

RESEARCH ARTICLE

Cultural rule orientation, legal institutions, and the credibility of corporate social responsibility reports

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The brackets on letter H in the sentence "How
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Abstract

Culture matters for *credible* corporate social responsibility (CSR) reporting. I show that firms located in countries with stronger cultural rule orientation are more likely to (a) receive assurance on their CSR report, (b) receive assurance from an accounting firm, (c) receive assurance in accordance with an assurance standard, and (d) receive assurance on their *entire* CSR report. Path analysis reveals that the *direct* effect of cultural rule orientation is much stronger than its *indirect* effect via legal institutions. I confirm the dominance of the direct effect in a qualitative comparative analysis. The economic significance of the direct effect is identified using probit regression analysis. Endogeneity concerns are addressed in a battery of robustness checks. Overall, the findings of this study provide a nuanced understanding of *how* culture affects credible CSR reporting, which, in turn, has important implications for managers, stakeholders, and policy makers.

KEYWORDS

assurance, corporate social responsibility, culture, legal institutions, rule orientation, sustainable development, uncertainty avoidance

1 | INTRODUCTION

Corporate social responsibility (CSR) reporting has gained momentum.¹ To date, over 90% of the world's largest firms are issuing CSR reports (KPMG, 2017). Yet, the *credibility* of these reports varies substantially, particularly across countries. To understand these cross-country disparities, scholars have turned to legal institutions for an explanation. For example, Kolk and Perego (2010) have shown that firm's located in countries with a legal origin based on code law, rather than common law, are more likely to enhance the *credibility* of their CSR reports by seeking external assurance.² Complementing the studies that focus on legal institutions, I explore the role of *culture* and its interdependence with legal institutions to provide a more holistic explanation.

The idea that culture matters goes back to at least Max Weber (1930), who argues that culture is a central ingredient of economic development. However, economics scholars have been hesitant to integrate culture into their theoretical work. A notable exception is Williamson (2000), who provides a prominent theory that cautiously

accounts for culture. Specifically, he theorizes that culture imposes constraints on legal institutions (e.g., laws, regulations, constitutions), which, in turn, shape corporate decision-making. Accordingly, culture *indirectly* affects corporate decisions via legal institutions. Building on Williamson's economics-based theory, I hypothesize (H1) that culture *indirectly*—via legal institutions—shapes firms' tendencies toward credible CSR reporting.

Sociology scholars have been much more progressive in integrating culture into their theoretical work. Most prominently, Scott (2001) theorizes that both culture and legal institutions directly shape corporate decisions. Specifically, he argues that culture dictates socially appropriate thoughts, feelings, and actions, thereby *directly* shaping corporate decision-making. Legal institutions, he argues, also directly shape corporate decisions because they prescribe which actions are and are not condoned by the legal authority of a country. Building on Scott's sociology-based theory, I hypothesize (H2) that culture *directly* shapes firms' tendencies toward credible CSR reporting.

To test these two competing—but not mutually exclusive—hypotheses, I rely on the following sequence of decisions to capture the *credibility* of

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CSR reports: (a) Receiving assurance on CSR report, (b) choosing an accounting firm as the assurance provider, (c) receiving assurance in accordance with an assurance standard, (d) receiving assurance on the entire CSR report and not only parts of it, and (e) receiving assurance on a high level rather than moderate/low level. A unique feature of these five fundamental decisions is that they are not regulated in terms of CSR reporting but strictly regulated in terms of financial reporting.³ Taking advantage of this feature, I conjecture that managers of firms located in a country with a stronger *rule orientation culture* are more likely to make CSR reporting decisions that comply with financial reporting regulations because they are mentally programmed to rely on laws, rules, and regulations when making decisions (Salvato, Dings, & Reuter, 2014; Venaik & Brewer, 2010). I measure cultural rule orientation by using the uncertainty avoidance (UA) index from House, Hanges, Javidan, Dorfman, and Gupta (2004) (i.e., the GLOBE project).

To measure legal institutions, I construct a factor variable in the spirit of Dhaliwal, Radhakrishnan, Tsang, and Yang (2012) that captures legal institutions of particular relevance to CSR reporting. Specifically, I compute a factor variable based on legal origin, labor laws, environmental laws, and CSR regulations in a country.

Based on a sample that covers firms located in 31 countries, I conduct three main empirical tests. First, I employ a path analysis approach that allows me to disentangle the direct effect of cultural rule orientation from its indirect effect via legal institutions. Second, I employ a qualitative comparative analysis approach. The advantage of this approach is that, instead of using the previously described factor variable to measure legal institutions, I can use all four variables individually and examine their interdependence with culture and each other. Third, I employ a probit regression approach to better understand the economic significance of the direct cultural effect.

This study contributes to the literature in several distinct ways and directly responds to some recently raised research questions. First, this study contributes to the literature explaining cross-country differences in the credibility of CSR reports. Thus far, scholars have predominantly focused on legal institutions, such as legal origin or rule of law (De Beelde & Tuybens, 2015; Fernandez-Feijoo, Romero, & Ruiz, 2015; Herda, Taylor, & Winterbotham, 2014; Kolk & Perego, 2010; Ruiz-Barbadillo & Martinez-Ferrero, 2020; Simnett et al., 2009; Zhou, Simnett, & Green, 2016). I add culture as an incrementally important determinant by providing evidence that culture directly and (to a lesser extent) indirectly affects the credibility of CSR reports. In doing so, I respond to the recently raised question: “[H]ow does culture affect [CSR] accounting outcomes in practice?” (Schatt, Bouwens, Brouwer, Iwasaki, & Johnstone, 2016, p. 33).

Second, I contribute to the few studies examining the interdependence between culture and legal institutions (Gorodnichenko & Roland, 2017; Licht, Goldschmidt, & Schwartz, 2005; Licht, Goldschmidt, & Schwartz, 2007). By showing that the direct effect of cultural rule orientation on credible CSR reporting is much stronger than its indirect effect via legal institutions, I respond to the following questions: “[H]ow does [culture] relate to legal institutions? [...] Which type of norms—cultural or legal—are more effective in pursuing a certain policy[...].?” (Guiso, Sapienza, & Zingales, 2015, pp. 336, 337).

Third, I contribute to the nascent literature that uses culture to explain corporate decision-making.⁴ I show that culture also matters for corporate decisions related to the credibility of CSR reports. Further, by focusing on cultural rule orientation instead of UA, I contribute to the literature by providing more fine-grained evidence on how UA affects corporate decision-making.⁵

Fourth, I contribute to the literature investigating corporate decisions related to the credibility of CSR reports by considering five CSR assurance decisions. In doing so, I dig deeper and provide more comprehensive evidence on the credibility of CSR reports.⁶

Beyond these contributions, this study may be of interest to the general public. Data from Google web search activities, which are plotted in Figure A1, indicate that people simultaneously search for “culture” and “how it affects.” In addition, they simultaneously search for “culture” and “the law.” These Google search patterns suggest that the general public is interested in both how culture affects decisions and how culture is related to the law.

2 | THEORETICAL FOUNDATION AND HYPOTHESES

2.1 | Defining culture and legal institutions

I follow⁷ Guiso, Sapienza, and Zingales (2006) and define culture as the societal beliefs and social norms that are transmitted fairly unchanged from generation to generation. This definition acknowledges the intrinsic and extrinsic nature of culture. While societal beliefs are predominantly generated by genetics, social norms are predominantly generated by participation in networks (Collier, 2016; Henrich et al., 2005). Further, this definition emphasizes intergenerational transmission—the reason why culture changes so slowly (Guiso, Sapienza, & Zingales, 2016).

I follow North (1991) and define legal institutions as the formal regulations and rules that govern behavior, such as laws, constitutions, and property rights.

2.2 | Economics-based theory

Economics scholars have been hesitant to integrate culture into their theoretical work (Guiso et al., 2006). A notable exception is Williamson (2000), who cautiously accounts for culture in his seminal article “The new institutional economics.”⁸ In this article, Williamson theorizes that culture imposes constraints on legal institutions, which, in turn, shape resource allocation (i.e., corporate decision-making). This means that culture only indirectly—via legal institutions—shapes corporate decision-making. The rationale behind Williamson’s theory is that if they are not supported by the country’s cultural system, legal institutions either do not survive or are ineffective. In other words, if laws conflict with societal beliefs and social norms, compliance and enforcement is weaker.

Two strands of empirical literature are related to Williamson’s theory. The first strand examines the direct effect of culture on legal



institutions. Licht et al. (2005) show that, in particular, the cultural dimensions harmony and uncertainty avoidance affect the legal protection of investors. Similarly, Licht et al. (2007) provide evidence that, in particular, the cultural dimensions embeddedness and hierarchy affect the quality of the legal system (rule of law). Most recently, Gorodnichenko and Roland (2017) show that the cultural dimension individualism affects the legal protection against expropriation risk.

The second strand examines the direct effect of legal institutions on corporate decision-making.⁹ Simnett et al. (2009) show that legal origin¹⁰ and the quality of the legal environment¹¹ directly shape firms' tendencies toward credible CSR reporting. Similarly, Kolk and Perego (2010) provide evidence that legal origin and the quality of the legal environment shape firms' tendencies toward credible CSR reporting. Furthermore, De Beelde and Tuybens (2015), show that the quality of the legal environment affects firms' tendencies toward credible CSR reporting. With respect to environmental reporting, Zhou et al. (2016) show that legal origin and the quality of the legal environment directly shape firms' tendency toward credible greenhouse gas reporting. Most recently, Ruiz-Barbadillo and Martinez-Ferrero (2020) provide evidence that stakeholder laws and the quality of the legal environment directly impact firms' tendencies toward credible CSR reporting.

Although no study has connected these two strands of literature (i.e., has examined the indirect effect of culture on corporate decision-making via legal institutions), the separate findings point toward an overall indirect effect. Building on Williamson's economics-based theory and the related empirical literature, I formulate my first hypothesis as follows.

Economicsbased hypothesis (H1) *Culture shapes firms' tendencies toward credible CSR reporting indirectly via legal institutions.*

2.3 | Sociology-based theory

Compared with economics scholars, sociology scholars have been much more progressive in integrating culture into their theoretical work. Most prominently, Scott (2001) considers culture as the most fundamental "institutional pillar" in his seminal work "Institutions and organization." Specifically, he theorizes that culture dictates appropriate thoughts, feelings, and actions, thereby, directly shaping corporate decision-making. Culturally-motivated decisions are particularly persistent because they are made unconsciously, reflecting taken-for-granted traits and routines. In terms of legal institutions, Scott theorizes that they also directly shape corporate decisions because they prescribe which actions are and are not condoned by the legal authority of a country. However, legally-motivated decisions are less persistent because they are made consciously, reflecting rational behavior based on sanctions and conformity. According to Scott's theory, both culture and legal institutions directly shape corporate decision-making with culture being the dominating force.

Several studies provide evidence that culture directly shapes corporate decision-making.¹² In the following, I discuss the empirical

literature examining the effect of culture on two specific corporate-decisions: the decision to voluntarily *disclose* CSR-related information and the decision to voluntarily hire a Big 4 accounting firm as assurance provider for *financial* reports. With respect to voluntary CSR reporting, Orij (2010) shows that particularly the cultural dimensions masculinity affects the likelihood of voluntarily disclosing CSR information. Furthermore, Cahan et al. (2016) provide evidence that two cultural dimensions (i.e., UA and individualism) affect the likelihood of voluntarily disclosing CSR information. Focusing on environmental disclosures, Luo and Tang (2016) show that, in particular, the cultural dimensions masculinity, power distance, UA, and individualism affect the likelihood of voluntarily disclosing carbon-related information. Collectively, these studies show that culture directly affects the decision to voluntarily *disclose* CSR-related information but do not provide evidence on its *credibility*. While Hope et al. (2008) do not examine the credibility of CSR-related information per se; they investigate the concept of credibility in terms of *financial* reports. Their empirical results show that the cultural dimension secrecy shapes firms' tendency toward hiring a Big 4 assurance firms. This finding suggests that culture affects the credibility of financial disclosures because assurance quality increases with the size of the assurance provider (e.g., DeAngelo, 1981; DeFond & Jiambalvo, 1993). In turn, higher assurance quality increases the credibility of the information assured (e.g., Becker, DeFond, Jiambalvo, & Subramanyam, 1998; Simunic & Stein, 1987). Building on Scott's sociology-based theory and the related empirical literature, I formulate my second hypothesis as follows.

