute the impact of its culture. Third, a country that engages in international trade becomes more open to foreign competition. This will lead domestic firms to advocate changing institutions that prevent them from being more competitive. It is much easier for a country to have a culture that emphasizes collective objectives that override contractual rights when that country is unlikely to benefit much from interacting with other countries through trade and finance. We find that openness is positively correlated with creditor rights and with the enforcement of rights, but is negatively correlated with shareholder rights.

Finally, we examine whether culture is correlated with different aspects of financial development when we control for legal origins and openness. We find that stock market development is correlated with a country's legal origin. In contrast, debt markets and banking development are correlated with culture. In particular, debt issuances relative to GNP are smaller in Catholic countries than in Protestant countries.

Licht et al. (2001) investigate the relation between culture and law using the cultural classifications of an ongoing project of one of the co-authors, Schwartz, and Hofstede (1980). These authors use surveys to measure the attitude towards values in various countries. Countries with similar attitudes are then grouped together. Licht et al. (2001) find that there is a relation between a country's shareholder rights and creditor rights indices and the attitudes of that country towards specific values. These results provide additional and complementary evidence consistent with the hypothesis that culture matters, but their approach makes it harder to understand how and why culture matters than the one followed in this paper.

The paper proceeds as follows. In Section 2, we motivate our proxies for culture. We describe the data for our study in Section 3. In Section 4, we investigate the relation between rights variables and culture proxies. In Section 5, we attempt to ascertain whether the success of the culture proxies is simply due to their correlation with legal origin variables. In Section 6, we investigate the impact of a country's potential benefits from international trade on investor protection and financial development. Section 7 investigates the robustness of our results when we use more detailed legal origin variables and different proxies for religion. Section 8 concludes.

2. Why culture can matter for finance

Culture can affect finance through at least three channels. First, the values that are predominant in a country depend on its culture. For example, charging interest can be a sin in one religion but not in another. Second, culture affects institutions. For instance, the legal system is influenced by cultural values. Third, culture affects how

resources are allocated in an economy. Religions that encourage spending on churches or guns take resources away from investment in production.

2.1. *Values*

Since Weber's work, religion has been viewed as a key determinant in the growth of capitalism. Lal (1999, p. 17) argues that "cosmological beliefs—an essential element of 'culture'—have been crucial in the rise of the West and the subsequent evolution of its political economy." Religion is a key component of a system of beliefs. Historically, religions have had a lot to say about the rights of creditors, but less about the rights of shareholders. As Tawney (1954) shows, the prohibition of usury was a fundamental tenet of the medieval church. Usury, which led to excommunication, could be interpreted as simply receiving interest on loans. The Council of Lyons (which took place in 1274) even prescribed excommunication for anybody who would rent a house to a usurer. The medieval church was intent on restricting economic transactions to those in which one of the parties would not be taking advantage of the other because of greater bargaining strength. The Calvinist Reformation viewed the payment of interest as a normal part of commerce, thereby making it possible for modern debt markets to develop. In the aftermath of the Calvinist Reformation, creditor rights differed sharply among Protestant and Catholic countries.

This raises the question of whether these differing attitudes toward creditor rights have persisted sufficiently to help explain the variation in creditor rights across countries in the late 20th century. The declaration of Pope Pius XII in 1950 that bankers "earn their livelihood honestly" (Noonan, 1957, p. 377) suggests otherwise, although Catholic leaders argue that what distinguishes Catholic social thought from the Protestant Anglo-Saxon culture is that it does not "regard private property and its economic benefits as absolute goods. They are subject to the good of society."² This is consistent with the argument that religions differ in their assessment of investor rights. A version of the Catechism cited by Bainbridge (2002, p. 13) explains that "those responsible for business enterprises are responsible to society for the economic and ecological effects of their operations. They have an obligation to consider the good of persons and not only the increase of profits." Reviewing *Rerum Novarum*, the encyclical of Leo XIII that attacks Manchesterian liberalism, and the work of Fanfani that deemed Catholicism incompatible with capitalism, Novak (1993, p. 13) talks about the "rather common Latin Catholic bias against capitalism." Of course, differences in creditor rights could exist for reasons other than cultural reasons. For instance, Glaeser and Scheinkman (1998) build an economic model that predicts differences in usury laws based on differences in economic fundamentals.

²"America's Hispanic Future," by Msgr. Lorenzo Albacete, *The New York Times*, p. A27, June 19, 2001. In the U.S., the National Conference of Catholic Bishops in a pastoral letter published in 1986 titled "Economic Justice for All: Pastoral Letter on Social Teaching and the U.S. Economy" states that directors are morally obligated to consider the interests of stakeholders (cited in Bainbridge, 2002, p. 3).

The issue of the extent to which the “good of society” limits the rights attached to private property is a longstanding issue whose resolution at a point in time can have pervasive effects on finance. Puritan thought in the 17th century emphasized that individuals were responsible for their actions and that they had to live up to the contracts they entered into of their own free will. With this thinking, there was no role for higher legal or religious authorities to step in and change contract terms for the good of society or for laws to be approved that would hinder individuals from entering contracts.

The Reformation created another cultural divide that matters for finance. Whereas the Catholic church has a supreme arbiter of the common good, the Protestant faiths do not. With Protestantism, each individual determines on his own what is right. Churches then become associations of individuals who think alike, rather than hierarchical organizations through which the definition of the common good is passed down to the members.³ If the existence of a common good for society to which the actions of individuals are subordinate is central to a culture, there cannot be competition in churches or government, so that centralization is the most effective mechanism. In contrast, if the common good is realized through the actions of independent individuals following their calling, competition among churches or for the provision of government services is good. As Calvin wrote in his *Institutes of the Christian Religion*, it is “safer for a number to exercise government, so that ... if one asserts himself unfairly, there may be a number of censors and masters to restrain his willfulness” (bk. 4, Chapter 2, paragraphs 8 and 31). Though Lal (1999) argues that individualism “is the unique cosmological belief of the West,” (p. 174) in contrast to the communalism prevalent in the rest of the world, it should be clear from this discussion that the individualism associated with the Calvinist Reformation and the Puritans is distinct. Perhaps not surprisingly, French writers have a tendency to view common law as having an “individualist spirit” (David, 1980, p. 26).

Coffee (2001) argues that cultural characteristics help explain why private benefits from control differ across countries. Nenova (2003) finds that the benefits from control are lower in countries with a Scandinavian civil law tradition than in common law countries. Coffee makes the point that the Scandinavian civil law tradition is sufficiently like other civil law traditions that the lower benefits from control in Scandinavian countries cannot be explained by differences in legal regimes. He therefore concludes that “social norms in Scandinavia may discourage predatory behavior by those in control of the firm” (abstract).

2.2. *Institutions*

One would expect that the differences between the Protestant and Catholic views of the world affect institutions, especially legal systems. Both the Lutheran and the Calvinist reformations emphasize that individuals can reach correct decisions based

³ As pointed out by Weber (1930) and others, the Geneva of Calvin was extremely repressive, but that was one church’s way of doing things.

on their own reading of the Bible. Calvin further argued that it is the duty of individuals to oppose rulers who impose laws or take actions that are incompatible with what these individuals believe God would want. Rightly or wrongly, this empowers individuals. It is not compatible with a legal system in which a code defines “principles of conduct” as Napoleon required in his comments to the Conseil d’Etat while the Code Civil was being written (see [Schwartz, 1956](#), p. 11).

In the 16th century, the practice of law in England was fragmented, so that cases were heard by different courts depending on the nature of the case and the parties involved in the case. Except for the common law courts, the other courts followed the civil law tradition. Common law courts were just one type of court, though they were the courts for most people when it came to felonies and to issues related to land rights. With the Puritans, the common law courts prevailed over all others ([Berman, 1993](#), p. 199).

In effect, civil law and common law countries view contracts differently. As [David \(1980, p.132\)](#) puts it, “The French law of contract is based on a principle of morality, stressed by the canonists, for whom it was a sin for a person not to fulfill his promises.” In contrast, “English law ... sees above all in the contract a bargain: what matters is not that a promise should be enforced, it is that the other party, the promisee, who has furnished consideration for the promise, should not suffer any damage as a consequence of the breach.” This common law approach to contracts dates from the Puritans. [Berman \(1993\)](#) explains this approach to contracts as stemming from the importance of covenants to Puritans. He cites (on p. 205) Witte who states that the cardinal ethical principle of Puritanism was “that each man was free to choose his act but was bound to the choice he made, regardless of the consequences.”

With the followers of the Calvinist Reformation, multiple churches were possible and there was no role for a hierarchical structure that would integrate these churches (see the discussion in [Crottet, 1995](#), p. 330). Nor was there justification to give too much power to specific individuals, who could be corrupt, incompetent, or evil. Decentralization has far-reaching implications, however. It limits rent-seeking by fostering competition and by limiting the value of the rents obtained. It limits corruption since officials who want to sell public goods face competition in doing so (see [Shleifer and Vishny, 1993](#)). It is also associated with higher trust (see [La Porta et al., 1997](#)). The key difference between the Protestant and Catholic religions is that the former is based on individual faith while the latter is based on knowledge. By its very nature, a religion based on knowledge creates a hierarchical centralized structure—those who know more guide those who know less.

Decentralization thus reduces the power of politicians. The problem with politics, as emphasized by [Rajan and Zingales \(2003\)](#), is that at times politicians are supportive of markets and at other times they are not. Politicians who want dramatic changes can implement them more easily in a civil law system than in a common law system. In fact, in a civil law system, the law is an instrument in the hands of politicians, whereas in a common law system, judges at times slow down the politicians. In common law countries, legal rules are typically laid down by courts in the context of specific cases. The civil law approach is the opposite, in that the

legislature sets legal rules based on the doctrine promulgated by the legislators. With civil law, legislators can replace a statute with a new one, whereas “as a rule a common-law statute does not propose completely to supersede the pre-existing traditional law governing the topics covered by it, nor does it propose to lay down general principles of its own” (Sereni, 1956, p. 58). Because the body of written law is supposed to be self-sufficient, the rule of *stare decisis* does not apply in civil law countries. Precedent does not count, since the legal decision can be rationally deduced from the written law. Voltaire’s exhortation that “Do you want good laws? Burn yours and make new ones!” makes sense for civil law countries and not common law countries. It was taken to heart by the French legislators after 1789. The Napoleonic code “was the product and image of a rationalistic age that believed in enlightenment and progress: the moral justification of the rule of law was in its alleged conformity to reason, and ancient origin and past compliance were no longer held to be proof of the inherent value of legal rules” (Sereni, 1956, p. 57). Yet, despite the influence of the French Revolution, authors point out that the code reflects the influence of the French Jansenists (Arnaud, 1969) and through the work of Domat, the influence of the late scholastics (Gordley, 1991).

