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National Culture and the Value Implications of Corporate Environmental and Social Performance☆

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ABSTRACT

We examine why environmental and social (E/S) performance vary across countries and firms, and evaluate the value implications. Using a sample of 33,021 firm-year observations representing 4587 firms from 43 countries over the 2003–2015 period and applying hierarchical linear modeling, we find that individualism is positively associated with firm-level E/S performance. We show that two country-level channels—freedom of the press and protection of equal rights—and three firm-level channels—managerial discretion, board diversity, and corporate transparency—link individualism to E/S performance. We find a positive association between firm-level E/S performance and firm value, with three firm-level channels—cash flows, cash flow variability, and cost of equity—linking E/S performance to firm value. This positive association is stronger in more individualistic countries. Finally, we find that internationalization weakens the role of national culture; however, it accentuates the positive association between firm-level E/S performance and firm value.

1. Introduction

In this paper, we examine why environmental and social (E/S) performance varies across countries and firms, and whether such variation matters to firm value, focusing on the role of national culture. Different from prior cross-country studies that generally consider national culture as a control variable in influencing firm-level E/S performance (e.g., Ioannou and Serafeim, 2012; Liang and Renneboog, 2017), our paper is one of the first in the E/S performance literature to identify country- and firm-level channels that may link national culture, firms' E/S performance, and firm value in an international setting.

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National culture—the "beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation" (Guiso et al., 2006, p. 23)—has been shown to affect a wide range of corporate policies (Aggarwal et al., 2016). We focus on the individualism dimension in Hofstede's (1980, 2001) national cultural framework. This dimension, which captures the degree to which individuals are embedded in in-groups, is the most important driver of cultural differences across countries (Aggarwal et al., 2016; Triandis, 1995) and is associated with important economic outcomes (e.g., Gorodnichenko and Roland, 2011).

We expect the association between individualism and firm-level E/S performance depends on the relative strength of three underlying forces. On the one hand, we argue that national differences in individualism are positively associated with firm-level E/S performance because the supply of E/S performance by managers (Gray, 1988; Hofstede, 2011; Griffin et al., 2017) and the demand for E/S performance by customers and employees (Allik and Realo, 2004; Nikolaev et al., 2017; Williams and Zinkin, 2008) may both be greater in individualistic societies. On the other hand, the supply of E/S performance may be greater in collectivistic societies due to national culture's influences on government ownership and regulation, contributing to a negative association between individualism and firm-level E/S performance.

Next, we turn to the value implications of E/S performance. We argue that E/S performance enhance firms' reputations, and reduce the occurrence of, and litigation costs associated with, environmentally or socially irresponsible behavior. Thus, they can affect firm value by increasing cash flows and lowering risk, which in turn reduces the cost of capital. We propose that the impact of E/S performance on firm value is greater in more individualistic countries because stakeholders expect and reward equal treatment of different stakeholder groups. This leads to a stronger E/S performance–firm value relation within individualistic countries. Further, we propose that internationalization has a dual effect—it weakens the link between culture and firm-level E/S performance, while strengthening the link between firm-level E/S performance and firm value.

To test our hypotheses, we obtain firm-level E/S scores from Thomson Reuters' ASSET4 ESG database. We use two proxies for individualism based on Hofstede's original scores and on answers to the World Values Survey (WVS). Our analysis is based on a sample of 33,021 firm-year observations representing 4587 unique firms from 43 countries over the 2003–2015 period and employs hierarchical linear modeling (HLM) to disentangle the relations among culture, E/S performance, and firm value within and across countries. We find that individualism is positively and significantly related to the firm-level E/S performance. Economically, a one-standard-deviation increase in individualism (Hofstede) (individualism (WVS)) is associated with an 11% (13%) increase in the E/S score. Our investigation of the channels that link individualism to E/S performance suggests that individualism may work through greater freedom of the press, and greater protection of equal rights, and greater firm-level managerial discretion, board diversity, and corporate transparency.

With respect to the value implications of E/S performance, we find that, both within and across countries, there is a positive and significant relation between the level of firm-level E/S performance and firm value. In addition, we show that the positive within-country association between firm-level E/S performance and firm value is stronger in more individualistic countries. This suggests that the reward for E/S engagement is higher in those countries with more positive attitudes towards E/S performance. Our investigation of the channels that link E/S performance to firm value suggests that, both within and across countries, E/S performance may work through higher levels and lower variability of cash flows, as well as through a lower cost of equity.