Sociologybased hypothesis (H2) *Culture directly shapes firms' tendencies toward credible CSR reporting.*

3 | VARIABLE DEFINITIONS, DATA, AND SAMPLE SELECTION

3.1 | Measuring credible CSR reporting

Financial reporting is strictly regulated around the world. To ensure credibility, firms are required (a) to receive assurance on their financial report, (b) to select a qualified assurance provider (i.e., an accounting firm), (c) to receive assurance in accordance with specific assurance standards (e.g., International Standards on Auditing [ISA]), (d) to receive assurance on their *entire* financial report, and (e) to receive assurance on a high level (i.e., the assurance risk has to be below a certain threshold).

In contrast, *CSR reporting* is barely regulated around the world.¹³ Firms themselves decide (a) whether to receive assurance on their CSR report, (b) whether to receive assurance from an accounting or non-accounting firm, (c) whether the assurance is conducted in accordance with an assurance standard (e.g., Accountability 1,000 Assurance Standard [AA1000AS]), (d) whether the entire or only parts of the CSR report are assured, and (e) whether the assurance level is high or low.



To measure the degree of credibility of a CSR report, I create five dummy variables based on the five decisions described in the previous paragraph. First, the variable *assurance* equals one if a firm receives assurance on its GRI report, and zero otherwise. The rationale behind this credibility enhancing decision is that externally verified data are generally perceived as more credible. Specifically, external assurance “serves as a useful control mechanism to enhance the credibility of disclosed information and facilitate greater user confidence” (Simnett et al., 2009, p. 941). Second, the variable *assurance provider* equals one if a firm receives assurance on its GRI report from an accounting firm, and zero otherwise. I classify accounting firms as the high-quality

assurance providers because they are well-known for their assurance expertise, independence, professional skepticism, and integrity (i.e., Casey & Grenier, 2015; Peters & Romi, 2015; Simnett et al., 2009).¹⁴ A counter-argument is that non-accounting firms (such as engineering firms or CSR service firms) might possess greater in-depth subject-matter expertise (Simnett et al., 2009). However, such expertise is often employed or bought by accounting firms if needed (Simnett et al., 2009). Third, the variable *assurance standard* equals one if a firm receives assurance on its GRI report in accordance with an international CSR assurance standard (i.e., AA1000AS and/or International Standard on Assurance Engagements 3,000 [ISAE 3000]).

TABLE 1 Summary of key variables

Country	Assurance		Assurance provider		Assurance standard		Assurance scope		Assurance level		CSR laws	UA rule orientation
	0	1	0	1	0	1	0	1	0	1		
Australia	92	101	49	52	28	73	76	25	89	12	-0.04	4.39
Austria	37	41	5	36	19	22	27	14	39	2	0.46	5.16
Brazil	190	79	22	57	35	44	38	41	65	14	0.23	3.6
Canada	218	92	15	77	20	72	81	11	81	11	-0.74	4.58
Colombia	33	24	9	15	7	17	14	10	24	0	0.31	3.57
Denmark	32	34	3	31	15	19	18	16	31	3	1.06	5.22
Finland	118	105	16	89	32	73	45	60	100	5	0.95	5.02
France	100	133	24	109	49	84	89	44	103	30	1.35	4.43
Germany	179	119	6	113	35	84	86	33	106	13	1.03	5.19
Greece	45	12	5	7	8	4	9	3	10	2	0.54	3.39
Hong Kong	23	44	25	19	14	30	21	23	35	9	-0.84	4.32
India	94	170	66	104	23	147	93	77	155	15	-1.34	4.15
Ireland	21	19	13	6	9	10	14	5	18	1	-0.76	4.3
Israel	29	0	—	—	—	—	—	—	—	—	-0.98	4.01
Italy	56	102	16	86	14	88	32	70	97	5	1.02	3.79
Japan	762	168	58	110	73	95	151	17	162	6	0.42	4.07
Malaysia	52	37	21	16	24	13	13	24	30	7	-1.82	4.78
Mexico	56	38	13	25	16	22	29	9	31	7	0.35	4.18
Netherlands	101	94	18	76	70	24	52	42	69	25	0.87	4.7
New Zealand	14	12	7	5	9	3	9	3	12	0	-1.13	4.75
Philippines	20	19	16	3	9	10	10	9	18	1	0.2	3.89
Portugal	25	33	6	27	6	27	17	16	23	10	1.32	3.91
Singapore	65	42	22	20	19	23	28	14	42	0	-1.49	5.31
South Africa	396	150	51	99	31	119	136	14	116	34	-0.73	4.34
Spain	39	86	20	66	26	60	27	59	68	18	1.33	3.97
Sweden	103	106	14	92	70	36	44	62	86	20	1.45	5.32
Switzerland	124	83	35	48	45	38	49	34	69	14	0.8	5.37
Thailand	71	32	13	19	17	15	32	0	32	0	-1.35	3.93
Turkey	52	13	7	6	10	3	12	1	13	0	-0.14	3.63
United Kingdom	79	134	50	84	53	81	90	44	108	26	-1.03	4.65
United States	974	267	187	80	182	85	213	54	232	35	-1.05	4.15
Total/Mean	4,200	2,389	812	1,577	968	1,421	1,555	834	2,064	325	0.01	4.39

Note: Please see Table A1 for variable definitions.



Assurance standards are a cornerstone of financial assurance. They provide guidance through the assurance process and deal with specific assurance matters, thereby, ensuring the quality of the assurance as a whole. Fourth, the variable *assurance scope* equals one if a firm receives assurance on its *entire* GRI report, and zero otherwise. Clearly, having the entire CSR report externally assured—rather than just parts of it—facilitates greater user confidence in the report as a whole. Selective assurance may leave the impression that critical parts of the report might intentionally be excluded from the external assurance. Fifth, the variable *assurance level* equals one if a firm receives assurance on its GRI report at a high level, and zero otherwise.¹⁵ The level of assurance refers to the extent and depth of assurance procedures performed as well as the quantity and quality of the evidence obtained (Ruiz-Barbadillo & Martinez-Ferrero, 2020). For a high level of assurance, the assurance provider must collect extensive evidence and perform rigorous tests, which lead to the conclusion that the CSR information disclosed conforms in all material aspects with the recognized appropriate criteria (Ruiz-Barbadillo & Martinez-Ferrero, 2020). In contrast, the requirements regarding the evidence collected and the tests performed are substantially reduced for a limited assurance level (Ruiz-Barbadillo & Martinez-Ferrero, 2020). Consequently, a higher level of assurance lends credibility to a CSR report. Table 1 summarizes these five decisions by country.

3.2 | Measuring culture

Culture is a complex and multi-dimensional construct. Hence, it is important to focus on a specific cultural dimension “so that it becomes easier to identify a causal link from culture to economic outcomes” (Guiso et al., 2006, p. 23). In this study, I focus on the cultural dimension *rule orientation*. In general, cultural rule orientation emphasizes people's proclivity for adhering to laws, rules, and regulations (Salvato et al., 2014; Venaik & Brewer, 2010). More precisely, people from stronger rule-oriented cultures seek “orderliness, consistency, structure, formalized procedures, and laws to cover situations in their daily lives” (House et al., 2004, p. 603). They are mentally programmed to feel comfortable in regulated environments (Salvato et al., 2014). They rely on rules, laws, and regulations when making decisions (Venaik & Brewer, 2010). They believe that matters that can be regulated should not be left to chance (House et al., 2004). In contrast, people from less rule-orientated cultures have an emotional “horror of rules” (House et al., 2004). They believe that rules should be established and followed only in case of absolute necessity, because they believe that many issues can be solved without formal rules (Venaik & Brewer, 2010).

The concept of cultural rule orientation is particularly well-suited for my study because it is related to both legal institutions and credible CSR reporting. In terms of legal institutions, I conjecture that countries with a stronger rule orientated culture have more laws and regulations in place. In terms of credible CSR reporting, I conjecture that managers of firms located in countries with a stronger rule orientated culture are more likely to make CSR reporting decisions that

comply with financial reporting regulations, even though these regulations do not apply to CSR reporting. For example, I conjecture that firms from stronger rule orientated cultures are more likely to receive assurance on their GRI reports because assurance is mandatory (i.e., mandated by the law) for financial reports.

To measure cultural rule orientation, I use the UA index from House et al. (2004) because it “represent[s] a single rule orientation component of UA” (Venaik & Brewer, 2010, p. 1304).¹⁶ More precisely, the variable *UA rule orientation* represents the UA index from House et al. (2004), with a higher variable score indicating stronger cultural rule orientation. As reported in Table 1, *UA rule orientation* ranges from 3.39 (Greece) to 5.37 (Switzerland).

The variable *UA rule orientation* is measured at the country level. Although using country-level cultural variables is the standard approach in the literature,¹⁷ a potential concern of this approach is that country-level cultural variables do not reflect the culture of firms' managers. For example, if the manager of a firm located in the US was born in another country, it is very likely that the culture of her country of birth traveled with her. In such a case, using the *UA rule orientation* score for the US would be inappropriate. Evidence suggests that such migration patterns are unlikely to bias my findings because 98% of chief executive officers (CEOs) in the US are US citizens, 90% of CEOs in Germany are German citizens, and 91% of CEOs in Italy are Italian citizens (Ahern et al., 2015).

3.3 | Measuring legal institutions

Guided by Simnett et al. (2009) and Dhaliwal et al. (2012), I use four legal institutional variables that are of particular relevance to CSR reporting: *civil law*, *labor laws*, *environmental laws*, and *CSR reporting regulations*. The first variable, *civil law*, is a dummy variable equal to one if a firm is located in a country with a civil law origin, and zero otherwise. Countries with a civil law origin are characterized by stakeholder orientation and state intervention through rules and regulations (e.g., an ex-ante delineation of appropriate behavior) (e.g., Ball & Robin, 2000; La Porta, Lopez-de-Silanes, Schleifer, & Vishny, 1997; Liang & Renneboog, 2017). In contrast, countries with a common law origin are characterized by shareholder orientation and a more discretion-oriented system that emphasizes following legal procedures over rules (e.g., Ball & Robin, 2000; La Porta et al., 1997; Liang & Renneboog, 2017). Since a civil law origin supports stakeholder orientation and rules that specify appropriate (stakeholder oriented) behavior, prior studies predict and provide evidence that firms located in countries with a civil law origin issue more credible CSR reports (e.g., Fernandez-Feijoo et al., 2015; Kolk & Perego, 2010; Simnett et al., 2009).

The second variable, *labor laws*, is the mean rank score of the following four indexes: (1) human rights laws, an index for human rights protection; (2) social security laws, an index of social security benefits based on (a) sickness and health benefits, (b) disability, old age, and death benefits, and (c) unemployment benefits; (3) collective relations laws, an index of the protection of collective relations based on

(a) collective disputes and (b) labor union power; and (4) employment laws, an index of the protection of employment and labor based on (a) dismissal procedures, (b) the cost of firing workers, (c) the cost of increasing working hours, and (d) alternative employment contracts (Dhaliwal et al., 2012; Dhaliwal, Li, Tsang, & Yang, 2014). Countries with a higher *labor laws* variable score are characterized by stronger laws that target stakeholder orientation in terms of employees. Prior studies show that firms located in countries with stronger labor laws are more likely to issue CSR reports (Dhaliwal et al., 2012; Dhaliwal et al., 2014).