Civil law in Germany and the Nordic countries developed differently than in France. Precedent matters more in Germany and judges have more of a role. Despite the extremely abstract and theoretical construction of the German code, contract law is more flexible. One of the reasons is that Article 242 of the German code opens the door for judicial lawmaking, stating that “everyone must perform his contract in the manner required by good faith” (Zweigert and Kötz, 1998, p. 150). This clause has been used by the courts extensively to address issues not contemplated by the draftsmen of the code. In the Nordic countries, the development of contract law was oriented towards satisfying the needs of business and was much less doctrinal.⁴ In other words, civil law in these Protestant countries is more flexible, though how flexible is a matter for debate.

Both before the French Revolution and after, there was a key civil law distinction between private and public law. In civil law countries, the laws that govern relations among individuals also govern relations between individuals and the state, though special rules may apply. In common law countries, a completely different body of law applies to the relations among individuals and the state, and different courts make decisions. This body of law is not codified in France. One writer explains the lack of codification of administrative law in France by stating that “the feeling remains however that this protection of individual rights must not be pushed too far, for it ought not to endanger the efficiency of administration.” (David, 1980, p. 100).

Innovation in institutions is affected by culture also. As mentioned earlier, a common language can facilitate transfer of ideas across countries. Religion has played a role in the transmission of innovations too. The greater tolerance in England of religious minorities late in the 17th century partly explains why England was such a hotbed of financial innovation (see Neal, 1990, p. 11). In an analysis of

⁴See the discussion of how the Scandinavian Sales Act was prepared in Zweigert and Kötz (1998, p. 281), for instance.

innovation in the dairy industry in Denmark and Ireland in the late 19th century and early 20th century, O'Rourke (2002) finds that religion played a role for several reasons. In particular, worthwhile innovations were often rejected in Ireland simply because those proposing them had a different religion from the farmers. He also finds that the Protestant Danish farmers were more willing to form cooperatives, which are based on trust, than were the Catholic Irish farmers. Though there is no study of financial innovation focused on cultural factors such as O'Rourke's study of innovation in the dairy industry, one would expect the cultural factors he identifies to play a role in financial innovation as well.

2.3. Resource allocation

Different cultures have different attitudes towards finance. Historically, Catholics had deep misgivings about anything related to finance. The mere fact that there were papal declarations on the acceptability of receiving interest in payment and that banking is not a sinful profession indicates the extent of these misgivings. Such misgivings meant that the brightest individuals in a Catholic country were less likely to enter finance professions.

There are strong differences among religions in the resources used to support church activities. By definition, a hierarchical church will consume more resources. Ekelund et al. (2002) provide an analysis of the Protestant Reformation that emphasizes the high price that the Roman Catholic Church was charging for religious services. They point out that the Roman Catholic Church was engaged in exploiting its market power through price discrimination to maximize its revenue and that the Protestant churches were new entrants in what they call the market for religious services.

3. Data

The data on legal families, shareholder rights, creditor rights, and the rule of law are taken from LLSV (1998). The sample includes 49 countries from Asia, Europe, North America, South America, Africa, and Australia. It does not include countries that recently were socialist countries. To be included in the sample, a country had to have at least five nonfinancial publicly traded firms with no government ownership as of 1993. The number of countries specifies the number of observations for the dependent variable in our regressions.

As discussed above, the Scandinavian, German, and French civil law traditions differ. Though we can compare civil law Protestant countries to civil law Catholic countries, sample sizes are too small to compare Protestant countries with Scandinavian civil law to German civil law Protestant countries, or to compare non-Protestant German civil law countries to Protestant German civil law countries. We therefore shy away from differentiating among the civil law traditions and instead contrast civil law countries to common law countries as is common in regression analyses (see, for instance, LLSV, 1998). We show in Section 6 that the key results do not depend on this choice.

Our aim is to test whether simple culture proxies can help explain the diversity in the protection of investor rights consistently across countries. We therefore restrict our choice to just language and religion as proxies for culture. These proxies have a long tradition that motivates their use. We define the primary religion (language) as the one practiced (spoken) by the largest fraction of the population of a country. We proceed the way we do because we believe that if, for example, religion matters, the religion that is practiced by the largest fraction of a country should have a unique influence on that country, so that we would not expect the impact of religion to increase linearly with the fraction of the population of a country that practices it. Our approach differs from LLSV (1999) who use the fraction of a country that practices a given religion in the multiple regressions in their study of the determinants of the quality of governments. Beck et al. (2000, 2001) also use the fraction of a country that practices a religion in their work. Again, we show in Section 6 that our main results are not affected by this choice.

We use the 2000 CIA Factbook as one source for data on language and religion. Another source is the World Christian Encyclopedia for data on religion in 1900 and the percentage of the population practicing a given religion in 1995. The Anglican religion is included among the Protestant religions. For most countries, more than half the country practices the primary religion. In South Korea, the fraction of the population that is Protestant is only slightly larger than the fraction of the population that is Buddhist and, depending on how one reads the CIA Factbook, it may even be smaller.⁵ In Canada, Germany, the Netherlands, and Switzerland, the fraction of the population practicing the Catholic religion is close to the fraction practicing a Protestant religion.⁶ We explain where appropriate how our results are sensitive to the classification of these countries.

Table 1 shows that, using the CIA Factbook data, a Christian religion is the primary religion in 33 out of 49 countries. Of these 33 countries, 12 countries have Protestantism as their primary religion, 20 are Catholic countries, and the remaining country, Greece, is Greek Orthodox. Seven countries have the Muslim religion as their primary religion and Buddhism is the primary religion in five countries. No other religion is the primary religion in more than two countries in our sample. We also show the percentage of a country's population practicing various religions. In most countries, the primary religion is well defined, but the table also shows clearly why, as already discussed, there can be some debate as to the choice of a primary religion for some countries.

⁵The 2000 CIA Factbook states that 49% of the population is Christian and 47% is Buddhist. The 1997 CIA Factbook used Protestant instead of Christian, so that we use Protestant also.

⁶In some countries, the category "other" is important. Often, it reflects a native religion and therefore cannot affect our inferences. In Canada, one could easily argue that many in the "other" category are Protestant (for example, Evangelical Christians). We have therefore checked that none of our results depend on how Canada is classified. The "other" category in the Netherlands could also change the primary religion, but most of the individuals who are classified as "other" state that they have no religion. Finally, the U.S. also has a high fraction of others, but a substantial fraction of these others are Evangelical Christians.

Table 1

Country characteristics

The primary language, primary religion, and the origin of the legal system for each country in the sample. The primary religion (language) of a country is the religion practiced (language spoken) by the largest fraction of the population. The data on religion and language are obtained from the 2000 CIA World Factbook. The percentage value for religion are from the World Christian Encyclopedia for 1995. The legal origin variables are obtained from La Porta et al. (1998).

Country	Primary language	Primary religion	Percent Protestant	Percent Catholic	Percent Muslim	Percent Buddhist	Percent other	Legal origin
Argentina	Spanish	Catholic	6.2	91.5	1.9	0.1	0.3	Civil/French
Australia	English	Protestant	36.7	28.1	1.1	1.1	33.0	Common
Austria	German	Catholic	5.9	76.6	2.0	0.1	15.4	Civil/German
Belgium	Dutch	Catholic	1.3	81.7	3.6	0.2	13.2	Civil/French
Brazil	Portuguese	Catholic	17.6	82.1	0.1	0.2	0.0	Civil/French
Canada	English	Catholic	20.3	41.9	1.0	0.7	36.1	Common
Chile	Spanish	Catholic	2.6	87.7	0.0	0.0	9.7	Civil/French
Colombia	Spanish	Catholic	2.4	96.2	0.1	0.0	1.3	Civil/French
Denmark	Danish	Protestant	88.4	0.6	1.2	0.0	9.8	Civil/Scandinavian
Ecuador	Spanish	Catholic	1.8	94.3	0.0	0.1	3.8	Civil/French
Egypt	Arabic	Muslim	0.7	0.3	84.2	0.0	14.8	Civil/French
Finland	Finnish	Protestant	89.8	0.1	0.2	0.1	9.8	Civil/Scandinavian
France	French	Catholic	1.6	82.8	7.0	0.7	7.9	Civil/French
Germany	German	Protestant	37.2	34.9	4.0	0.1	23.8	Civil/German
Greece	Greek	Greek Orthodox	0.2	0.6	3.3	0.0	95.9	Civil/French
Hong Kong	Chinese	Local beliefs	5.0	5.0	0.0	0.0	90.0	Common
India	Hindi	Hindu	3.0	1.5	11.9	0.7	82.9	Common
Indonesia	Bahasa Indonesia	Muslim	5.7	2.7	54.7	0.9	36.0	Civil/French
Ireland	English	Catholic	4.5	85.2	0.2	0.0	10.1	Common
Israel	Hebrew	Judaism	0.4	2.7	12.2	0.0	84.7	Common
Italy	Italian	Catholic	0.8	97.2	1.1	0.0	0.9	Civil/French
Japan	Japanese	Buddhist	0.5	0.4	0.1	55.4	43.6	Civil/German
Jordan	Arabic	Muslim	0.3	0.7	93.9	0.0	5.1	Civil/French
Kenya	English	Protestant	30.3	22.6	7.2	0.0	39.9	Common
Malaysia	Bahasa Melayu	Muslim	3.8	3.2	47.7	6.6	38.7	Common
Mexico	Spanish	Catholic	3.5	93.8	0.3	0.0	2.4	Civil/French
Netherlands	Dutch	Catholic	27.1	35.5	3.7	0.5	33.2	Civil/French
New Zealand	English	Protestant	46.6	13.1	0.2	0.9	39.2	Common
Nigeria	English	Muslim	30.1	11.8	43.9	0.0	14.2	Common
Norway	Norwegian	Protestant	94.4	1.0	1.0	1.4	2.2	Civil/Scandinavian
Pakistan	Punjabi	Muslim	1.1	0.7	96.1	0.1	2.0	Common
Peru	Spanish	Catholic	0.7	96.0	0.0	0.2	3.1	Civil/French
Philippines	Pilipino	Catholic	5.1	82.7	6.2	0.1	5.9	Civil/French
Portugal	Portuguese	Catholic	1.3	91.3	0.2	0.5	6.7	Civil/French
Singapore	Chinese	Buddhist	4.4	4.0	18.4	14.5	58.7	Common
South Korea	Korean	Protestant	18.9	7.8	0.2	15.8	57.7	Civil/German
South Africa	English	Protestant	31.1	8.2	2.4	0.1	11.0	Common
Spain	Spanish	Catholic	0.3	96.2	0.5	0.0	3.0	Civil/French
Sri Lanka	Sinhali	Buddhist	2.0	6.8	9.0	68.4	13.8	Common
Sweden	Swedish	Protestant	94.8	1.9	2.1	0.0	1.2	Civil/Scandinavian
Switzerland	German	Catholic	41.6	44.8	2.5	0.1	11.0	Civil/German
Taiwan	Chinese	Buddhist	1.8	1.4	0.4	21.0	75.4	Civil/German
Thailand	Thai	Buddhist	0.5	0.4	6.7	85.5	6.9	Common

Table 1. (Continued)

Country	Primary language	Primary religion	Percent Protestant	Percent Catholic	Percent Muslim	Percent Buddhist	Percent other	Legal origin
Turkey	Turkish	Muslim	0.1	0.1	97.2	0.1	2.5	Civil/French
UK	English	Protestant	53.8	9.6	1.9	0.3	34.4	Common
Uruguay	Spanish	Catholic	3.3	78.1	0.0	0.0	18.6	Civil/French
US	English	Protestant	24.3	21.2	1.4	0.8	52.3	Common
Venezuela	Spanish	Catholic	2.0	94.6	0.3	0.1	3.0	Civil/French
Zimbabwe	English	Syncretic	15.3	9.4	0.8	0.0	74.5	Common

Hallpike (1986) emphasizes the existence of core principles of societies that are extremely persistent and include a worldview. He states that “the evidence that societies have core principles is very substantial. Cross-culturally, we constantly find that groups of societies with common origins (as shown particularly in membership of the same language family) share many basic features of organization and worldview that cannot be explained on adaptive or functional grounds” (p. 293). When considering the role of financial markets across countries, it is typical to talk about an Anglo-Saxon model. This model is one with diffuse ownership where stock markets play a crucial role in the allocation of capital. We therefore ask whether countries where English is the primary language are countries where shareholder and creditor rights are different from other countries. These countries include former British colonies, but not all of them. Table 1 shows that English is the primary language for 10 countries. The Spanish language is the only other language that is shared by a significant number of countries (nine countries).

4. Culture proxies and investor rights

Table 2 shows how investor rights differ according to whether a country’s primary language is English or not, whether the country’s primary religion is Christian or not, and finally, whether the primary religion is Protestant or Catholic. In the first three parts of this section, we discuss how shareholder rights, creditor rights, and the enforcement of investor rights differ according to these religion and language proxies. In the fourth part of this section, we present multiple regressions that allow us to control for income per capita and increase the number of language and religion proxies we use.

4.1. Shareholder rights

Panel A of Table 2 considers shareholder rights. The first right is whether a country mandates one vote per share. Departures from one share one vote enable shareholders who control less than a majority of cash flow rights to make decisions for the firm. Strikingly, no English-speaking country mandates one share one vote. Religion does not affect whether one share one vote prevails. The next six measures are denoted by La Porta et al. (LLSV, 1999) as anti-director rights. They combine

Table 2

Averages of investor rights variables for different cultures

The primary religion (language) of a country is the religion practiced (language spoken) by the largest fraction of the population. The data on religion and language are obtained from the 2000 CIA World Factbook. ***, **, * denotes significance of the *t*-statistic for the difference in means test at the 1%, 5%, and 10% level, respectively.

Variable	Primary language			Primary religion			Primary religion		
	English	Non-English	<i>t</i> -stat	Christian	Non-Christian	<i>t</i> -stat	Catholic	Protestant	<i>t</i> -stat
<i>Panel A: shareholder rights</i>									
<i>N</i>	10	39		33	16		20	12	
One share one vote	0.000	0.282	3.86***	0.182	0.313	0.95	0.200	0.083	-0.94
Proxy by mail allowed	0.600	0.077	-3.10**	0.242	0.063	-1.83*	0.100	0.500	2.41**
Shares not blocked before meeting	1.000	0.641	-4.61***	0.606	0.938	3.11***	0.500	0.833	2.08**
Cumulative voting/proportional rep	0.200	0.282	0.51	0.242	0.313	0.50	0.350	0.083	-1.94*
Oppressed Minority	1.000	0.410	-7.39***	0.455	0.688	1.57	0.400	0.583	0.98
Preemptive right to new issues	0.300	0.590	1.68	0.636	0.313	-2.04**	0.750	0.417	-1.86*
% share capital to call ESM	0.075	0.120	3.08***	0.113	0.103	-0.51	0.138	0.079	-2.79***
Anti-director rights	4.100	2.717	-4.04***	2.909	3.188	0.72	2.650	3.117	1.58
Mandatory dividend	0.000	0.060	2.50**	0.071	0.000	-2.53**	0.100	0.000	-2.36**
<i>Panel B: creditor rights</i>									
<i>N</i>	10	37		32	15		20	12	
No automatic stay on assets	0.500	0.487	-0.07	0.333	0.867	4.50***	0.211	0.500	1.62
Secured creditors paid first	0.900	0.778	-1.00	0.742	0.933	1.84*	0.684	0.909	1.58
Restrictions for going into reorganization	0.600	0.541	-0.32	0.438	0.800	2.60**	0.316	0.667	1.95*
Management does not stay in reorganization	0.600	0.405	-1.07	0.250	0.867	5.16***	0.105	0.417	1.88*
Creditor rights	2.600	2.218	-0.76	1.750	3.467	5.64***	1.319	2.500	2.93***
Legal reserve as a % of capital	0.000	0.194	5.89***	0.160	0.144	-0.22	0.185	0.104	-1.41
<i>Panel C: rule of law</i>									
<i>N</i>	10	39		33	16		20	12	
Efficiency of judicial System	8.450	7.466	-1.55	7.933	7.213	-0.97	7.325	8.896	2.46**
Rule of law	7.262	6.740	-0.52	7.580	5.333	-3.14***	7.049	8.583	1.79*
Corruption	7.696	6.692	-1.20	7.492	5.668	-2.82***	6.788	8.685	2.69***
Risk of expropriation	8.179	8.017	-0.24	8.411	7.306	-2.50**	8.106	9.028	1.75**
Risk of contract repudiation	7.688	7.553	-0.20	7.993	6.728	-2.42**	7.575	8.805	2.31**
Rating on accounting standards	71.00	58.85	-3.72***	61.09	60.87	-0.04	54.83	71.27	4.51***
GNP per capita (US\$)	10,994	11,197	0.06	13,331	6,669	-2.29**	11,422	17,009	1.60

these six measures into an anti-director rights index. Each variable for anti-director rights is a dummy variable that takes the value one if a right is mandated and zero otherwise. The value of the index is obtained by adding the dummy variables for the six rights. The index provides a summary of how rights differ across countries with different cultures. Anti-director rights are stronger in English-speaking countries. The differences in the index are not significant between Christian and non-Christian countries or between Protestant and Catholic countries.

Panel A of [Table 2](#) has nine variables, and the difference between common law and civil law countries is not significant for four of these variables in LLSV. In our table, the difference between Protestant and Catholic countries is insignificant for three variables and the difference between English-speaking and non English-speaking countries is insignificant for two variables. These culture proxies are therefore correlated with shareholder rights. However, it is not uniformly the case that Protestant countries adopt shareholder rights that favor shareholders, which explains why the index difference between Protestant and Catholic countries is not significant. In contrast, common law countries are never significantly less likely to have a right that favors shareholders.

Looking at the various anti-director rights, English-speaking and Protestant countries make it easier for shareholders to vote. A majority of the English-speaking countries allow voting by mail. No English-speaking country blocks shares before the shareholder meeting, so that shareholders in these countries do not have to deposit their shares with the company to be able to vote. Cumulative voting or proportional representation make it easier for minority shareholders to be represented on the board. Catholic countries are significantly more likely to have cumulative voting or proportional representation, but the other cultural distinctions we make do not matter. All English-speaking countries have some mechanism for shareholders to pursue redress against corporate decisions that they believe to be harmful. Fewer than half of the non-English speaking countries have such a mechanism. Religion is uncorrelated with the existence of such a mechanism. Preemptive rights enable shareholders to have first right to buy new shares issued by the company. Such a mechanism protects minority shareholders against controlling shareholders selling shares cheaply to some subsets of investors. Preemptive rights are more likely in non-English speaking countries. Three-quarters of the Catholic countries have such rights, in contrast to less than half of the Protestant countries. Finally, the last variable in the index takes the value one if less than 10% of the shareholder votes are required to call a shareholder assembly. Non-English-speaking countries and Catholic countries have lower requirements to call a shareholder assembly.

The last right considered by LLSV is whether there is a mandatory dividend law or rule. The mandatory dividend variable takes the value zero if a country has no minimum dividend and is equal to the decimal minimum dividend otherwise. No English-speaking country has such a minimum-dividend rule and no Protestant country has such a rule.

In summary, English-speaking countries and Protestant countries make it easier for shareholders to vote and sue, but harder to make their vote count when they

vote. As discussed in Section 3, Canada, the Netherlands, and Switzerland have almost as many Protestants as they do Catholics and a case could be made to classify these countries as Protestant. It is therefore important that our results do not depend on how these countries are classified. If we classify Canada, the Netherlands, and Switzerland as Protestant countries instead of Catholic countries, then Catholic countries have poorer shareholder rights than Protestant countries. The same is true if, in addition, we classify Germany as a Catholic country. Consequently, the lack of correlation between shareholder rights and religion is sensitive to the classification of countries.