The third variable, *environmental laws*, is the number of environmental laws in a country. Examples of environmental laws are the Australian Water Act 2007, the Indian Air (Prevention and Control of Pollution) Act 1981, and the Finland Forest Act 1996. Countries with a higher *environmental laws* variable score are characterized by stronger laws that target stakeholder orientation in terms of environment. Cahan et al. (2016) provide evidence that firms located in (European) countries with stronger environmental laws are more likely to issue CSR reports.¹⁸

The fourth variable, *CSR reporting regulations*, is the number of voluntary (soft) and mandatory (hard) CSR reporting regulations (for non-financial firms) in a country. Mandatory regulations are given a weight of two. Examples of mandatory CSR reporting regulations are the Revision of the Danish Financial Statements Act (The Social Responsibility for Large Businesses Law) 2008, the Brazilian Law Project no 3613/2008, and the South African King III Report 2009.¹⁹ Examples of voluntary CSR reporting regulations are the Chilean Guide for Preparing Sustainability Reports 2003, the Austrian Reporting about Sustainability Guidelines 2003, and the Malaysian CSR Framework for Voluntary Reporting. Countries with a higher *CSR reporting regulations* variable score are characterized by stronger regulations that target CSR reporting. Prior research shows that firms located in countries with stronger CSR reporting regulations are more likely to issue CSR reports (Dhaliwal et al., 2012; Dhaliwal et al., 2014).

To construct my main legal institutional variable *CSR law*, I perform a factor analysis based on the four variables described above. In particular, *CSR law* corresponds to the principal factor and, as reported in Table 1, ranges from -1.82 (Malaysia) to 1.45 (Sweden).

3.4 | Sample and data

The sample in this study comprises all GRI reports covered by the GRI Sustainability Disclosure Database (GRI SDD) between 2012 and 2016. The sample period starts in 2012 because information on the assurance process (i.e., assurance standard, assurance score, and assurance level) is not available for earlier years.²⁰ I exclude GRI reports from firms operating in the financial services industry,²¹ GRI reports from firms with missing location codes, GRI reports from firms with missing Standard Industrial Classifications (SIC) codes, and GRI reports from firms with missing data on firm-level variables. Finally, I exclude countries with less than 10 GRI reports and missing data on country-level variables. This yields a final sample (i.e., reporting

sample) of 6,589 GRI reports issued by 1,620 firms located in 31 countries. Of the 6,589 GRI reports, 2,389 (36%) are assured (i.e., assurance sample).

The decisions analyzed in this study are sequential in nature. Only if a firm decides to receive assurance on its GRI report (i.e., *assurance* = 1), it moves on to the decisions related to the assurance process (i.e., *assurance provider*, *assurance standard*, *assurance scope*, and *assurance level*). Hence, all empirical tests with *assurance* as the outcome variable are based on the reporting sample (6,589 firm-year observations). All further decisions are based on the confined assurance sample (2,497 firm-year observations).²²

I obtain data for all five-outcome variables—*assurance*, *assurance provider*, *assurance standard*, *assurance scope*, and *assurance level*—from GRI SDD. I obtain data for my main cultural variable, *UA rule orientation*, from House et al. (2004). To construct my main legal institutional variable, *CSR law*, I obtain data from Humana (1992), La Porta et al. (1997), Botero, Djankov, La Porta, Silanes, and Schleifer (2004), Dhaliwal et al. (2014), Maniora and Ernstberger (2016), and several online sources. For my country-level control variables, I obtain data from Bushman et al. (2004), Boolaky and Soobaroyen (2017), the World Bank DataBank, Compustat, and Thomson Reuters. For my firm-level control variables, I obtain data from Compustat and RobecoSAM.

4 | MAIN EMPIRICAL ANALYSES

4.1 | Path analysis

I start by performing a path analysis to analyze how cultural rule orientation shapes firms' tendencies toward credible CSR reporting.

4.1.1 | Model specification

A path analysis decomposes the *total effect* of a source variable on an outcome variable into an *indirect effect* (via a mediating variable) and a *direct effect* (Wright, 1934). This decomposition allows me to distinguish between the two possible channels through which cultural rule orientation affects credible CSR reporting. On the one hand, I can test whether the effect of cultural rule orientation on credible CSR reporting is due to cultural rule orientation improving legal institutions—and improved legal institutions *subsequently* improve the credibility of CSR reports. On the other hand, I can test whether the effect of cultural rule orientation on credible CSR reporting is due to cultural rule orientation improving the credibility of CSR reports *on its own*. In the first channel, cultural rule orientation is hypothesized to have an indirect (mediated) effect on the credibility of CSR reports via legal institutions (H1). In the second channel, cultural rule orientation is hypothesized to have a direct effect on the credibility of CSR reports (H2).

I closely follow Pevzner et al. (2015) and De Fond, Lim, and Zang (2016) by specifying the following linear path model²³:



$$CSR\ laws_c = \alpha_1 (UA\ rule\ orientation_c) + \varepsilon_{ijct}, \quad (1)$$

$$d_{ijct} = \beta_1 (UA\ rule\ orientation_c) + \beta_2 (CSR\ laws_c) + \beta_3' X_{ijct} + \beta_4' Z_{c(t)} + \psi_j + \omega_t + \varepsilon_{ijct}, \quad (2)$$

where i indexes firms, j indexes industries, c indexes countries, and t indexes years. d denotes the outcome variables (i.e., *assurance*, *assurance provider*, *assurance standard*, *assurance scope*, *assurance level*), *UA rule orientation* denotes the source variable, and *CSR laws* denotes the mediating variable. X is a vector of firm-level control variables, Z is a

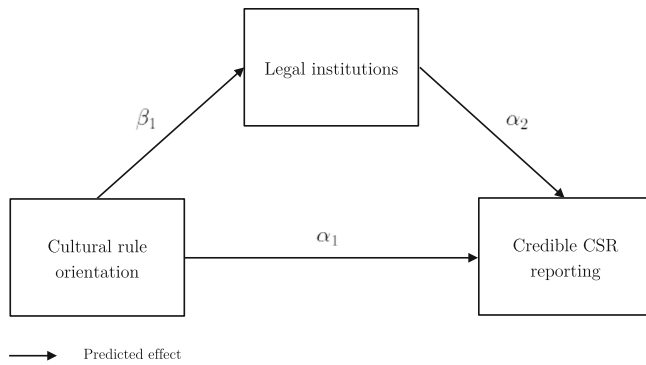


FIGURE 1 Path model

TABLE 2 Path analysis

		(1)	(2)	(3)	(4)	(5)
$d =$		Assurance	Assurance provider	Assurance standard	Assurance scope	Assurance level
Direct path						
Pa[<i>UA rule orientation</i> ; d]	$\hat{\beta}_1$	0.297*** (0.038)	0.208*** (0.052)	0.159*** (0.059)	0.199*** (0.050)	0.046 (0.038)
Mediated path						
Pa[<i>UA rule orientation</i> ; <i>CSR laws</i>]	$\hat{\alpha}_1$	0.600*** (0.089)	0.529*** (0.129)	0.529*** (0.129)	0.529*** (0.129)	0.529*** (0.129)
Pa[<i>CSR Laws</i> ; d]	$\hat{\beta}_2$	0.053*** (0.020)	0.115*** (0.022)	0.022* (0.012)	0.043** (0.017)	0.007 (0.013)
Total mediated path						
Pa[<i>UA rule orientation</i> ; <i>CSR laws</i>] × Pa[<i>CSR laws</i> ; d]	$\hat{\alpha}_1 \times \hat{\beta}_2$	0.032** (0.013)	0.061*** (0.018)	0.012* (0.006)	0.023** (0.011)	0.004 (0.007)
Control variables		yes	yes	yes	yes	yes
Industry fixed effects		yes	yes	yes	yes	yes
Year fixed effects		yes	yes	yes	yes	yes
SRMR		0.045	0.036	0.034	0.033	0.032
N		6,589	2,389	2,389	2,389	2,389

Note: This table reports coefficients and standard errors (in parentheses) from weighted linear ML path regressions. Weights are equal to the inverse of the number of firm-year observations in each country. All continuous variables are standardized with a mean of zero and a standard deviation of one. The sample comprises firm-year observations from 2012 to 2016. Fixed effects are included as indicated. Industry fixed effects are based on one-digit SIC codes. In all Columns, the following control variables are included: *CSR laws*, *rule of law*, *financial transparency*, *financial system*, *size*, *DJSI*, *leverage*, *profit*, *R&D*, *capex*, *market share*, *age*, and *earnings volatility*. In Column (2), the control variable *assurance market* is also included. In Column (3), the control variable *ISA* is also included. Standard errors are robust standard errors adjusted for clustering at the country level. Statistical significance at the 1, 5, and 10% levels is denoted by ***, **, and *, respectively. Please see Table A1 for variable definitions.

vector of country-level control variables, ψ are industry fixed effects based on one-digit SIC codes,²⁴ and ω are year fixed effects.²⁵ ε is the error term. I account for serial correlation of the error term by clustering the standard errors at the country level. I account for the uneven country representation by estimating a weighted linear path model, with the weights equal to the inverse of number of firm-year observations in each country.

The path coefficient $\alpha_1 \times \beta_2$ is the magnitude of the indirect effect (total mediated path) from *UA rule orientation* to d mediated through *CSR laws*. The statistical significance of the indirect effect is estimated using the Sobel (1982) test statistic. The path coefficient β_1 is the magnitude of the direct effect (direct path) from *UA rule orientation* to d . Figure 1 depicts the posited direct and indirect effects (paths) for the linear path model specified above, along with the respective coefficients.

4.1.2 | Findings

Table 2 reports the findings from the path analysis. In Column (1), the path coefficient estimate between *UA rule orientation* and *CSR laws* is positive ($\hat{\alpha}_1 = 0.600$) and statistically significant at the 1% level, indicating that cultural rule orientation improves CSR-related legal institutions. The path coefficient estimate between *CSR laws* and *assurance*

is also positive ($\hat{\beta}_2 = 0.053$) and statistically significant at the 1% level, indicating that improved CSR-related legal institutions increase the likelihood of firms receiving assurance on their CSR reports. Consequently, the total mediated path coefficient estimate, which is the product of these two path coefficient estimates, is positive ($\hat{\alpha}_1 \times \hat{\beta}_2 = 0.032$) and statistically significant at the 5% level. This means that *UA rule orientation* has an indirect effect on *assurance* via *CSR law*, supporting H1: culture indirectly shapes firms' tendencies toward credible CSR reporting via legal institutions. The direct path coefficient estimate between *UA rule orientation* and *assurance* is positive ($\hat{\beta}_1 = 0.297$) and statistically significant at the 1% level. This means that *UA rule orientation* has a direct effect on *assurance*, supporting H2: culture directly shapes firms' tendencies toward credible CSR reporting.

To examine whether the indirect effect or the direct effect is stronger, I compute the proportion of the total effect attributed to the indirect effect and the direct effect, respectively. The proportion attributed to the indirect effect is about 10% ($=0.032/[0.032 + 0.297] \times 100$), while the proportion attributed to the direct effect is about 90% ($=0.297/[0.032 + 0.297] \times 100$). This finding clearly suggests that the direct effect dominates in shaping firms' tendencies toward receiving assurance on their CSR reports, which means that H1 is weakly supported while H2 is strongly supported.

Columns (2) to (4) of Table 2 provide similar findings. *UA rule orientation* has an indirect effect via *CSR law* as well as a direct effect on (a) *assurance provider*, (b) *assurance standard*, and (c) *assurance scope*. The proportions of the total effects attributed to the indirect effects are about 23% for *assurance provider*, 7% for *assurance standard*, and 10% for *assurance scope*. Correspondingly, the proportions of the total effects attributed to the direct effects are about 77% for *assurance provider*, 93% for *assurance standard*, and 90% for *assurance scope*. These findings clearly suggest that the direct effect dominates in shaping firms' tendencies toward credible CSR reporting, which means that H1 is weakly supported while H2 is strongly supported.