4.2. *Creditor rights*

Panel B of Table 2 shows how creditor rights vary across 47 countries that differ in religion or language (the creditor rights data are not available for Jordan and Venezuela). Panel B of Table 2 is sharply different from Panel A of the same table. Looking across the various creditor rights variables, language is largely unimportant while religion is crucially important. The first right is whether the reorganization procedure imposes an automatic stay on secured assets. In the presence of such a stay, secured creditors cannot get possession of the collateral in a reorganization. The dummy variable takes a value of one if there is no automatic stay. The results for that dummy variable turn out to be similar to the results for most of the creditor rights: language does not matter, and non-Christian countries have better creditor rights than Christian countries, partly but not wholly because Catholic countries protect the rights of creditors poorly compared to Protestant countries. The next variable takes a value of one if secured creditors are paid first. This dummy variable does not differ significantly across culture proxies, but the sign of the differences is the same as with the first dummy variable considered. The third variable takes a value of one if there are restrictions to going into reorganization. Again, language does not matter, but non-Catholic countries are more likely to impose restrictions. An important issue in a reorganization is whether management stays in control. The dummy variable takes a value of one if management does not stay in control during the reorganization process. It is highly unusual for management to stay in control in non-Christian countries, but management almost always stays in control in Catholic countries. The final variable is a dummy variable that takes the value one if there is a minimum amount of share capital required for a firm not to be dissolved. No English-speaking country has such a rule. The existence of such a rule does not seem to be related to a country's primary religion.

LLSV combine the first four creditor rights into an index by assigning a value of one for any of the rights a country has. The creditor rights index shows that creditor rights are higher in non-Christian countries than in Christian countries and higher in Protestant countries than in Catholic countries. Of all the groups of countries we consider, the Catholic group has the lowest index, 1.32. If we classify Canada, the Netherlands, and Switzerland as Protestant countries and Germany as a Catholic country, Catholic countries still have worse creditor rights than do Protestant countries.

Though Protestant countries have better creditor rights than Catholic countries, Table 2 shows that non-Christian countries have even better creditor rights than Protestant countries. At the very least, this result should make us cautious and puts additional importance on regression tests that control for variables that could be correlated with religion. However, this result also raises an important issue that should be explored further. Our focus in this paper is to examine the relation between current cultural proxies and finance. For countries that were still colonies in the last century, there is a question of whether the culture that matters for institutions is the culture of the colonizer or the culture of the colonized. North (1990) emphasizes that institutions change slowly. As a result, values that were once important in a country can still affect the current economy through their past impact on institutions. This leads Licht (2001) to argue that culture is the “mother of all path dependencies.” To the extent that institutions change slowly, it might take a long time for the culture of the colonized country to emerge and lead to changes in the institutions brought into the country by the colonizing country. Of the non-Christian countries for which we have the creditor index, 12 had a Protestant colonizer as of the end of World War I, using the religion of the colonizer as of 1900. These countries have an average creditor rights index of 3.75. The other five countries have a creditor rights index similar to that of Catholic countries.

4.3. *Enforcement of rights and accounting standards*

So far, we have examined how shareholder rights and creditor rights are correlated with our culture proxies. The rights we have considered are rights specified in laws or statutes. The enforcement of these rights differs across countries. We now consider variables that measure the extent of enforcement of these variables. The value of each index increases with enforcement. Panel C of Table 2 provides the results for sample splits based on culture proxies for various enforcement variables and for accounting standards.

Before looking at the results for the individual variables, we can summarize the results of that Panel as follows. First, language is irrelevant except for accounting standards. Second, religion is correlated with enforcement. Christian countries typically have better enforcement. The strongest result is, however, that enforcement is significantly stronger for Protestant than for Catholic countries for every variable. The first variable is the efficiency of the judicial system. LLSV use the average from 1980 to 1983. This variable is the same whether countries have English as their primary language or not and whether countries are Christian or not. However, its score is significantly higher for Protestant countries than for Catholic countries. The next four variables are significantly higher for Christian countries than for non-Christian countries and significantly higher for Protestant countries than for Catholic countries. These variables are all indexes produced by the country rating agency International Country Risk (ICR). The first variable measures the rule of law. The second variable estimates the extent of corruption in government. The third variable assesses the risk of expropriation. The fourth variable is an index capturing the probability that contracts with the government will be repudiated. All ICR

indices used by LLSV are averages from 1982 to 1995 and are scaled so that their values go from one through ten, with one representing the worst possible enforcement and ten the highest. The final investor rights variable in [Table 2](#) is an index of accounting standards produced by the Center for International Financial Analysis and Research available for 41 of the 49 countries. English-speaking countries have better accounting standards than countries whose primary language is not English and Protestant countries have higher standards than Catholic countries.

If we classify Canada, the Netherlands, and Switzerland as Protestant countries and Germany as a Catholic country, the correlation between religion and enforcement of rights becomes stronger. None of the results in [Table 2](#) showing a difference between countries when they are classified according to culture proxies become weaker and some results become stronger.

4.4. Multiple regression analysis

The comparisons in [Table 2](#) do not take into account the state of development of countries. One might argue that this is the right way to proceed if culture also affects economic development. If one takes that view, then the comparisons of [Table 2](#) are consistent with the view that culture matters. However, we now set the bar higher and investigate whether culture matters for finance, controlling for GNP per capita in multiple regressions. If culture matters for finance through economic development, but not directly, we would find no relation between finance and culture. This approach may lead us to understate the impact of culture. LLSV (1999) find that Catholic countries have lower-quality government, but their results are not significant when they control for GNP per capita. Their interpretation is that “the adverse effect of the religious affiliation on the quality of the government is in part captured by per capita income.” In this view, GNP per capita is affected by culture, which makes it harder to estimate precisely the relation between investor protection and culture.

With the multiple regressions, we can also use additional culture proxies. We use dummy variables PROTESTANT, CATHOLIC, BUDDHIST, MUSLIM, ENGLISH, and SPANISH that take the value one if a country’s primary religion or language is the one of the name of the dummy variable and zero otherwise. [Table 3](#) presents some of the regressions. We only present regressions for the anti-director rights index, the creditor rights index, and the enforcement and accounting indices. We also estimate regressions for the individual shareholder and creditor rights. When making comparisons based on primary religion, we find that the regressions for individual shareholder rights provide evidence that is more supportive of a role for the culture proxies than do the regressions for the shareholder rights index.

The regressions with the anti-director rights index as the dependent variable are reproduced in Panel A of [Table 3](#). The first regression uses the dummies PROTESTANT and CATHOLIC in addition to a constant and the log of GNP per capita. There is no significant difference between the coefficients of the religion dummies. The second regression adds the dummies BUDDHIST and MUSLIM. None of the coefficients on the religion proxies are significant or significantly

Table 3

Multiple regressions

The primary religion (language) of a country is the religion practiced (language spoken) by the largest fraction of the population. The data on religion and language are obtained from the 2000 CIA World Factbook. The dummy variables PROTESTANT, CATHOLIC, MUSLIM, BUDDHIST, ENGLISH, and SPANISH take the value one if the name of the variable describes the primary religion or the primary language of the country and zero otherwise. *a*, *b*, and *c* denote that the *F*-test of no difference between PROTESTANT and CATHOLIC or ENGLISH and SPANISH is significant at the 1%, 5%, and 10% level, respectively, and ***, **, and * denote that the *t*-statistic is significant at the 1%, 5%, and 10% level, respectively.

	Log of GNP per capita in US\$	CATHOLIC	PROTESTANT	MUSLIM	BUDDHIST	ENGLISH	SPANISH	Intercept	<i>N</i> Adjusted <i>R</i> ²
<i>Panel A: shareholder rights</i>									
Anti-director rights	0.0107 (0.09)	-0.4789 (-1.15)	0.2820 (0.58)					3.0347 (2.97)***	49 -0.0045
Anti-director rights	-0.0349 (-0.28)	-0.9233 (-1.42)	-0.1380 (-0.20)	-0.9271 (-1.21)	-0.3766 (-0.55)			3.8808 (3.48)***	49 -0.0183
Anti-director rights	0.0403 (0.30)					1.4151 ^a (4.05)***	0.1070 (0.20)	2.3458 (1.88)*	49 0.1338
<i>Panel B: creditor rights</i>									
Creditor rights	-0.1643 (-1.38)	-1.8228 ^a (-4.17)***	-0.5583 (-1.26)					4.5926 (5.29)***	47 0.3991
Creditor rights	-0.1296 (-0.99)	-1.9793 ^a (-2.95)***	-0.7317 (-1.06)	0.1082 (0.17)	-0.5132 (-0.76)			4.4424 (4.22)***	47 0.3835
Creditor rights	-0.3448 (-3.07)***					0.0025 ^b (0.01)	-1.3389 (-2.45)**	5.4962 (5.25)***	47 0.1832
<i>Panel C: rule of law</i>									
Efficiency of judiciary system	0.8981 (6.57)***	-0.8233 ^b (-1.53)	0.2678 (0.45)					0.2396 (0.18)	49 0.4340
Efficiency of judiciary system	0.8981 (6.11)***	-1.8615 ^b (-2.83)***	-0.7703 (-1.08)	-1.3057 (-1.15)	-1.7015 (-1.53)			1.2775 (0.94)	49 0.4525
Efficiency of judiciary system	0.8756 (5.48)***					1.0306 ^a (2.24)**	-0.5846 (-1.13)	0.0594 (0.04)	49 0.4465