Column (5) of Table 2 shows that *UA rule orientation* neither indirectly nor directly affects *assurance level* because both coefficient estimates (i.e., $\hat{\alpha}_1 \times \hat{\beta}_2, \hat{\beta}_1$) are not statistically significant at conventional levels.

All models, Columns (1) to (5), are well-fitted with standardized root mean square residual (SRMR) statistics being below the critical value of 0.05 (Hu & Bentler, 1999).

4.2 | Qualitative comparative analysis

To better understand the mechanisms behind the indirect effect, I employ a qualitative comparative analysis (QCA). A QCA enables me to use all four legal institutional variables (i.e., *labor laws*, *civil law*, *environmental law*, and *CSR reporting regulations*) individually.²⁶ Thereby, I can examine how their interdependence with culture as well as with each other contributes to a certain outcome

(i.e., *assurance*, *assurance provider*, *assurance standard*, *assurance scope*, and *assurance level*).

4.2.1 | Methodology

A QCA proceeds in four steps (Fiss, 2011; Ragin, 1987). In the first step, I have to decide whether to perform a crisp or fuzzy QCA. In a crisp QCA, all variables have to be transformed into dummy variables. In a fuzzy QCA, all (non-dummy) variables have to be transformed into fuzzy scores that range from zero to one. I use a crisp QCA because all my outcome variables as well as *civil law* are already dummy variables. I transform the remaining variables (i.e., *labor laws*, *environmental laws*, *CSR reporting regulations*, and *UA rule orientation*) into dummy variables by using the sample median as splitting criterion. In the second step, I have to construct a data matrix, also referred to as a truth table, with 2^k rows, where k is the number of possible combinations of attributes. Each variable has two attributes (i.e., 0 and 1). In my analysis, I have 32 rows ($=2^5$), which means I have 32 possible combinations of attributes. In the third step, I reduce the number of rows based on two conditions: (a) the minimum number of observations required for each combination of attributes, and (b) the minimum consistency level required for each combination of attributes. The minimum consistency level should be set between 0.85 and 0.75 (Ragin, 2006). In the third step, I use Boolean algebra to simplify the combinations of attributes to paths. For each path and for the entire solution (i.e., all paths together), a consistency level and a coverage rate are computed. The coverage rate simply shows (in %) how much of the outcome is covered by each path as well as the entire solution.

4.2.2 | Findings

Table 3 reports the findings from the QCA for the outcome variable *assurance provider*.²⁷ Following the notation of Fiss (2011), black circles indicate the presence of an attribute (i.e., variable = 1), white circles indicate the negation of an attribute (i.e., variable = 0), and blank spaces indicate the absence of an attribute (i.e., the variable does not contribute to the outcome). In Panel A, I set the minimum consistency level at 0.84. I identify only one path, which includes all legal institutional variables as well as culture. Specifically, this path indicates that a strong rule-oriented culture, strong labor laws, strong environmental laws, strong CSR reporting regulations, and a civil law origin are necessary for selecting an accounting firm as assurance provider. The solution consistency at 0.848 is very high, but the coverage at 0.222 is rather low. The solution consistency indicates that the presence of attributes of the variables *UA rule orientation*, *labor laws*, *environmental laws*, *CSR reporting regulations*, and *civil law* together explain only 22.2% of the outcome variable *assurance provider*.

In Panel B, I set the minimum consistency level at 0.82. I identify three paths. *UA rule orientation* is part of all three paths, *CSR reporting regulations* does not contribute to the first path, *civil law* does not contribute to the second path, and *labor laws* and *environmental laws* do

**TABLE 3** Qualitative comparative analysis

Panel A: Minimum consistency level = 0.84										
Path No.	UA rule Orientation	Labor Laws	Environment Laws	CSR reporting Regulations	Civil Law	Coverage			Solution	
						Raw	Unique	Consistency	Coverage	Consistency
1	●	●	●	●	●	0.222	0.222	0.848	0.222	0.848
Panel B: Minimum consistency level = 0.82										
Path No.	UA rule Orientation	Labor Laws	Environment Laws	CSR reporting Regulations	Civil Law	Coverage			Solution	
						Raw	Unique	Consistency	Coverage	Consistency
1	●	●	●		●	0.343	0.101	0.833	0.372	0.833
2	●	●	●	●		0.239	0.006	0.821		
3	●			●	●	0.222	0.001	0.848		
Panel C: Minimum consistency level = 0.80										
Path no.	UA rule Orientation	Labor Laws	Environment Laws	CSR reporting Regulations	Civil Law	Coverage			Solution	
						Raw	Unique	Consistency	Coverage	Consistency
1	●					0.63	0.63	0.812	0.63	0.812

Note: This table reports the results from a qualitative comparative analysis. The sample comprises firm-year observations from 2012 to 2016 ($N = 2,389$). In all panels, the outcome variable (outcome set) is Assurance Provider. The explanatory variables (explanatory sets) UA Rule Orientation, Labor Laws, Environment Laws, and CSR Reporting Regulations are transformed into dummy variables by using the sample median as splitting criterion. Black circles (●) indicate the presence of an attribute (variable = 1). White circles (○) indicate the negation of an attribute (variable = 0). Blank cells indicate the absence of an attribute (i.e., the variable does not contribute to the outcome). Please see Table A1 for variable definitions.

not contribute to the third path. This means that culture is the underlying variable of all paths, while the institutional variables can substitute each other. The solution consistency is 0.833. The solution coverage increases to 0.372, indicating that the three paths together explain 37.2% of the outcome variable *assurance provider*.

In Panel C, I set the minimum consistency level at 0.80. I identify one path, which only comprises *UA rule orientation*. This means that *UA rule orientation* alone is necessary for selecting an accounting firm as assurance provider. The solution consistency is 0.812. The solution coverage amounts to 0.630, indicating that *UA rule orientation* alone explains 63% of *assurance provider*—almost three times as much as the solution of Panel A.

Taken together, these findings are in line with the findings from the path analysis. Since the solution coverage is akin to effect size (magnitude) in regression analysis (Delmas & Pekovic, 2018), I can conclude that, as in the path analysis, the effect of cultural rule orientation *on its own* is much stronger than its effect complemented by legal institutions (0.222 [Panel A] versus 0.630 [Panel C]).

For the sake of brevity, I only briefly discuss the un-tabulated findings for the other three outcome variables (*assurance*, *assurance standard*, *assurance score*, and *assurance level*). Consistent with Panel C of Table 3, I find that *UA rule orientation* on its own well explains all three-outcome variables, respectively. The coverage ranges from 0.52 to 0.65. However, solutions including legal institutional variables are much weaker. In fact, I find no solution that covers culture as well as all other legal institutional variables (as in Panel A of Table 3), and the coverage of solutions including (at most two) legal institutional variables is much lower (0.174 at most).

4.3 | Probit regression analysis

Path analysis and QCA have established that the direct effect of culture dominates. To better understand the economic significance of this direct effect, I perform a probit regression analysis.

4.3.1 | Model specification

In line with Equation (2), I specify the following probit model:

$$\Pr\{d_{ijct}\} = \gamma_1(\text{UA rule orientation}_c) + \gamma_2(\text{CSR laws}_c) + \gamma_3'X_{ijct} + \gamma_4'Z_{c(t)} + \psi_j + \omega_t + \varepsilon_{ijct}, \quad (3)$$

where i indexes firms, j indexes industries, c indexes countries, and t indexes years. d denotes the outcome variables (i.e., *assurance*, *assurance provider*, *assurance standard*, *assurance score*, and *assurance level*). *UA rule orientation* is the cultural variable of interest. *CSR laws* controls for legal institutions related to CSR.²⁸ X is a vector of firm-level control variables. Z is a vector of country-level control variables. ψ are industry fixed effects based on one-digit SIC codes. ω are year fixed effects. ε is the error term. I account for serial correlation of the error term by clustering the standard errors at the country level. I account for the uneven country representation by estimating a weighted probit model, with the weights equal to the inverse of number of firm-year observations in each country.

TABLE 4 Probit regression analysis

	(1) Assurance	(2) Assurance provider	(3) Assurance standard	(4) Assurance scope	(5) Assurance level
JA rule orientation	1.011*** (0.119) [0.369]	0.915*** (0.198) [0.333]	0.509*** (0.176) [0.190]	0.643*** (0.171) [0.220]	0.192 (0.227) [0.028]
CSR laws	0.168*** (0.061) [0.061]	0.351*** (0.095) [0.127]	0.073* (0.039) [0.010]	0.196*** (0.068) [0.067]	0.126 (0.077) [0.004]
Rule of law	-0.499*** (0.090)	-0.040 (0.138)	-0.153 (0.127)	-0.177 (0.124)	-0.126 (0.191)
Financial transparency	0.007 (0.011)	0.029** (0.014)	0.005 (0.011)	0.021 (0.014)	0.002 (0.015)
Financial system	5.417*** (0.751)	2.161* (1.159)	2.038** (0.894)	3.190*** (1.093)	2.118* (1.211)
Size	0.107** (0.050)	0.064* (0.038)	0.044 (0.071)	-0.155** (0.070)	-0.050 (0.103)
DJSI	0.653*** (0.109)	0.066 (0.146)	0.043 (0.136)	-0.022 (0.130)	0.166 (0.167)
Leverage	-0.402 (0.261)	0.248 (0.422)	-0.104 (0.412)	-0.458 (0.367)	-0.730 (0.461)
Profit	-0.475 (0.606)	0.384 (1.116)	0.388 (1.177)	-0.522 (1.032)	-0.515 (1.378)
R&D	-0.735 (1.636)	-4.348* (2.222)	-0.348 (2.302)	-8.070*** (2.511)	0.929 (3.192)
Capex	0.636* (0.362)	0.383 (0.644)	0.103 (0.588)	-0.480 (0.706)	0.512 (0.865)
Market share	42.714*** (11.195)	56.233*** (15.671)	28.745** (14.351)	29.553* (15.249)	57.606*** (19.438)
Age	-0.006 (0.006)	-0.007 (0.011)	-0.007 (0.010)	-0.006 (0.009)	-0.009 (0.013)
Earnings volatility	0.036 (0.034)	-0.010 (0.058)	0.045 (0.046)	0.048 (0.049)	-0.010 (0.070)
Assurance market	— —	2.184*** (0.511)	— —	— —	— —
ISA	— —	— —	0.210*** (0.080)	— —	— —
Industry fixed effects	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes
Pseudo R ²	0.190	0.228	0.180	0.358	0.314
Mean VIF	1.73	1.83	1.84	1.85	1.85
N	6,589	2,389	2,389	2,389	2,389

Note: This table reports coefficients, standard errors (in parentheses), and marginal effects [in brackets] from weighted probit regressions. Weights are equal to the inverse of the number of firm-year observations in each country. The sample comprises firm-year observations from 2012 to 2016. Fixed effects are included as indicated. Industry fixed effects are based on one-digit SIC codes. Standard errors are robust standard errors adjusted for clustering at the country level. VIFs are based on linear regressions. Statistical significance at the 1, 5, and 10% levels is denoted by ***, **, and *, respectively. Please see Table A1 for variable definitions.