Rule of law	1.4461 (8.62)***	0.1400 (0.28)	0.9011 (1.40)					–5.8256 (–4.53)***	49 0.7578
Rule of law	1.4675 (7.29)***	0.5134 (0.59)	1.2630 (1.30)	0.6421 (0.75)	0.4471 (0.48)			–6.3872 (–3.53)***	49 0.7505
Rule of law	1.5093 (12.75)***					0.6694 ^b (1.51)	–0.7145 (–1.27)	–6.0944 (–5.73)***	49 0.7688
Corruption	1.2609 (12.23)***	–0.3049 ^a (–1.01)	0.9186 (2.01)**					–4.0106 (–4.39)***	49 0.7793
Corruption	1.2339 (11.21)***	–0.9791 ^a (–2.68)***	0.2589 (0.52)	–1.0662 (–1.99)**	–0.8964 (–2.18)**			–3.0984 (–3.23)***	49 0.7847
Corruption	1.3083 (12.22)***					1.0878 ^a (2.85)***	–0.8105 (–2.69)**	–4.3894 (–4.44)***	49 0.8065
Risk of expropriation	0.9274 (11.28)***	–0.1678 ^c (–0.64)	0.2596 (1.09)					0.1067 (0.15)	49 0.7840
Risk of expropriation	0.9245 (9.09)***	–0.0051 ^c (–0.01)	0.4239 (0.75)	0.1815 (0.25)	0.2888 (0.49)			–0.0307 (–0.02)	49 0.7760
Risk of expropriation	0.9152 (10.59)***					0.1908 ^b (0.90)	–0.6951 (–1.96)**	0.2947 (0.35)	49 0.8096
Repudiation of contracts by government	1.0449 (13.50)***	–0.2499 ^a (–0.85)	0.4233 (1.60)					–1.3768 (–2.15)**	49 0.8126
Repudiation of contracts by government	1.0144 (11.23)***	–0.0268 ^a (–0.06)	0.6627 (1.46)	0.0346 (0.06)	0.6006 (1.21)			–1.3314 (–1.37)	49 0.8120
Repudiation of contracts by government	1.0377 (14.24)***					0.1622 ^b (0.79)	–0.8141 (–2.07)**	–1.1967 (–1.70)*	49 0.8274
Accounting standards	4.6241 (2.93)***	–8.4520 ^a (–2.01)**	4.2141 (1.15)					22.2962 (1.47)	41 0.3798
Accounting standards	4.1350 (2.69)***	–7.9700 ^a (–1.92)*	5.0953 (1.31)	–2.8474 (–0.28)	3.4362 (0.81)			26.1497 (1.89)*	41 0.3548
Accounting standards	4.2728 (2.72)***					9.3506 ^a (3.55)***	–10.7905 (–2.23)**	23.3566 (1.51)	41 0.4228

different from each other, though the difference between the PROTESTANT and CATHOLIC dummies has a p -value of 0.13. The third regression uses the dummies ENGLISH and SPANISH. Countries whose primary language is English have a significantly higher anti-director rights index than countries whose primary language is Spanish or than countries whose primary language is neither English nor Spanish. In these regressions, GNP per capita is not significant. The results therefore confirm our conclusions in Section 4.1, and taking into account additional culture proxies has no impact on our conclusions. Like the results of Table 2 for shareholder rights, the results in Panel A of Table 3 are sensitive to the classification of countries. If we reclassify Canada, Germany, The Netherlands, and Switzerland, Protestant countries have significantly better shareholder rights than Catholic countries.

Panel B of Table 3 shows regression estimates using the creditor rights index as the dependent variable. It is immediately clear from the first regression that the creditor rights index differs significantly between Catholic and Protestant countries. The coefficient on CATHOLIC is negative and has a t -statistic of -4.17 . The regression has an adjusted R^2 of 40%. The second regression shows that CATHOLIC remains significant when we add BUDDHIST and MUSLIM to the regression. These additional dummies are not significant. All religion dummies are significantly different from the Catholic dummy.

The result for MUSLIM is surprising since the Qur'an prohibits the charging of interest and some fundamentalist countries still have this prohibition. One possible explanation is that we have only seven Muslim countries in our sample, two of which have common law. Another possible explanation is that some of the countries in our sample adopted their bankruptcy laws a long time ago when Muslim religious influences were insignificant because of colonialism. The laws have changed little over time, partly because none of these countries have been taken over by Muslim fundamentalists. For example, Indonesia's bankruptcy law dates from 1905 and is based on the Dutch law.⁷ Egypt's bankruptcy law dates from 1883. Turkey adopted the Swiss Civil Code in 1926 in an attempt to modernize the country. As reported by Zweigert and Kötz (1998, p. 178), "in order to effect a radical modernization of Turkish life, the legislator, at a stroke, abolished the Islamic legal practices which had been valid for centuries, having hardly been affected at all by the reform legislation of the last Sultans of the Ottoman Empire; in their place was introduced a code which was adapted to the needs of a society entirely different in its social, religious and economic structure." In countries where religious influences prevail, such as Iran, interest-free banking is required, but these countries are not in our sample (Wilson, 1997, p. 148).

The last regression of the panel shows that countries with Spanish as the primary language have lower creditor rights than non-Spanish countries, but countries with English as the primary language do not have creditor rights that differ significantly from countries other than those with Spanish as the primary language. Per capita income is insignificant for the first two regressions, but not for the last one. This

⁷ See the report of the Asian Development Bank on insolvency law reform, at <http://www.insolvencyasia.com/>.

provides support for the argument in LLSV (1999) that GNP captures part of the effect of religion.

Panel C of Table 3 shows regression estimates for the enforcement of rights. Looking first at judicial efficiency, there is a significant difference between the coefficients on CATHOLIC and PROTESTANT in the first regression. In the next regression, the coefficient on CATHOLIC is significantly negative and significantly different from the coefficient on PROTESTANT. The other coefficients on the dummy variables are not significant and do not differ significantly from each other. Finally, when we turn to the language regression, we find that judicial efficiency is higher in countries where English is the primary language. None of the religion dummies are correlated with the rule of law index, but the rule of law index is significantly higher for English-speaking countries than for Spanish-speaking countries. The Protestant countries have a significantly higher corruption index than all non-Protestant countries (remember that a higher corruption index means less corruption). When we add dummy variables for Buddhist and Muslim countries, Protestant countries remain different and have a higher corruption index than Catholic, Buddhist, or Muslim countries. There is an extremely sharp difference in the corruption index between countries whose primary language is Spanish and those whose primary language is English; the former is significantly negative and the latter is significantly positive. Turning to expropriation risk, once more the only religion difference that matters is the one between Protestant and Catholic countries. Spanish-speaking countries have a significant negative coefficient. The results are similar for repudiation risk, except that both Protestant and Buddhist countries have a higher index than Catholic countries. Finally, the accounting index is significantly lower in Catholic countries. The difference in the index between Catholic and Protestant countries is significant. Perhaps not surprisingly at this point, English-speaking countries have a significant positive coefficient and Spanish-speaking countries have a significant negative coefficient.

5. Is it culture or legal origin?

LLSV show that differences in investor protection are highly correlated with differences in legal origin. Common law countries have better investor protection than civil law countries. Culture proxies could be significant simply because they are correlated with legal origin. The dataset gives us some ability to distinguish between a legal origin explanation and a cultural explanation for differences in investor protection across countries. However, no civil law country has English as its primary language, all countries with Spanish as their primary language are Catholic, and no common law country has Spanish as its primary language. First, we can distinguish between English-speaking common law countries and other common law countries. Second, there are 12 Protestant countries. Of these countries, six are common law countries and six are civil law countries. We can therefore investigate whether legal origins matter for Protestant countries. Only two Catholic countries have common

law, so that we cannot distinguish meaningfully between Catholic common law and Catholic civil law countries.

We have seen that for creditor rights and for legal enforcement, there are strong differences between Catholic and Protestant countries. If these differences can be explained by differences in legal origins, we would expect significant differences among Protestant countries depending on their legal origins and no significant differences between Protestant and Catholic civil law countries. To investigate these differences, we use regressions in which we interact culture proxies and legal origins. If legal origins do not matter, the impact of culture has to be the same regardless of legal origin.

The first regression in [Table 4](#) shows that for shareholder rights, religion does not seem to matter after taking into account legal origin. Common law Protestant countries have significantly better shareholder rights than civil law Protestant countries. In contrast, civil law Protestant countries have insignificantly different shareholder rights from civil law Catholic countries. Consequently, differences in shareholder rights cannot be explained by differences in religion but can be explained by differences in legal origins. The second regression compares whether there is a difference between English-speaking common law countries and other common law countries. Controlling for legal origins, none of the language differences are associated with significant differences in shareholder rights.

Though we do not reproduce regressions for individual shareholder rights, these regressions show that when controlling for legal origin, language differences are significant for three anti-director rights, legal origin for two anti-director rights, and religion differences for none. The success of legal origin in explaining cross-sectional variation in the index seems due to its unique ability to explain the cross-sectional variation in the existence of a mechanism of redress for minority shareholders. A different way to understand the usefulness of the culture proxies is as follows. If we consider how much the adjusted *R*-square increases when we add legal origin, language dummies or religion dummies, to a regression of individual shareholder rights on a constant and GNP per capita, we find that one of the culture proxies increases the adjusted *R*-square more than legal origin in four out of the six regressions.

The second set of regressions in [Table 4](#) investigates the relation between creditor rights, culture proxies, and legal origins. The results are sharply different from those for shareholder rights. First, there is no difference between common law Protestant countries and civil law Protestant countries. Second, there is a significant difference between civil law Protestant countries and civil law Catholic countries. The second regression shows that English-speaking common law countries have lower creditor protection than non-English speaking common law countries.

Our evidence shows that legal origins are not as important for creditor rights as the branch of Christianity a Christian country belongs to. Codes and statutes give some support for our conclusion. If legal origin were the main determinant of the attitude of a country towards creditors, one would expect different civil codes to treat creditors similarly. However, this is not the case. Article 1162 of the French Code states that “in cases of doubt, one should construe the contract against the

Table 4
Culture and law interactions

The interaction between the culture (religion or language) and the legal origin (civil or common) variables. The category Other denotes countries whose primary religion is neither the Catholic nor the Protestant religion. ***, **, and * denote the significance of the *t*-test at the 1%, 5%, and 10% significance levels, respectively. *a*, *b*, and *c* denote that the *F*-statistic of no difference between Catholic, Protestant, Other, or English and Spanish, keeping legal origins constant, is significant at the 1%, 5%, and 10% level, respectively. 1, 2, and 3 denote that the *F*-statistic of no difference between civil and common legal origin keeping the religion or the language the same is significant at the 1%, 5%, and 10% level, respectively.

	Log(GNP) in US\$	Civil and Protestant	Common and Protestant	Civil and Catholic	Common and Catholic	Civil and Other	Common and English	Civil and Spanish	Common and no Spanish or English	Intercept	<i>N</i>	Adjusted <i>R</i> ²
Anti-director rights	0.0847 (0.72)	-1.4021 ¹ (-2.41)**	0.5248 (1.09)	-1.3573 ¹ (-2.92)***	0.6152 (1.13)	-1.4645 (-3.18)***				3.0639 (3.12)***	49	0.2930
Anti-director rights	0.1649 (1.79)*						1.9424 (6.71)***	0.6781 (1.35)	1.7027 (4.05)***	0.7711 (0.96)	49	0.3465
Creditor rights	-0.1111 (-0.89)	-1.2016 ^b (-2.53)**	-0.9910 ^a (-1.86*)	-2.3086 (-5.46)***	-2.5577 (-7.95)***	-1.2153 ^b (-2.45)**				4.6340 (4.89)***	47	0.4282
Creditor rights	-0.2315 (-1.75)*						0.4636 (0.94)	-0.8395 (-1.46)	1.4939 (3.47)***	4.0825 (3.07)***	47	0.3123
Efficiency of judiciary	0.9479 (6.99)***	-0.7946 (-0.97)	-0.2894 (-0.41)	-1.6998 ¹ (-2.66)***	-0.7670 (-1.25)	-1.7745 (-1.74)*				0.5853 (0.46)	49	0.4790
Efficiency of judiciary	0.9594 (6.26)***						1.3854 (2.82)***	-0.2004 (-0.36)	1.2129 (1.55)	-1.0000 (-0.64)	49	0.4766
Rule of law	1.4544 (8.48)***	0.6121 (0.71)	1.1900 (1.33)	0.0811 (0.12)	0.7135 (0.81)	0.0319 (0.06)				-5.9027 (-4.67)***	49	0.7464
Rule of law	1.4739 (11.43)***						0.5194 (1.19)	-0.8769 (-1.56)	-0.5127 (-0.82)	-5.6466 (-4.69)***	49	0.7682
Corruption	1.2861 (12.29)***	0.1063 (0.16)	0.8200 (1.51)	-0.8956 ¹ (-2.64)	0.5915 (1.25)	-1.0088 ^c (-2.35)**				-3.7904 (-4.30)***	49	0.8074
Corruption	1.3435 (12.72)***						1.2369 (2.96)***	-0.6491 (-1.90)*	0.5096 (1.32)	-4.8345 (-4.83)***	49	0.8082
Risk of expropriation	0.9214 (10.75)***	0.1166 ^c (0.38)	0.2475 (0.71)	-0.3322 (-1.00)	0.5037 (1.58)	-0.2115 (-0.55)				0.2402 (0.76)	49	0.7827

Table 4. (Continued)

	Log(GNP) in US\$	Civil and Protestant	Common and Protestant	Civil and Catholic	Common and Catholic	Civil and Other	Common and English	Civil and Spanish	Common and no Spanish or English	Intercept	<i>N</i>	Adjusted <i>R</i> ²
Risk of expropriation	0.9218 (11.02) ^{***}						0.2186 (1.04)	-0.6649 (-1.84) [*]	0.0952 (0.27)	0.2115 (0.26)	49	0.8057
Repudiation of contracts	1.0448 (12.31) ^{***}	0.2741 ^a (0.89)	0.3364 (1.00)	-0.4196 ³ (-1.26)	0.0966 (0.29)	-0.2869 (0.67)				-1.2584 (-1.82) [*]	49	0.8054
Repudiation of contracts	1.0446 (13.32) ^{***}						0.1915 (0.85)	-0.7824 (-1.88) [*]	0.1000 (0.30)	-1.2841 (-1.65) [*]	49	0.8239
Accounting standards	4.9611 (3.53) ^{***}	-5.8521 ^b (-1.13)	-0.7378 (-0.19)	-16.7431 (-3.95) ^{***}	-1.9005 (-0.49)	-17.4469 ^a (-3.14) ^{***}				26.7752 (2.40) ^{**}	41	0.5152
Accounting standards	5.0490 (3.27) ^{***}						12.2089 (3.89) ^{***}	-7.3219 (-1.42)	118376 (2.69) ^{***}	13.5419 (0.86)	41	0.5010

creditor and in favor of the debtor,” while the German civil code “places greater emphasis on the explicit ‘expression’ of the contract, which implies great emphasis on the rights of creditors relative to debtors” (Beck et al., 2001, p. 19). In France, performance is due where the debtor has his place of residence, while in Sweden performance is due where the creditor has his place of business (see David, 1980, p. 118–119, for France and England, and Tiberg et al., 1994, p. 127 for Sweden). Whereas creditors are in control of the bankruptcy process in England and Germany, the objectives of the current bankruptcy law of France “in order of priority, are to maintain firms in operation, preserve employment, and thirdly, to enforce credit contracts.” (see Kaiser, 1996, p. 70). As reported by Budak (1999), both Germany and England have fairly similar accelerated procedures for debt collection that contrast with the French enforcement procedures.

We now turn to the enforcement variables. There is never a significant difference between common law Protestant countries and civil law Protestant countries. Judicial efficiency is significantly lower in Catholic civil law countries and the Other countries, which are the countries that are neither Protestant nor Catholic (these countries are all the non-Christian countries and Greece). None of the interaction variables are significantly different from zero or from each other for the rule of law regressions. Corruption is significantly higher in Catholic countries and Other countries, but corruption is significantly higher in Catholic civil law countries than in Protestant civil law countries only for a one-tailed test. Corruption is also higher in Other civil law countries than in Catholic and Protestant civil law countries. Risk of expropriation is significantly lower in Protestant civil law countries than in Catholic civil law countries. The repudiation of contracts index is significantly higher for Protestant civil law countries than for Catholic civil law countries, and so is the accounting standard index. The accounting index is also significantly higher in Catholic and Protestant civil law countries than in other civil law countries. The bottom line from these regressions is that when it comes to enforcement, it is difficult to find a correlation between legal origin and enforcement, but we find it easier to establish a correlation between culture and enforcement.⁸ One should view these results with caution because we have little power to distinguish among various subgroups of countries. Nevertheless, the fact that we have success with our culture proxies despite the lack of power is encouraging.

In the regressions of Table 4, we have five different independent variables to estimate the religion and law origin effects jointly. Because we are splitting a sample of 49 countries into five different groups and because there are only two Catholic common law countries, it makes sense to use a more conservative test to see whether there is a role for religion when one takes into account legal origins. We estimate regressions of the rights variables on a constant, a dummy that takes the value one for civil law countries, CIVOR, and the logarithm of GNP per capita. We then add

⁸ Except for shareholder rights, we only find significant differences between civil law and common law countries of same religion for the difference between Catholic civil law countries and Catholic common law countries. The difficulty with this result is that there are only two Catholic common law countries and one of these countries, Canada, was Protestant in 1900.

to these regressions PROTESTANT and CATHOLIC. If religion proxies for legal origins, the religion dummy variables should not be significant in these regressions. We do not report these regressions in a table. One would not expect the religion proxies to be significant for the shareholder rights index and in fact they are not. Similar regressions using individual shareholder rights find that language dummies are useful in understanding how individual rights vary across countries since they are significant in more regressions than CIVOR. The results for creditor rights are dramatic. In the regression with CIVOR and the log of GNP per capita, CIVOR has a coefficient of -1.18 with a t -statistic of -2.83 . The regression has an adjusted R -square of 24%. When we add the religion dummy variables, the adjusted R -square increases to 42%. CATHOLIC has a coefficient of -1.57 with a t -statistic of -3.63 . The coefficient on the civil law dummy variable is -0.54 with a t -statistic of -1.59 , so that it is not significant at the 10% level. CIVOR is significant in the presence of the religion variables for judicial efficiency, corruption, and the accounting index. For the other enforcement indices, CIVOR is significant in the absence of the religion variables for all indices except the rule of law index. When the regression includes the religion proxies, CIVOR stops being significant for the repudiation risk index and the expropriation risk index. The difference between PROTESTANT and CATHOLIC is significant for these indices. For the corruption and accounting indices, CIVOR is significant but so is the difference between PROTESTANT and CATHOLIC. Finally, for judicial efficiency, CIVOR is significant, but the significance of the difference between PROTESTANT and CATHOLIC disappears when CIVOR is added to the regression. In most of the regressions, then, the difference between PROTESTANT and CATHOLIC is significant when we add a dummy variable for civil law.

6. Openness, culture, and investor protection

We would expect individuals to trade off the costs and benefits of specific cultural values. As values that are less supportive of finance become more costly, the influence of these values should drop. We hypothesize that finance is more valuable to countries that can benefit more from being open to international trade. Such countries will tend to find it more valuable to protect and enforce investor rights because doing so helps them to become more open to international trade. Budak (1999) shows for England, Germany, and Turkey that local laws affecting creditors can typically be used by foreign creditors. With this hypothesis, we would expect the negative impact of culture proxies on investor rights and enforcement of rights to be attenuated as a country can benefit more from international trade. Wei (2000) develops such a hypothesis in the context of corruption. He shows that countries that potentially benefit more from international trade have less corruption.

To examine this effect, we cannot use a country's actual openness to international trade, because the actual openness depends on investor rights. We therefore need a measure of the potential benefit from international trade that is not affected by investor rights. The international trade literature has measures of natural openness

that estimate what the openness of a country would be given certain characteristics of that country. These measures can be used to proxy for the incentives of a country to protect investor rights in order to benefit from trade. We need a measure of openness that depends on exogenous variables. Frankel and Romer (1999) compute a measure of natural openness that satisfies our requirement. Their measure is based only on geographic characteristics and uses a gravity model that presumes that countries closer to each other trade more with each other.

We regress investor rights measures on our culture proxies, natural openness, the log of GNP per capita, and CIVOR. We report the results in Table 5. The results for the shareholder rights index regressions are surprising. The coefficient on openness is negative and significant. This negative coefficient is due to an extremely strong negative relation between openness and the dummy variable for cumulative or proportional voting. When we estimate the regression for individual shareholder rights, openness is significant only for that right. In other words, countries for which openness is more beneficial make it harder for a minority (the foreigners?) to obtain a position on the firm's board. Actual openness explains less than natural openness—adding actual openness to the regression increases the adjusted *R*-square by about 2% and adding natural openness by about 10%. In the regressions, the dummy variable for civil law, CIVOR, is extremely significant and negative. None of the culture variables matter for the shareholder rights regressions, so our earlier conclusions continue to hold. When we turn to creditor rights, openness has a significant positive effect. CIVOR is insignificant. As before, CATHOLIC has a negative significant impact on the creditor rights index.