**TABLE 5** Additional control variables

Panel A: Controlling for additional country-level variables					
	(1) Assurance	(2) Assurance provider	(3) Assurance standard	(4) Assurance scope	(5) Assurance level
UA rule orientation	0.643*** (0.174)	1.016*** (0.273)	0.667*** (0.252)	0.689*** (0.247)	-0.294 (0.378)
GDP	0.035 (0.022)	-0.075* (0.040)	-0.050 (0.037)	-0.035 (0.038)	0.008 (0.053)
Trade openness	0.030*** (0.007)	0.003 (0.011)	-0.006 (0.008)	0.032*** (0.009)	0.028** (0.014)
Political orientation	-0.034 (0.216)	-0.061 (0.339)	0.079 (0.341)	-0.417 (0.352)	0.351 (0.483)
Assurance fee	-2.480*** (0.961)	0.187 (1.175)	-1.748 (1.066)	-2.821** (1.285)	0.853 (1.504)
Assurance risk	-0.010 (0.039)	-0.118* (0.065)	0.113** (0.046)	0.068 (0.052)	-0.155** (0.072)
Control variables	yes	yes	yes	yes	yes
Industry fixed effects	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes
Pseudo R ²	0.202	0.289	0.219	0.359	0.463
Mean VIF	2.27	2.42	2.49	2.49	2.46
N	5,628	2,099	2,099	2,099	2,099
Panel B: Controlling for additional cultural dimensions					
	(1) Assurance	(2) Assurance provider	(3) Assurance standard	(4) Assurance scope	(5) Assurance level
UA rule orientation	0.943*** (0.116)	0.874*** (0.188)	0.442*** (0.164)	0.594*** (0.175)	0.176 (0.207)
Power distance	0.227 (0.155)	-0.119 (0.243)	0.446** (0.180)	-0.134 (0.210)	-0.412* (0.233)
Collectivism	-0.120 (0.103)	-0.216 (0.178)	0.265* (0.154)	-0.185 (0.186)	-0.322 (0.208)
Gender egalitarianism	0.158** (0.065)	0.292*** (0.095)	0.046 (0.077)	0.366*** (0.091)	0.258** (0.105)
Future orientation	0.055 (0.214)	0.831** (0.357)	0.425 (0.311)	-0.468 (0.316)	0.147 (0.375)
Control variables	yes	yes	yes	yes	yes
Industry fixed effects	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes
Pseudo R ²	0.194	0.239	0.187	0.372	0.324
Mean VIF	1.83	1.88	1.97	1.97	1.97
N	6,589	2,389	2,389	2,389	2,389

Note: This table reports coefficients and standard errors (in parentheses) from weighted probit regressions. Weights are equal to the inverse of the number of firm-year observations in each country. The sample comprises firm-year observations from 2012 to 2016. Fixed effects are included as indicated. Industry fixed effects are based on one-digit SIC codes. The control variables are the same as in Table 4. Standard errors are robust standard errors adjusted for clustering at the country level. VIFs are based on linear regressions. Statistical significance at the 1, 5, and 10% levels is denoted by ***, **, and *, respectively. Please see Table A1 for variable definitions.

4.3.2 | Findings

Table 4 reports the findings from the probit regressions. In Columns (1) to (4), the coefficient estimates for the variable *UA rule orientation* are positive and statistically significant at the 1% level. They are also economically significant. In Column (1), the marginal effect (at means) indicates that a one unit increase in *UA rule orientation* increases the probability of receiving assurance by about 37 percentage points. In Column (2), the marginal effect indicates that a one-unit increase in *UA rule orientation* increases the probability of receiving assurance from an accounting firm by about 33 percentage points. In Column (3), the marginal effect indicates that a one-unit increase in *UA rule orientation* increases the probability of receiving assurance in accordance with an assurance standard by about 22 percentage points. In Column (4), the marginal effect indicates that a one-unit increase in *UA rule orientation* increases the probability of having the entire GRI report assured by about 22 percentage points. In Column (5), the coefficient estimate for the variable *UA rule orientation* is not statistically significant, indicating that cultural rule orientation does not explain the decision whether to receive assurance on a high level.

Figure A2 plots the predicted probabilities for *UA rule orientation*. In (a), the predicted probability (at means) of *assurance* = 1, *UA rule orientation* = 3.39 (its minimum) is about 9%. The predicted probability of *assurance* = 1, *UA rule orientation* = 5.37 (its maximum) is about 74%. Correspondingly, the change in predicted probability as *UA rule orientation* moves from its minimum to its maximum is about 64%. For *assurance provider* (b), the change in predicted probability is about 59%. For *assurance standard* (c), the change in predicted probability is about 36%. For *assurance scope* (d), the change in predicted probability is about 42%. These interpretations further illustrate that the economic significance of cultural rule orientation is substantial. Beyond this, Figure A2 shows that the relationship between *UA rule orientation* and all outcome variables is linear.

In terms of the legal institutional variable *CSR laws*, Table 4 shows that the marginal effects (at means) are also economically meaningful but much weaker, ranging from 6 percentage points to 9 percentage points for the statistically significant coefficient estimates.

TABLE 6 Hierarchical generalized linear modeling

	(1) Assurance	(2) Assurance provider	(3) Assurance standard	(4) Assurance scope	(5) Assurance level
UA rule orientation	0.835*** (0.059)	0.942*** (0.218)	0.566*** (0.103)	0.330*** (0.115)	-0.184 (0.207)
Control variables	yes	yes	yes	yes	yes
Industry fixed effects	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes
Variance of random effects	0.434***	0.231***	0.327***	0.366***	0.194***
N	6,589	2,389	2,389	2,389	2,389

Note: This table reports coefficients and standard errors (in parentheses) from hierarchical generalized linear regressions. The sample comprises firm-year observations from 2012 to 2016. Fixed effects are included as indicated. Industry fixed effects are based on one-digit SIC codes. The control variables are the same as in Table 4. Standard errors are robust standard errors adjusted for clustering at the country level. Statistical significance at the 1, 5, and 10% levels is denoted by ***, **, and *, respectively. Please see Table A1 for variable definitions.

Turning to the control variables, Table 4 shows that the signs are mostly consistent with prior research.²⁹ Two of the control variables are not included in all columns. First, the variable *assurance market* is only included in Column (2). I find that firms located in countries with a high assurance provider concentration (for assurance on financial reports) are more likely to select an accounting firm as assurance provider for assuring their GRI report. Second, the variable *ISA* is only included in Column (3). I find that firms located in countries that have adopted the ISAs (i.e., standards guiding the assurance process of financial reports) are more likely to receive assurance on their GRI report in accordance with an international CSR assurance standard.

All models are well-fitted with coefficients of determination (Pseudo R^2 s) ranging from 0.180 to 0.358.³⁰ Further, multicollinearity is not an issue, indicated by the low mean Variance Inflation Factors (VIFs).³¹

5 | ROBUSTNESS

In this section, I conduct several tests that address four sources of endogeneity that may bias my findings: omitted variables, reverse causality, measurement error, and self-selection (Larcker & Rusticus, 2007; Lennox, Francis, & Wang, 2012; Roberts & Whited, 2013).

5.1 | Omitted variables

Omitted (unobservable) variables are a concern of this study, as of any cross-country study. It is possible that countries differing in terms of cultural rule orientation also differ on other unobservable factors. Hence, I employ three approaches to mitigate this endogeneity concern.

First, I test whether the direct effect of cultural rule orientation on credible CSR reporting is robust to alternative sets of country-level control variables.³² Table 5 reports the estimates from probit



regressions with two alternative sets of control variables. In Panel A, I include the following five additional country-level control variables: *GDP*, *political orientation*, *trade openness*, *assurance fee*, and *assurance risk*. The inclusion of these additional control variables does not alter the coefficient estimates for *UA rule orientation*. In Panel B, I control for four additional cultural dimensions: *power distance*, *collectivism*, *gender egalitarianism*, and *future orientation*. Controlling for these additional cultural dimensions does not alter the coefficient estimates for *UA rule orientation*.

Second, I test whether the direct effect of cultural rule orientation on credible CSR reporting is robust to a hierarchical generalized linear model (HGLM) approach. This approach can partly control for unobservable country factors because it includes country random effects and cleanly separates the effects taking place at the country-level from those taking place at the firm-level (Eun, Wang, & Xiao, 2015; Lee & Nelder, 1996). Table 6 reports the results from the HGLM. In all columns, the coefficient estimates for the variable *UA rule orientation* remain unaltered. The variances of the random effects are statistically significant at the 1% level, indicating that the country random effects contribute to the explanation of the outcome variables.

Third, I test whether the direct effect of cultural rule orientation on credible CSR reporting is robust to an instrumental variable (IV) approach, using *genetic distance* as the instrument.³³ The biology-

based instrument *genetic distance* is the natural logarithm of one plus the Mahalanobis distance of the frequency of blood types A and B between the dominant populations of two countries. Table 7, Panel A, reports the coefficient estimates of the reduced-form equation from the IV probit model, showing that *genetic distance* has a positive effect on *UA rule orientation*. All coefficient estimates are positive and statistically significant at the 1% level. The coefficient estimates are also economically meaningful. Table 7, Panel B, reports the coefficient estimates of the outcome equation from the IV probit model. The direct positive effect of *UA rule orientation* (instrumented by *genetic distance*) on credible CSR reporting is highly robust. With reference to the main findings reported in Table 4, all coefficient estimates for *UA rule orientation* have the same sign and statistical significance level. The magnitudes of the coefficient estimates are considerably larger, indicating that my main findings are rather conservative. In the last row of Table 7, Panel B, I provide *p*-values for a Wald test of exogeneity. In all columns, the null hypothesis of no endogeneity is rejected.

5.2 | Reverse causality

Reverse causality is not a major concern when it comes to examining the direct link between cultural rule orientation and credible CSR reporting. It is simply implausible that credible CSR reporting has the

TABLE 7 Instrumental variable (IV) probit

Panel A: Reduced-form equation					
	(1) UA rule orientation	(2) UA rule orientation	(3) UA rule orientation	(4) UA rule orientation	(5) UA rule orientation
Genetic distance	0.485*** (0.027)	0.586*** (0.038)	0.593*** (0.041)	0.510*** (0.036)	0.601*** (0.042)
Control variables	yes	yes	yes	yes	yes
Industry fixed effects	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes
N	6,415	2,303	2,303	2,303	2,303
Panel B: Outcome equation					
	(1) Assurance	(2) Assurance provider	(3) Assurance standard	(4) Assurance scope	(5) Assurance level
UA rule orientation	1.994*** (0.244)	1.694*** (0.339)	1.220*** (0.343)	1.249*** (0.346)	0.097 (0.499)
Control variables	yes	yes	yes	yes	yes
Industry fixed effects	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes
N	6,415	2,303	2,303	2,303	2,303
Wald test of exogeneity (<i>p</i> -value)	.000	.000	.009	.002	.013

Note: This table reports coefficients and standard errors (in parentheses) from weighted LIML IV probit regressions. Weights are equal to the inverse of the number of firm-year observations in each country. The sample comprises firm-year observations from 2012 to 2016. Fixed effects are included as indicated. Industry fixed effects are based on one-digit SIC codes. The control variables are the same as in Table 4. Standard errors are robust standard errors adjusted for clustering at the country level. Statistical significance at the 1, 5, and 10% levels is denoted by ***, **, and *, respectively. Please see Table A1 for variable definitions.

power to change the culture of a country. Further, *UA rule orientation* is built on survey data that were collected between 1994 and 1997—years in which CSR reporting was not yet an important issue. However, reverse causality is a concern when it comes to examining the link between cultural rule orientation and legal institutions. It is plausible that changes in legal institutions drive changes in culture,³⁴ and not vice versa as theorized by Williamson (2000) and predicted in my path model. For example, a civil law origin might be responsible for the development of a strong rule-oriented culture. To identify the direction of causality—from culture to legal institutions or from legal institutions to culture—I specify the following two-outcome equation of an IV model:

$$CSR\ laws_c = \delta_1(UA\ rule\ orientation_c) + \delta_2'Z_c + \varepsilon_c, \quad (4)$$

$$UA\ rule\ orientation_c = \eta_1(CSR\ laws_c) + \eta_2'Z_c + \varepsilon_c, \quad (5)$$

where c indexes countries. *CSR laws* are the instrumented legal institutional variable. *UA rule orientation* is the instrumented cultural variable. Z is a vector of country-level control variables. ε is the error term. Standard errors are robust standard errors clustered at the continent level. In Equation (4), *UA rule orientation* is, as before, instrumented with *genetic distance*. In Equation (5), *CSR law* is instrumented with *settler mortality*. *Settler mortality* is also a biology-based IV, defined as the mortality rate of the first settlers in a colony.³⁵ The un-tabulated coefficient estimate for *UA rule orientation* (instrumented with *genetic distance*) is statistically significant and economically meaningful ($\hat{\delta}_1 = 1.017$, p -value = .000), indicating that causality runs from cultural rule orientation to legal institutions. By contrast, the un-tabulated coefficient estimate for *CSR laws* (instrumented with *settler mortality*) is not statistically significant ($\hat{\eta}_1 = -0.015$, p -value = .852), indicating that causality does not run from legal institutions to cultural rule orientation. These findings are in line with Williamson's (2000) theory and the specification of my path model.