As discussed earlier, one would expect there to be larger incentives for a country to respect creditor rights when international trade is more important for that country. To examine whether the importance of religion falls as openness increases, we regress the creditor rights index on a constant, the log of GNP per capita, PROTESTANT, CATHOLIC, OPENNESS*PROTESTANT, OPENNESS*CATHOLIC, and OPENNESS*OTHER, where OTHER takes the value one for all countries where the principal religion is neither Protestant nor Catholic. The estimates and *t*-statistics (in parentheses) using natural openness are as follows:

5.63	-0.37	Log GNP per capita	-0.19	PROTESTANT	-1.83	CATHOLIC
(-3.23)	(-3.24)		(-0.34)		(-3.25)	
	+0.04	OPENNESS*PROTESTANT	+0.05	OPENNESS*CATHOLIC		
	(1.27)		(3.42)			
	+0.03	OPENNESS*OTHER				
	(2.82)					

With this regression, we find a significant negative coefficient on CATHOLIC as expected. The coefficient on OPENNESS*CATHOLIC is significantly positive. More importantly, it is also larger than OPENNESS*PROTESTANT, which is insignificant. The difference of the two interaction terms has a *p*-value of 0.01. None of the other differences are significant. This evidence suggests that as a country becomes more open, the fact that its principal religion is Catholic matters less for creditor rights.

Table 5

Openness and Finance

The relation between openness, culture, and the law category. Natural openness measured using the 1985 actual openness adjusted for geography as in Frankel and Romer (1999). CATHOLIC, PROTESTANT, ENGLISH, and SPANISH are dummy variables that take value one if the name of the variable corresponds to the primary religion or the primary language of a country. *a*, *b*, and *c* denote that the *F*-statistic for the test that CATHOLIC and PROTESTANT are equal or SPANISH and ENGLISH are equal is significant at the 1%, 5%, and 10 % level of significance, respectively, and ***, **, and * denote that the *t*-statistic is significant at the 1%, 5%, and 10% levels, respectively.

	Log of GNP per capita in US\$	Natural openness	Civil law dummy (CIVOR)	CATHOLIC	PROTESTANT	ENGLISH	SPANISH	Intercept	<i>N</i> Adjusted <i>R</i> ²
<i>Panel A: shareholder rights</i>									
Anti-director rights	0.2821 (2.95)***	-0.0330 (-3.27)***	-1.8980 (-4.01)***	-0.1784 (-0.48)	-0.0881 (-0.23)	-0.2599 (-0.45)	0.4466 (0.78)	2.4350 (2.70)***	49 0.4226
<i>Panel B: creditor rights</i>									
Creditor rights	-0.3314 (-2.83)***	0.0385 (3.68)***	-0.5988 (-1.29)	-1.4283 ^a (-2.71)***	-0.0330 (-0.07)	-0.1734 (-0.36)	0.2784 (0.47)	5.4470 (6.16)***	47 0.4849
<i>Panel C: rule of law</i>									
Efficiency of judiciary	0.7757 (4.45)***	0.0490 (3.43)***	-0.9770 (-1.07)	-0.2720 ^c (-0.38)	0.6336 (0.78)	0.5772 (0.56)	0.5880 (1.09)	0.4953 (0.29)	49 0.5550
Rule of law	1.4043 (7.94)***	-0.0070 (-0.54)	0.1071 (0.19)	0.6606 (1.24)	0.7673 (1.15)	0.3849 ^b (0.60)	-1.2233 (-1.72)*	-5.4443 (-3.70)***	49 0.7625
Corruption	1.1644 (10.72)***	0.0215 (2.66)***	-0.7885 (-1.93)*	0.5188 (1.17)	1.1617 (2.26)**	0.2978 (0.51)	-0.5427 (-1.12)	-3.4239 (-3.50)***	49 0.8279

Risk of expropriation	0.8977 (8.77)***	-0.0090 (-1.61)	-0.3534 (-0.93)	0.4276 (1.03)	0.4000 (1.27)	-0.3058 (-0.67)	-0.9523 (-2.00)**	0.7109 (0.69)	49 0.8074
Repudiation of contracts	1.0003 (9.95)***	-0.0081 (-1.00)	-0.4004 (-1.11)	0.3979 (0.95)	0.6565 (1.87)*	-0.4644 (-1.24)	-0.9923 (-1.99)**	-0.6413 (-0.76)	49 0.8302
Accounting standards	4.9611 (2.82)***	-0.1634 (-1.57)	-16.8076 (-3.09)***	2.9875 (0.53)	8.4387 (1.83)*	-9.4322 (-1.40)	-8.5084 (-1.40)	30.7001 (2.26)**	41 0.5208
<i>Panel D: market Development</i>									
Equity issues to GDP	0.0003 (0.10)	0.0001 (0.21)	-0.0248 (-1.71)*	0.0006 (0.10)	-0.0017 (-0.20)	-0.0165 (-0.84)	-0.0062 (-0.76)	0.0324 (0.91)	36 0.0648
Long-term private debt issues to GDP	0.0112 (2.80)***	0.0003 (0.74)	0.0083 (0.52)	-0.0138 ^a (-0.69)	0.0318 (1.38)	-0.0244 (-1.10)	-0.0060 (0.60)	-0.0704 (-2.74)***	35 0.4314
Total private credit to GDP	0.2245 (4.87)***	-0.0023 (-0.50)	-0.0585 (-0.38)	-0.1831 (-0.91)	-0.1194 (-0.60)	-0.0304 (-0.21)	-0.1934 (-1.43)	-1.0591 (-3.55)***	49 0.4963
Stock market capitalization to GDP	0.0789 (1.78)*	0.2569 (1.11)	-0.1765 (-1.10)	-0.1470 (-0.74)	-0.0233 (-0.11)	0.1099 (0.54)	0.0780 (0.65)	-0.3551 (-1.27)	49 0.2790

We now turn to the rights enforcement variables. Openness is significant only for the judicial efficiency and corruption indices. Judicial efficiency increases with openness. Furthermore, when we control for openness, judicial efficiency is significantly lower in Catholic than in Protestant countries. CIVOR is not significant. The corruption index increases (which reflects lower corruption) with natural openness. In the regression, the coefficient on the civil law dummy variable is significantly negative and the coefficient on PROTESTANT is significantly positive. The coefficient on CATHOLIC is significant, but it is not significantly different from the coefficient on PROTESTANT. Protestant countries have a significantly higher corruption index than Spanish-speaking countries after controlling for legal origins and for natural openness.

In the last panel of the table, we measure the relation between financial development, culture, and openness. We consider four measures of financial development for which we have data for 35 of our countries or more. We obtain these data from Beck et al. (1999) and use averages from 1985 to 1995. These measures are equity issues, long-term private debt issues, private credit by deposit money banks and other financial institutions, and stock market capitalization, all relative to GDP. Beck et al. (2000) show that there is a strong relation between private credit and growth due to the relation between private credit and productivity growth.⁹

The only significant variable in explaining equity issues is the dummy variable that takes the value one for civil law countries, CIVOR, which affects equity issues negatively. The *F*-test does not allow us to reject the hypothesis that the coefficients are equal to zero. We estimate the same regressions for long-term debt issues. The difference between the coefficients on PROTESTANT and CATHOLIC is significant with a *p*-value lower than 0.01. No other variable is significant. The adjusted *R*-square of the regression exceeds 43%. Except for the log of GNP per capita, none of the coefficients in the regression for private credit are significant and none of the culture coefficients are significantly different from each other. Finally, the only other variable that is significant in the regressions for stock market capitalization is the logarithm of GNP per capita. When we reclassify Canada, Germany, the Netherlands, and Switzerland, we find that civil law countries have significantly lower stock market capitalization, but in addition Catholic countries have significantly lower stock market capitalization than Protestant countries. Further, Catholic countries have significantly less credit than Protestant countries with a *p*-value of 0.13. Though civil law is useful in explaining equity market development and religion is helpful in explaining credit market development, both civil law and religion have limitations in their ability to explain financial market development.

⁹Jappelli et al. (2002) show that judicial efficiency is positively correlated with mortgage debt to GDP across 14 countries; 13 of their countries are in our sample. The Catholic countries have significantly less mortgage debt to GDP (21.63%) than Protestant countries (38.75%). The three Protestant countries with civil law (Finland, Germany, Sweden; 39.26%) have an indistinguishable ratio of mortgage debt to GDP than the three Protestant countries with common law (Australia, United Kingdom, United States; 38.26%).

The regressions that use openness, legal origin, and the culture variables have two lessons. First, it is clear that religion is correlated with the development of debt markets, and that legal origins are correlated with stock market development. These results reinforce what we learned in the earlier sections: the evidence is consistent with legal origins being important for shareholder rights and culture being important for creditor rights. However, the results are mixed for both the legal origin hypothesis and the religion hypothesis, in that in two regressions, neither the coefficients on religion nor the one on legal origins are significant. One possible explanation for this weakness is that it is difficult to estimate coefficients precisely because of multicollinearity. Because of our use of dummy variables, the interpretation of correlations is not transparent. However, it is useful to note that the highest correlations are between CATHOLIC and CIVOR (0.4605), between CATHOLIC and SPANISH (0.5712), and between PROTESTANT and ENGLISH (0.4181). The correlation between PROTESTANT and CIVOR is -0.1567 .

An indication that the multicollinearity problem is not trivial is the following. If we regress the financial development variables on the log of GNP per capita, CATHOLIC, and PROTESTANT, we find that for each regression either CATHOLIC or PROTESTANT is significant. Catholic countries have significantly fewer equity issues than non-Catholic countries, significantly fewer long-term debt issues than Protestant countries, significantly less bank credit than non-Catholic countries, and significantly lower stock market capitalization. If we use CIVOR instead of the two religion dummy variables, we find that civil law countries have significantly less new equity, significantly lower credit from financial institutions, and significantly lower stock market capitalization.

7. Robustness

In [Table 6](#), we investigate the robustness of the result that creditor rights are related to religion. Because institutions change slowly, one might argue that the religion that matters for institutions is not the current religion of a country but the religion that was dominant when its laws were written. The first regression of [Table 6](#) uses the dominant religion of a country in 1900, which is the oldest date for which we have such data. We see that the results are unchanged. Interestingly, in regressions not reported in the table, the enforcement variable regressions show a stronger correlation between enforcement and religion when we use the dominant religion in 1900 than the current dominant religion and a weaker correlation between enforcement and legal origin. The legal origin dummy variable is significant only for the accounting variable. The second column uses the percentage of the population of a country for each religion in 1995. We see that the percentages lead to the same conclusion as using a dummy variable for the dominant religion. We also estimated a regression with the percentages in 1900 (but do not report the results) and got similar results. The last regression in [Table 6](#) uses a more detailed measure of legal origins, allowing for differences between French, German, and Scandinavian civil law. Again, the result that creditor rights are lower in Catholic

Table 6

Creditor rights regressions

The relation between the creditor rights index, openness, culture, and the law category. Natural openness is measured using the 1985 actual openness adjusted for geography as in Frankel and Romer (1999). CATHOLIC, PROTESTANT, ENGLISH, and SPANISH are dummy variables that take the value one if the name of the variable corresponds to the primary religion or the primary language of a country. *a*, *b*, and *c* denote that the *F*-statistic for the test that CATHOLIC and PROTESTANT are equal or that SPANISH and ENGLISH are equal is significant at the 1%, 5%, and 10 % level of significance, respectively, and ***, **, and * denote that the *t*-statistic is significant at the 1%, 5%, and 10% levels, respectively.

	Religion in 1900	Religion percent in 1995	Civil law origins
Log of GNP per capita in US\$	-0.2846 (-2.12)**	-0.3353 (-2.93)***	-0.3682 (-2.78)***
Civil law dummy (CIVOR)	-0.5966 (-1.42)	-0.6337 (-1.34)	
French civil law			-0.7068 (-1.19)
German civil law			-0.1886 (-0.38)
Scandinavian civil law			-1.1406 (-1.88)*
Natural openness	0.0332 (3.11)***	0.3468 (3.20)***	0.0410 (3.97)***
Catholic	-1.5665 ^b (-2.98)***	-0.0180 ^a (-2.67)***	-1.3567 ^a (-2.28)**
Protestant	-0.5477 (-1.12)	-0.0012 (-0.18)	0.2093 (0.52)
English	-0.1411 (-0.37)	-0.1042 (-0.23)	-0.2823 (-0.61)
Spanish	0.3283 (0.52)	0.4181 (0.65)	0.3576 (0.57)
Intercept	5.2035 (5.20)***	5.6344 (6.77)***	5.6788 (5.68)***
<i>N</i>	47	47	47
Adjusted <i>R</i> ²	0.4849	0.4624	0.4862

countries holds. Though we do not report the results, we also investigate whether the coefficient on CATHOLIC is robust to controlling for the colonizing country for former colonies. We find that this is the case whether we control for the first colonizing country, for the last colonizing country, or for the colonizing country with the longest presence.

We have seen that culture proxies are correlated with investor protection and financial development. However, we know that culture proxies and legal origins are correlated. This makes it necessary to pay closer attention to how much culture proxies explain of the variation of investor protection and financial development relative to legal origins.

To better show which variables are most important in explaining the cross-sectional variation in investor protection and financial development, Table 7

Table 7

Incremental explanatory power

The incremental adjusted R^2 from adding Openness, CIVOR, CIVOR3, Protestant and Catholic, or English and Spanish to regressions of investor rights variables on a constant and the log of GNP per capita. Natural openness is the Frankel and Romer (1999) measure of geographic openness. Protestant, Catholic, English, and Spanish are dummy variables that take the value one if their name describes the primary religion or language of a country and zero otherwise. CIVOR takes the value one if the origin of a country's legal system is civil law. ***, **, and * denote that the t -test is significant at the 1, 5, and 10% level, respectively. CIVOR3 represents dummy variables for whether a country's civil law is of French, Scandinavian, or German origin. *a*, *b*, and *c* denote that the F -statistic for the test that CATHOLIC and PROTESTANT are equal, that ENGLISH and SPANISH are equal, or that the dummy variables for the three distinct civil law origins are equal is significant at the 1%, 5%, and 10% level, respectively.

	Natural openness (Incr R^2)	CIVOR (Incr R^2)	Catholic and Protestant (Incr R^2)	English and Spanish (Incr R^2)	CIVOR3 (Incr R^2)
Anti-director rights	0.1036**	0.3596***	0.0165	0.1548 ^b	0.3430
Creditor rights	0.1222***	0.1561***	0.3176 ^a	0.1017 ^b	0.2124 ^b
Efficiency of judiciary system	0.0574**	0.0941***	0.0306 ^c	0.0431 ^b	0.1296 ^b
Rule of law	-0.0028	-0.0009***	0.0069	0.0179 ^b	0.0028
Corruption	0.0011	0.0530	0.0352 ^a	0.0624 ^a	0.0860 ^a
Risk of expropriation	-0.0028	0.0092*	0.0021	0.0277 ^a	0.0130
Repudiation of contracts by government	-0.0032	0.0082*	0.0142 ^b	0.0290 ^a	0.0342 ^a
Accounting standards	-0.0152	0.2447***	0.1370 ^a	0.1800 ^a	0.3266 ^a
Equity issues to GDP	-0.0138	0.1552***	0.0399	0.0140	0.1091
Long-term private debt issues to GDP	-0.0224	-0.0199	0.1472 ^a	-0.0077	0.2378 ^a
Total private credit to GDP	-0.0112	0.0211*	0.0586	0.0519 ^b	0.1565 ^a
Stock market capitalization to GDP	-0.0082	0.2009***	0.1044	0.0373 ^b	0.1960

provides the incremental adjusted R -square for the cross-sectional variation in investor rights, enforcement of investor rights, and financial development of adding CIVOR, PROTESTANT and CATHOLIC, ENGLISH, and SPANISH, and natural openness to a regression with a constant and the log of GNP per capita.

Ignoring for the moment the last column of Table 7, we see from the other columns that civil law has the highest incremental adjusted R -square for equity variables (anti-director rights, equity issues, stock market capitalization), for judicial efficiency, and for the accounting index. The culture proxies have the highest incremental adjusted R -square for all other dependent variables. Religion matters more for the credit variables (creditor rights, long-term debt issues, private credit) and language matters more for the enforcement variables. The last column of Table 7 uses a finer classification of legal origins to examine whether the correlation between our religion variables are sensitive to using such a classification. Instead of dividing countries between common law countries and civil law countries, we look at the incremental explanatory power of the French, German, and Scandinavian civil law traditions. When we do that, CATHOLIC is unaffected in the creditor rights regressions, but perhaps not surprisingly in light of the results in LLSV (1999), the

fact that French civil law countries are either Catholic or Muslim countries, and that all Scandinavian countries are Protestant countries, makes the coefficients on religion hard to estimate precisely in the enforcement rights regressions.

8. Conclusion

In this paper, we provide evidence that differences in culture cannot be ignored when attempting to understand why investor protection differs across countries. The relation between culture and investor rights seems especially strong for creditor rights. We find that Catholic countries have significantly weaker creditor rights than other countries. This result holds when we control for the origin of the country's legal system as well as for GNP per capita. Openness reduces the influence of religion on creditor rights, so that Catholic countries where international trade is more important have better protection of creditor rights. We therefore find support for the view that culture matters, but there is also evidence that the impact of culture is tempered by openness. The culture proxies do not explain cross-country variation in the shareholder rights index, but they explain cross-country variation in individual shareholder rights even when we control for the origin of a country's legal system. We also show that culture is related to the enforcement of rights, with Catholic and especially Spanish-speaking Catholic countries having weaker enforcement of rights. Except for accounting disclosure, the culture proxies generally have more explanatory power for how a country enforces investor rights than does the country's legal origin.

Our inquiry leaves many questions unanswered. As we saw, distinguishing between the influence of legal origin and culture is difficult because legal origin and our culture proxies are correlated. Though we find our culture proxies to be significant when controlling for legal origin for some investor rights measures, further research that explores the channels through which culture and legal origin matter is required.

As the evidence on Muslim countries makes clear, a country's culture may have little impact because of institutional hysteresis. Yet, as Iran's example shows, culture can be a powerful force that leads to changes in institutions. This suggests that the relation between culture and institutions is subtle. For countries that were colonies not too far in the past, the culture that matters most for institutions may well be the culture of the colonizing country. Nevertheless, the indigenous culture eventually can reassert itself with a bang. Pistor et al. (2001) recommend caution when considering colonized countries. After all, to the extent that the strength of common law is the judicial discretion, that strength might become a weakness in a country with no judicial tradition. Also, in countries where its citizens did not tend to settle, England would keep in place local laws and customs, so that English common law mattered mostly for English citizens in the colony.

A concern is that culture could just be proxying for something else. Such a concern applies to any variable in studies that focus on the cross-sectional variation across countries for the simple reason that our sample has only 49 countries and that

techniques that help in increasing our comfort level that relations are not spurious can typically not be applied in this type of research. For instance, there is no room for fixed effects. One might argue that there are lots more countries, but it does not seem to make sense to investigate investor rights in the way we do in this paper in countries that have no stock market or less than a handful of public firms or in countries whose banking sector is smaller than the banking sector of a large suburban area in the U.S.

As emphasized by [Rajan and Zingales \(2003\)](#), politics matter. Could it be that politics are the driving force and that culture just provides excuses? Culture would then provide arguments that help rationalize political arguments. With this view, Calvin was just reflecting what was in the best interests of an entrepreneurial constituency. Such a view seems extreme, even though it may have some merit. If, as argued by the practitioners of behavioral finance, individuals have psychological biases that matter for finance, it would be surprising that individuals' view of the world as determined by their culture does not matter for how they view and act in financial markets.

Finally, it would be useful to extend our analysis to other measures of investor rights and enforcement. In common law countries, managers and boards have more flexibility than they do in civil law countries. This flexibility comes at a price, in that managers and boards can be sued more easily than they can in civil law countries. However, in common law countries the state is less prescriptive than in civil law countries with respect to what corporations can and cannot do. Interestingly, civil law countries are more likely to have a creditor right that is not recorded in the LLSV index, which seems to be a way to use creditors to limit the discretion of managers and boards. France and some other civil law countries require firms to obtain the consent of their creditors when they want to merge (see [Pistor et al., 2001](#)). Based on our analysis, a case can be made that the greater freedom given to managers and boards in common law countries has a cultural basis. After all, legislators could have instead adopted statutes to restrict the freedom of managers and boards.

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