5.3 | Measurement error

Measurement error—the discrepancy between a proxy and its unobservable “true” counterpart—is a concern of any cultural study

because identifying cultural dimensions and quantifying them is challenging (Caprar, Devinney, Kirkman, & Caligiuri, 2015). As discussed previously, apart from *UA rule orientation* no cultural variable exists that captures primarily cultural rule orientation. Hence, I construct a novel cultural rule orientation index based on Google search patterns in a country.³⁶ Specifically, I use the median of the yearly Google search volumes (between 2005 and 2011) for eight legal terms (looked up in the country's official language[s]) divided by the number of people regularly using the Internet.³⁷ The rationale behind this index is that people with a stronger preference for rules, laws, and regulations are more likely to search for legal terms on Google. In other words, because of their (intrinsic) urge to comply with the law, they are more likely to search for laws on Google. Table 8 reports the results for this alternative, big-data-based, cultural rule orientation index (*BD rule orientation*). The results strongly support a direct effect of cultural rule orientation on credible CSR reporting. All coefficient estimates for *BD rule orientation* are positive, economically meaningful, and statistically significant at conventional levels.

5.4 | Self-selection

The samples of this study (i.e., the reporting sample and the assurance sample) are not random because firms themselves decide (i.e., self-select) whether to issue a GRI report and, subsequently, whether to receive assurance on their GRI report. This endogenous sampling raises the concern of a self-selection bias. To mitigate this bias, I perform a Heckman probit (Heckprobit) self-selection model (Van de Ven & Van Praag, 1981). The selection instrumental variable (SIV) for the self-selection decision whether to issue a GRI report—that is, determining the reporting sample—is *Peers(GRI report)*, defined as the country-industry-year percentage of firms (excluding the focal firm) issuing a GRI report. The SIV for the self-selection decision whether to issue an assured GRI report—that is, determining the assurance sample—is *Peers(assurance)*, defined as the country-industry-year percentage of firms (excluding the focal firm) receiving assurance on their GRI report.³⁸ The un-tabulated results of the selection equations show that the SIV *Peers(GRI report)* has a

TABLE 8 Alternative cultural variable

	(1) Assurance	(2) Assurance provider	(3) Assurance standard	(4) Assurance scope	(5) Assurance level
BD rule orientation	0.011*** (0.002)	0.007*** (0.002)	0.015*** (0.003)	0.009*** (0.003)	0.005** (0.002)
Control variables	yes	yes	yes	yes	yes
Industry fixed effects	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes
Pseudo R^2	0.169	0.208	0.191	0.345	0.313
N	6,589	2,389	2,389	2,389	2,389

Note: This table reports coefficients and standard errors (in parentheses) from weighted probit regressions. Weights are equal to the inverse of the number of firm-year observations in each country. The sample comprises firm-year observations from 2012 to 2016. Fixed effects are included as indicated. Industry fixed effects are based on one-digit SIC codes. The control variables are the same as in Table 4. Standard errors are robust standard errors adjusted for clustering at the country level. Statistical significance at the 1, 5, and 10% levels is denoted by ***, **, and *, respectively. Please see Table A1 for variable definitions.

**TABLE 9** Heckprobit self-selection model

	(1) Assurance	(2) Assurance provider	(3) Assurance standard	(4) Assurance scope	(5) Assurance level
UA rule orientation	0.787*** (0.151)	0.851*** (0.224)	0.477*** (0.155)	0.756*** (0.197)	0.334 (0.250)
Control variables	yes	yes	yes	yes	yes
Industry fixed effects	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes
N	88,012	6,589	6,589	6,589	6,589
Censored N	81,423	4,200	4,200	4,200	4,200
Uncensored N	6,589	2,389	2,389	2,389	2,389
Wald test of random sample selection (<i>p</i> -value)	0.071	0.031	0.023	0.025	0.033

Note: This table reports coefficients and standard errors (in parentheses) of the outcome equation from weighted Heckprobit regressions. The results of the first-stage selection equation are not tabulated but outlined in the text. Weights are equal to the inverse of the number of firm-year observations in each country. The sample comprises firm-year observations from 2012 to 2016. Fixed effects are included as indicated. Industry fixed effects are based on one-digit SIC codes. The control variables are the same as in Table 4. Standard errors are robust standard errors adjusted for clustering at the country level. Statistical significance at the 1, 5, and 10% levels is denoted by ***, **, and *, respectively. Please see Table A1 for variable definitions.

positive, economically meaningful, and highly statistically significant effect on the self-selection decision whether to issue a GRI report (un-tabulated coefficient estimate of 0.044 with a *p*-value of .002), which applies to column (1) in Table 9. Similarly, the SIV *Peers(assurance)* has a positive, economically meaningful, and highly statistically significant effect on the self-selection decision whether to receive assurance on the GRI report (un-tabulated coefficient estimate of 0.042 with a *p*-value of .003), which applies to columns (2) to (5) in Table 9. The results of the outcome regressions of the Heckman self-selection model are reported in Table 9. The *p*-values for a Wald test of random sample selection reject the null hypothesis of no self-selection. Nonetheless, all coefficient estimates for the variable *UA rule orientation* are in line with those reported in Table 9, mitigating the concern that my main findings are driven by a self-selection bias.

6 | CONCLUSION

"[H]ow does culture affect [CSR] accounting outcomes in practice?" (Schatt et al., 2016, p. 33). "[H]ow does [culture] relate to legal institutions? [...] Which type of norms—cultural or legal—are more effective in pursuing a certain policy [...]?" (Guiso et al., 2015, pp. 336, 337). This study sheds light on these recently raised questions by examining how culture—in particular, cultural rule orientation—shapes firms' tendencies toward credible CSR reporting. I develop two competing but not mutually exclusive hypotheses. My first (economics-based) hypothesis (H1) predicts that cultural rule orientation shapes firms' tendencies toward credible CSR reporting indirectly via legal institutions. My second (sociology-based) hypothesis (H2) predicts that cultural rule orientation directly shapes firms' tendencies toward credible CSR reporting.

I find strong and consistent evidence that cultural rule orientation affects the credibility of CSR reports both directly as well as indirectly

via legal institutions. Using path analysis, I find that the direct effect is much stronger than the indirect effect. Specifically, the direct effect accounts for only 23% of the total effect, while the direct effect, at least, accounts for 77% of the total effect. I confirm the dominance of the indirect effect using QCA. The economic significance of the direct effect is identified using probit regression analysis. In essence, the hypothesized indirect effect (H1) is weakly supported, while the hypothesized direct effect (H2) is strongly supported.

The findings of this study have important implications for stakeholders, managers, and policy makers. First, it is helpful for *stakeholders* to understand the reasons behind cross-country differences regarding the credibility of CSR reports. For example, stakeholders might put more emphasis on the credibility of CSR reports when firms are located in countries with lower cultural rule orientation. Second, it is also useful for *managers* to know that not primarily legal institutions but cultural rule orientation is a determinant of credible CSR reporting. For example, when a firm's stakeholders are from countries with higher cultural rule orientation, managers should focus on increasing the credibility of their CSR report by a thorough assurance process. In doing so, managers legitimize their CSR actions and strategies in the context of culture. Third, the findings of this study should encourage supra-national and national *policy makers* to consider the rule-oriented culture of a country when implementing laws and regulations mandating the assurance of CSR reports, because how corporate decisions are made and how regulations are perceived appear to be driven by cultural rule orientation.

A few limitations are worth mentioning. First, endogeneity is a concern of this study. While I address this concern by performing a battery of robustness tests, I cannot fully rule out endogeneity since the applied (selection) instrumental variables are not perfect. Second, our findings are limited to the cultural dimension rule orientation. Third, there is a remote possibility that I have missed a few GRI-aligned CSR reports, simply because they are not included in the GRI SDD. Therefore, the control group may falsely include firm-year

observations with GRI-aligned CSR reports. This potential misclassification is likely to be biased against, rather than in support of, my findings.

These limitations notwithstanding, I believe the findings of this study provide interesting insights and open avenues for future research. For example, exploring other cultural dimensions or examining recent regulatory changes would be worthwhile.

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ENDNOTES

- ¹ CSR reporting can be defined as the reporting about “economic, environmental, and social impacts caused by [an organization’s] everyday activities” (<http://globalreporting.org>). CSR reporting may also referred to as non-financial reporting, sustainability reporting, corporate responsibility reporting, sustainable development reporting and accountability reporting.
- ² Similarly, Simnett, Vanstraelen, and Chua (2009), Kolk and Perego (2010), De Beelde and Tuybens (2015), and Ruiz-Barbadillo and Martinez-Ferrero (2020) have examined the effect of legal institutions on certain CSR assurance decisions.
- ³ By 2016, China, Denmark, Malaysia, South Africa, and India had mandated CSR reporting in some way (Chen, Hung, & Wang, 2018; Ioannou & Serafeim, 2017; Manchiraju & Rajgopal, 2017). However, no country mandates that firms issue a stand-alone CSR report in alignment with the Global Reporting Initiative (GRI) standards, or mandates its assurance. Since this study focuses on corporate decisions related to the assurance process of GRI-aligned CSR reports, all decisions are voluntary around the world.
- ⁴ For example, prior studies show that culture has a direct effect on corporate investment decisions (Shao, Kwok, & Zhang, 2013), earnings management (Han, Kang, Salter, & Yoo, 2010), CSR performance (Ioannou & Serafeim, 2012), auditor choice (Hope, Kang, Thomas, & Yoo, 2008), CSR reporting (Cahan, Villiers, Jeter, Naiker, & Staden, 2016; Luo & Tang, 2016; Orij, 2010), integrated reporting (Garcia-Sanchez, Rodriguez-Ariza, & Frias-Aceituno, 2013), and corporate cash holding (Chen, Doub, Rheec, Truong, & Veeraraghavan, 2015).
- ⁵ For example, studies based on the general concept of UA include Luo and Tang (2016), Cahan et al. (2016), Han et al. (2010), Garcia-Sanchez et al. (2013), Kanagaretnam, Lim, and Lobo (2014), Chen et al. (2015), and Dou, Truong, and Veeraraghavan (2016).
- ⁶ For example, the following studies examine firms decisions whether or not to receive assurance on their CSR reports and/or whether or not to receive assurance from an accounting firm: Simnett et al. (2009), Kolk and Perego (2010), Herda et al. (2014), De Beelde and Tuybens (2015), Casey and Grenier (2015), Fernandez-Feijoo et al. (2015), and Peters and Romi (2015). In addition, Ruiz-Barbadillo and Martinez-Ferrero (2020) examine firms decision whether or not to receive CSR assurance on a high level.
- ⁷ Some scholars distinguish between informal and formal institutions rather than culture and legal institutions. I follow Alesina and Giuliano (2015), and others, who use culture and legal institutions.
- ⁸ Williamson (2000) builds on the work of North (1991), who stresses the interdependence of culture and legal institutions but does not specify the nature of the interdependence (i.e., how culture and legal institutions are related).

- ⁹ Simnett et al. (2009), Kolk and Perego (2010), De Beelde and Tuybens (2015), Ruiz-Barbadillo and Martinez-Ferrero (2020), and Zhou et al. (2016) are most closely related to my study. Further studies examining the effect of legal institutions on accounting-related corporate decision-making include, but are not limited to, Ball and Robin (2000), Bushman, Piotroski, and Smith (2004), Herda et al. (2014), Fernandez-Feijoo et al. (2015), Isidro and Marques (2015), and Cahan et al. (2016).
- ¹⁰ Legal origin based on code law and common law is also referred to as (legal) stakeholder orientation for code law countries and (legal) shareholder orientation for common law countries.
- ¹¹ The quality of the legal environment may also referred to as (legal) enforcement or rule of law.
- ¹² For example, prior studies show that culture has a direct effect on CSR reporting (Cahan et al., 2016; Luo & Tang, 2016; Orij, 2010), integrated reporting (Garcia-Sanchez et al., 2013), CSR performance (Ioannou & Serafeim, 2012), earnings management (Han et al., 2010), auditor choice (Hope et al., 2008), and corporate investment decisions (Shao et al., 2013).
- ¹³ By 2016, China, Denmark, Malaysia, South Africa, and India mandated CSR reporting in some way (Chen et al., 2018; Ioannou & Serafeim, 2017; Manchiraju & Rajgopal, 2017). However, no country mandates that firms issue a stand-alone CSR report in alignment with the GRI standards, or mandates assurance on firms’ CSR reports. Since this study focuses on corporate decisions related to the assurance process of GRI-aligned CSR reports, all decisions are completely voluntary around the world.
- ¹⁴ Empirical evidence supports this reasoning. For example, Pflugrath, Roebuck, and Simnett (2011) show that analysts regard CSR reports as more credible when assured by an accounting firm.
- ¹⁵ The information on the level of assurance is obtained from the GRI SDD. It is possible that CSR reports receive a high-level of assurance only for specific parts. In this case, we follow the classification of the GRI.
- ¹⁶ The most prominent measurement systems for culture are Hofstede (1980) and House et al. (2004) (i.e., GLOBE). “Hofstede has originated one of the most influential frameworks in international business research. No less impressive is the scale of the GLOBE project, which is probably the most sophisticated project undertaken in international business research” (Leung, 2006, p. 881). While both provide data on identical cultural dimensions (e.g., UA), they acknowledge substantial differences between identical cultural dimensions (Hofstede, 2006; Javidan, House, Dorfman, Hanges, & De Luque, 2006). For example, Hofstede’s UA index captures stress orientation, while GLOBE’s UA index captures rule orientation (Venaik & Brewer, 2010). A unique feature of the GLOBE project is that, for each cultural dimension, it provides a practices index and a values index. I use GLOBE’s UA practices index rather than its UA values index because the practices index captures how cultural rule orientation is practiced in a country (labeled “as is” culture), while the values index captures how cultural rule orientation should be practiced in a country (labeled as “should be” culture). While I believe that the UA index from GLOBE is the most appropriate cultural dimension with respect to my research question, for a different research question other cultural dimensions or other measurement systems might be more appropriate. For example, when examining the concept of cultural secrecy the Hofstede cultural dimensions might be more appropriate (Hope et al., 2008).
- ¹⁷ Studies using country-level cultural variables include, but are not limited to, Hope et al. (2008), Han et al. (2010), Orij (2010), Ioannou and Serafeim (2012), Garcia-Sanchez et al. (2013), Shao et al. (2013), Kanagaretnam et al. (2014), Ahern, Daminielli, and Fracassi (2015), Cahan et al. (2016), Chen et al. (2015), Pevzner, Xie, and Xin (2015), Dou et al. (2016), Luo and Tang (2016), and Gorodnichenko and Roland (2017).
- ¹⁸ Specifically, Cahan et al. (2016) use an environmental performance index that includes a legal component (i.e., environmental performance index from the view of law).



- ¹⁹ No country mandates the issuance of a GRI report and/or mandates assurance.
- ²⁰ The GRI SDD is the only database that covers information on assurance standards, assurance scope, and assurance level.
- ²¹ I exclude firms operating in the financial services industry because of their exposure to regulatory oversight. In un-tabulated tests, I also exclude firms operating in the utilities industry because they too are exposed to some regulatory oversight. The un-tabulated estimates are qualitatively similar to the ones reported in Table 2, Table 3, and Table 4, indicating that our inferences are not driven by the inclusion of utility firms.
- ²² Prior studies use the same sequential samples for their empirical analyses (Casey & Grenier, 2015; Peters & Romi, 2015; Simnett et al., 2009; Zhou et al., 2016).
- ²³ Although all five outcome variables are dummy variables, I specify a linear path model for computational reasons (following De Fond et al., 2016). In Section 4.3, I specifically account for the fact that the outcome variables are dummy variables by specifying a probit model. In performing the linear path model, I estimate a maximum likelihood (ML) structural equation model (SEM).
- ²⁴ For the sake of consistency, I do not include higher dimensional industry fixed effects (i.e., two, three, or four-digit SIC codes) because this would lead to an incidental parameters problem in a probit regression (see Section 4.3). However, I re-estimate the linear path model with fixed effects based on four-digit SIC codes. The un-tabulated estimates are similar to the ones reported in Table 2.
- ²⁵ Because *UA rule orientation* and *CSR laws* are time-invariant variables, it is not feasible to control for country fixed effects or firm fixed effects.
- ²⁶ Leuz and Wysocki (2016) encourage the use of QCA in order to identify multiple pathways.
- ²⁷ I focus on the findings for *assurance provider* because the path analysis reveals that the indirect effect is strongest for this variable.
- ²⁸ Gow et al. (2016, p. 485) stress that including a mediating variable as a control variable yields more conservative estimates "if [and only if] the indirect effect via mediators is of the same sign as the direct (i.e., unmediated) effect." My path analysis reveals that this is the case. Hence, including *CSR Laws* in Equation (3) ensures that I by no means overestimate the economic significance of the coefficient γ_1 .
- ²⁹ The only variable for which the sign of a statistically significant coefficient estimate changes is *Size*. I find that larger firms are more likely to receive assurance on their GRI report (Column [1]), are more likely to select an accounting firm as assurance provider (Column [2]), but are less likely to receive assurance on their entire CSR report (Column [3]). While the positive coefficient estimates in Columns (1) and (2) are in line with prior studies, the negative coefficient estimate in Column (3) is also plausible. For larger firms, having all CSR processes assured is more difficult, takes more time, and is costlier. Hence, firms may choose to have only parts (i.e., specific processes) assured.
- ³⁰ Prior studies have similar Pseudo R^2 s (Herda et al., 2014; Kolk & Perego, 2010; Zhou et al., 2016).
- ³¹ VIFs are based on linear regressions. All un-tabulated individual VIFs are well below the critical value of 10.
- ³² Larcker and Rusticus (2010, p. 196) stress that an important first step is to "incorporate additional control variables [...] that mitigate the endogeneity problem."
- ³³ *Genetic distance* is an appropriate IV. The choice of this variable is deeply rooted in co-evolutionary theory, which treats genetics and culture as intertwined evolutionary forces (Durham, 1991; Feldman & Laland, 1996; Henrich et al., 2005). More precisely, scholars predict, and provide evidence indicating, that genetic changes precede cultural changes (e.g., Chiao & Blizinsky, 2010; Fisher & Ridley, 2013; Vallender, Vallender, Mekel-Bobrov, & Lahn, 2008). Consistent with co-evolutionary theory, un-tabulated results of the first stage regressions show that *genetic distance* has a positive effect on *UA rule orientation* (p -values $<.01$). These theoretically rooted empirical findings indicate that my chosen IV variable, *genetic distance*, satisfies the relevance condition. I also argue that *genetic distance* satisfies the exclusion condition. Variables based on genetics are truly exogenous because it is impossible to "choose" genetics, such as blood type. In addition, blood types are "neutral" genetic markers that do not determine evolutionary fitness (i.e., the ability to run, work, think, etc.) (Cavelli-Sforza, Menozzi, & Piazza, 1994; Gorodnichenko & Roland, 2017). Therefore, it is reasonable to argue that *genetic distance* does not directly affect corporate decision-making. However, *genetic distance* might affect corporate decision-making indirectly through cultural dimensions other than *UA rule orientation*. Gorodnichenko and Roland (2017) provide evidence suggesting that Genetic Distance affects the cultural dimension of collectivism. But since *collectivism* does not affect credible CSR reporting (see coefficient estimates for *Collectivism* in Panel B of Table 5), it is reasonable to argue that *genetic distance* does not affect credible CSR reporting indirectly through *collectivism*. The only cultural dimension, apart from *UA rule orientation*, that systematically affects credible CSR reporting is *gender egalitarianism* (see coefficient estimates for *gender egalitarianism* in Panel B of Table 5). To mitigate the concern that *genetic distance* affects credible CSR reporting indirectly through *gender egalitarianism*, I test whether *genetic distance* affects *gender egalitarianism*. I find no empirical support for such an effect (coefficient estimate for *gender egalitarianism* is -0.134 with a corresponding p -value of $.362$). Taken together, I am confident that *genetic distance* is a valid instrument, plausibly satisfying both the relevance condition as well as the exclusion condition.
- ³⁴ Guiso et al. (2015, p. 337) acknowledge the possibility of a two-way causality, stating that "culture underpins and colors the law, but legal institutions can shape cultural norms."
- ³⁵ The rationale behind this IV is that in places (colonies) where the settlers faced high mortality rates (due to an unfavorable disease environment), they could not install and enforce the legal institutions of their country of origin (Acemoglu, Johnson, & Robinson, 2001). Since *settler mortality* has a positive impact on *CSR laws* (un-tabulated coefficient estimate of 0.044 with a corresponding p -value of $.003$), I confidently conclude that *settler mortality* satisfies the relevance condition. I am also confident that *settler mortality* satisfies the exclusion condition because mortality is truly exogenous. In addition, all legal institutional variables are grounded in legal origin (Isidro, Nanda, & Wysocki, 2016), which makes *civil law* the primary channel through which *Settler Mortality* works. Hence, I am confident that *settler mortality* is a valid IV.
- ³⁶ The methodological approach is inspired by Preis, Moat, Stanley, and Bishop (2012), who construct a cultural future orientation index based on Google search patterns.
- ³⁷ I use the following legal terms: law, regulation, directive, legislation, statute, treaty, constitution, and legal case.
- ³⁸ I argue that these variables are relevant because theoretical work predicts and empirical evidence shows spillover effects of peer firms in terms of financial reporting and CSR (Cao, Liang, & Zhan, 2019; Dye & Sridhar, 1995). The statistically significant and economically meaningful coefficients for *Peers(GRI report)* and *Peers(assurance)* indicate that my chosen SIVs satisfy the relevance conditions. I am also confident that my SIVs satisfy the exclusion condition. Following prior studies, I argue that these variables are exogenous to the extent that they capture decisions made by other firms and not by the focal firm itself (e.g., Cheng, Ioannou, & Serafeim, 2014; Zhou et al., 2016). In addition, it is unlikely that they affect the outcome

variable through any channel other than the sample selection variable itself (Zhou et al., 2016), because both SIVs represent, by construction, an (at least partly) exogenous subset of their respective sample selection variable.

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APPENDIX

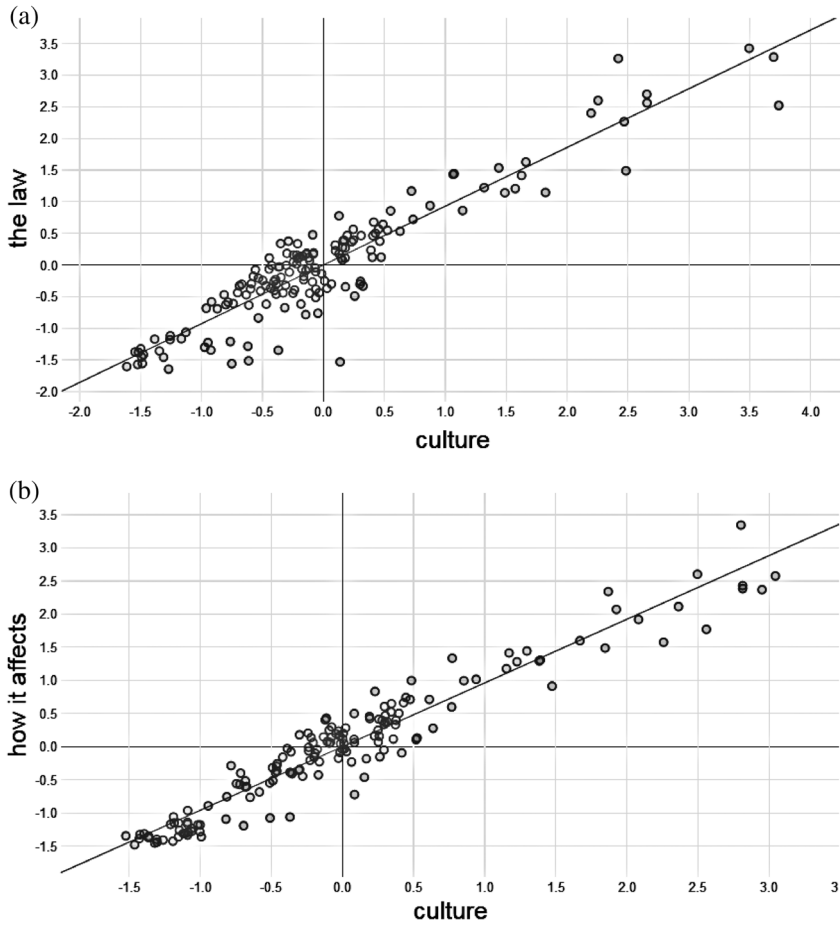


FIGURE A1 Correlations of Google web search activities. (a) shows the correlation of the web search activities for the terms “culture” and “the law” in Australia. The Pearson correlation coefficient is 0.928. (b) shows the correlation of the web search activities for the terms “culture” and “how it affects” in the United States. The Pearson correlation coefficient is 0.961. Source: Google Correlate (November 16, 2017)

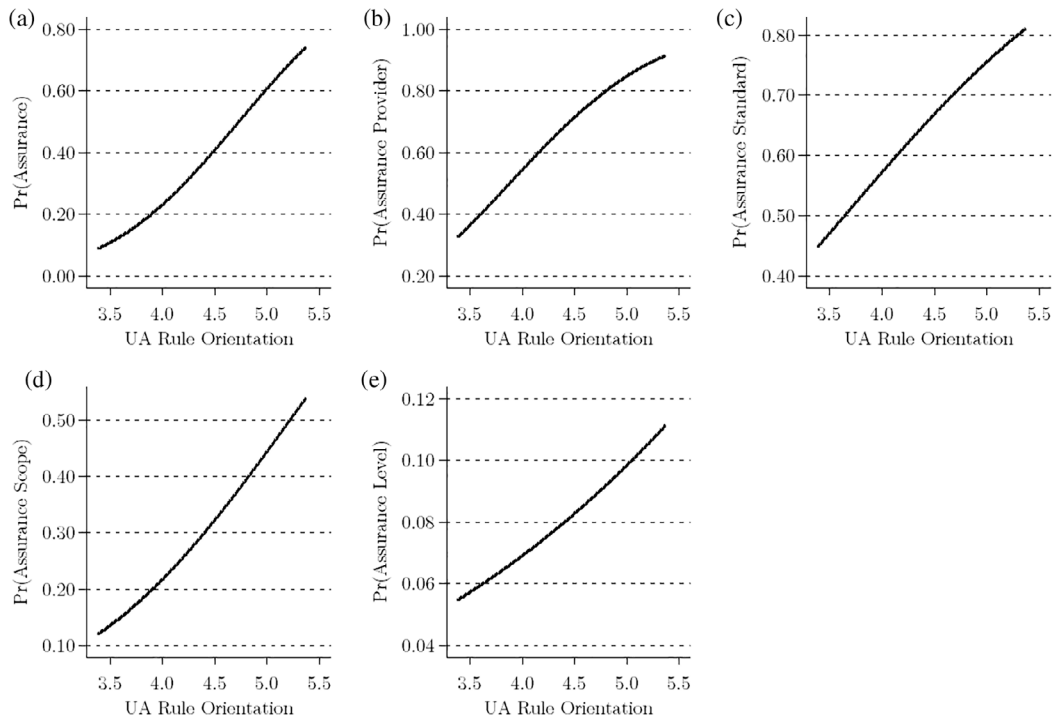


FIGURE A2 Predicted probabilities. This figure shows predicted probabilities based on the probit regressions reported in Table 4. Please see Table A1 for variable definitions

TABLE A1 Variable definitions

Variable name	Definition
CSR reporting variables	
Assurance _{ijct}	Dummy variable equal to one if the firm receives assurance on its GRI report, and zero otherwise. Data source: GRI Sustainability Disclosure Database (GRI SDD)
Assurance level _{ijct}	Dummy variable equal to one if the firm receives assurance on its GRI report on a high (reasonable) level, and zero otherwise. Data source: GRI SDD
Assurance provider _{ijct}	Dummy variable equal to one if the firm receives assurance on its GRI report from an accounting firm, and zero otherwise. Data source: GRI SDD
Assurance scope _{ijct}	Dummy variable equal to one if the firm receives assurance on its entire GRI report, and zero otherwise. Data source: GRI SDD
Assurance standard _{ijct}	Dummy variable equal to one if the firm receives assurance on its GRI report in accordance with an international assurance standard (AA1000AS and/or ISAE 3000), and zero otherwise. Data source: GRI SDD
GRI report _{ijct}	Dummy variable equal to one if the firm issues a GRI report, and zero otherwise.
Peers (assurance) _{ijct}	The country-industry-year percentage of firms (excluding the focal firm) receiving assurance on their GRI report.
Peers (GRI report) _{ijct}	The country-industry-year percentage of firms (excluding the focal firm) issuing a GRI report.
Cultural variables	
BD rule orientation _c	The median of the Google search volume (between 2005 and 2015) of legal terms (e.g., law, regulation, constitution) in the country's official language(s) divided by the number of people regularly using the Internet. Data source: Google Trends, Global competitiveness reports of the World Economic Forum (www.weforum.org/reports/), Population and vital statistics reports of the United Nations (https://unstats.un.org/unsd/demographic/products/vitstats/)
Collectivism _c	Institutional collectivism practices index from House et al. (2004). A higher index score indicates a higher degree of collectivism.
Future orientation _c	Future orientation practices index from House et al. (2004). A higher index score indicates a higher degree of future orientation.
Gender egalitarianism _c	Gender egalitarianism practices index from House et al. (2004). A higher index score indicates a higher degree of gender egalitarianism.
Power distance _c	Power distance practices index from House et al. (2004). A higher index score indicates a higher degree of power distance.
UA rule orientation _c	Uncertainty avoidance practices index from House et al. (2004). A higher index score indicates a higher degree of rule orientation.
Legal institutional variables	
Civil law _c	Dummy variable equal to one if the country has civil law origin, and zero otherwise. Data source: La Porta et al. (1997)
CSR laws _c	The principal factor of the variables <i>civil law</i> , <i>CSR reporting regulations</i> , <i>environment laws</i> , and <i>labor laws</i> .
CSR reporting regulations _c	Number of voluntary and mandatory CSR reporting regulations for non-financial firms in 2016. Mandatory regulations are given a weight of two. Data source: Maniora and Ernstberger (2016), Dhaliwal et al. (2014), https://carrotsandsticks.net/ , http://reportingcsr.org , http://globalreporting.org , http://iri.hks.harvard.edu/files/iri/files/corporate_social_responsibility_disclosure_3-27-15.pdf
Environment laws _c	Number of environmental laws in 2016. Data source: https://ecolex.org , https://www.lexadin.nl/wlg/legis/nofr/legis.php https://en.wikipedia.org/wiki/List_of_environmental_laws_by_country , https://github.com/gchapron/LegalBoundaries/tree/master/Countries , and gov-ernment websites
Labor laws _c	Mean rank score of the following indexes: (1) human rights laws, (2) social security laws, (3) collective relations laws, and (4) employment laws. The first index is from Humana (1992). The remaining three indexes are from Botero et al. (2004). A higher variable score indicates greater protection of labor rights and benefits.
Other variables	
Age _{ijct}	Number of years the firm has been covered by Compustat.
Assurance fee _{ct}	Country median of assurance fees (paid for assurance on financial reports) divided by total assets. Data source: Thomson Reuters
Assurance litigation risk _c	Assurance providers' litigation risk index from Wingate (1997). A higher index indicates a higher degree of assurance providers' litigation risk.
Assurance market _{ct}	Assurance provider concentration (for assurance on financial reports) in the country. Assurance provider concentration is measured by the number of clients of the market leader (assurance firm with the most clients) divided by the total number of clients of all assurance firms. Data source: Thomson Reuters
Assurance risk _c	The principal factor of the variables <i>Assurance litigation risk</i> , <i>assurance work environment</i> , and <i>risk aversion</i> .

(Continues)



TABLE A1 (Continued)

Variable name	Definition
Assurance work environment _c	The sum of the first seven items of the assurance providers' working environment index from Brown, Preiato, and Tarca (2014). A higher index score indicates a higher quality of assurance providers' working environment.
Capex _{ijct}	Capital expenditures divided by total sales. Data source: Compustat
DJSI _{ijct}	Dummy variable equal to one if the firm is included in the Dow Jones Sustainability World Index, and zero otherwise. Data source: RobecoSAM
Earnings volatility _{ijct}	Natural logarithm of one plus the ex-ante time-series standard deviation of earnings per share (EPS), using a rolling window of 10 years. Data source: Compustat
Financial transparency _c	Financial disclosure index developed by the Center for International Financial Analysis and Research (CIFAR) (1995). I obtain the CIFAR country scores from Bushman et al. (2004).
Financial system _{ct}	Country-median of firms' debt over total assets (based on Compustat universe). Data source: Compustat
Genetic distance _c	Mahalanobis distance (M_{ST}) of the frequency of blood types A and B between the dominant populations of two countries. A higher MST score indicates greater blood distance from the United States. I use the natural logarithm of M_{ST} , that is, $\ln(1 + M_{ST})$. Data source: Online appendix of Gorodnichenko and Roland (2017)
GDP _{ct}	Natural logarithm of GDP per capita (constant 2011). Data source: The World Bank DataBank (World Development Indicators)
ISA _c	Dummy variable equal to one if the ISA are adopted in 2012, and zero otherwise. Data source: Boolaky and Soobaroyen (2017)
Leverage _{ijct}	One minus the ratio of equity over total assets. Data source: Compustat
Market share _{ijct}	Total sales divided by the total sales of all firms in the same industry. Data source: Compustat
Political orientation _c	Percentage of years (1928–1995) during which both the largest party in congress and the party of the chief executive had center or left political orientation. Data source: Botero et al. (2004)
Profit _{ijct}	Return on assets. Data source: Compustat
R&D _{ijct}	Research and development expenditures over total assets. I assume that R&D is zero if data are missing. Data source: Compustat
Risk aversion _c	Risk aversion index from Rieger, Wang, and Hens (2015). A higher index score indicates a higher degree of risk aversion.
Rule of law _{ct}	Rule of law index. A higher index score indicates a higher quality of the legal environment. Data source: The World Bank DataBank (Worldwide Governance Indicators)
Settler mortality _c	Settler mortality index from Acemoglu et al. (2001).
Size _{ijct}	Natural logarithm of total sales. Data source: Compustat
Trade openness _c	Constructed trade share from Frankel and Romer (1990). A higher variable score indicates a higher degree of trade openness.

Note: i , j , c , and t denote firm, industry, country, and year indexes, respectively. All firm-level variables with no natural lower and upper bounds are winsorized at the first and 99th percentiles.