We next examine whether internationalization changes the role of national culture in firm-level E/S performance. We find that the positive association between individualism and firm-level E/S performance is weakened for multinational corporations, whereas the positive association between firm-level E/S performance and firm value is strengthened. We conclude that internationalization weakens the role of culture; however, it accentuates the positive association between E/S performance and firm value.

We conduct a number of robustness tests, using an alternative E/S performance measure from the MSCI's Intangible Value Assessment database following Liang and Renneboog (2017), separately using environmental and social performance scores, and excluding firms from the U.S., U.K., and Japan. In all cases, our main results remain largely unchanged.

Our paper makes a number of important contributions to the growing finance literature on E/S performance. First, prior studies have focused largely on the value implications of E/S performance in the U.S., with less attention directed to the question of why E/S performance varies across different countries and regions.[1] We propose a conceptual framework that highlights the role of the national cultural dimension of individualism in explaining variations in E/S performance across countries and firms, and we identify country- and firm-level channels through which individualism may influence E/S performance. Second, we develop testable predictions on the value implications of E/S performance across countries and firms and identify potential channels through which E/S performance may influence firm value. Third, we examine how internationalization influences the links between national culture and firm-level E/S performance, and between firm-level E/S performance and firm value. Finally, by using an HLM specification, we distinguish between the country- and firm-level determinants of firm-level E/S performance, examine potentially different value implications of E/S performance across and within countries, and test whether the within-country relation between E/S performance and firm value varies across countries according to the degree of individualism.

Overall, our findings suggest that national culture has an economically important role in both E/S performance around the world and the value implications of E/S performance beyond the role of legal context (e.g., Liang and Renneboog, 2017). Deriving causal inferences from the associations of culture, E/S performance, and firm value is especially challenging in an international context, and thus our findings should be interpreted with this caveat and caution.

[1] Gallen and Peralta (2018) examine how national cultural dimensions affect corporate social responsibility (CSR) disclosure when countries are stratified by GDP per capita. Using a sample of 44 countries over the period 2007–2012 and Hofstede's cultural dimensions, they find that the relationships of cultural dimensions with CSR disclosure are not homogeneous between countries – instead they are influenced by the level of wealth of the countries as measured by GDP per capita.

2. Hypothesis development

National cultural values define what constitutes appropriate decisions and behaviors in a society (North, 1990), including its firms' responsibilities to both their shareholders and non-shareholding stakeholders. We propose that cross-country differences in the provision of firm-level E/S performance reflect the balance of three forces: 1) the supply of E/S performance by managers; 2) the demand for E/S performance by customers and employees; and 3) the effect on E/S performance from government ownership and/or regulation.

To analyze this balance of forces, we rely on the widely adopted cultural framework of Hofstede (1980, 2001), who originally identified four dimensions of national culture: individualism/collectivism, power distance, masculinity/femininity, and uncertainty avoidance. We focus on individualism, the most important and widely researched dimension of cultural differences (Triandis, 1995), which has been shown to affect a wide range of corporate policies (Aggarwal et al., 2016).

We first discuss how national culture relates to managers' E/S performance decisions. Individualistic societies emphasize independence and equality among different stakeholder groups and the importance of "speaking one's mind" (Hofstede, 2011, p. 11), whereas collectivistic societies emphasize in-groups' interests and harmony (Trompenaars, 1993; Hofstede, 2001, 2011). Specifically, individualistic societies encourage independent opinions; collectivistic societies encourage conformity based on in-groups' perspectives. Thus, managers in individualistic societies are given more discretion and are expected to be more accountable for their decisions (for empirical support, see Crossland and Hambrick (2011)). They also respect the rights of all stakeholder groups and favor transparency (Gray, 1988; Hofstede, 2011) by, for example, mitigating environmental impact, improving workers' conditions, and disclosing their firms' E/S performance. In contrast, managers in collectivistic societies are given less discretion and are expected to prioritize the interests of in-groups (i.e., large shareholders) (e.g., Griffin et al., 2017). They also restrict disclosure and give less consideration to the welfare of out-groups, such as by investing to maintain a healthy environment and safe working conditions.

Furthermore, we expect managers to anticipate the role of culture in shaping non-shareholding stakeholders' (e.g., customers and employees) demand for firm-level E/S performance. For example, it is well documented in the marketing and economics literatures that socially responsible customers have more positive perceptions of high-E/S performing firms and tend to be loyal, resistant to negative information about those firms, and willing to pay higher prices (Luo and Bhattacharya, 2006; Servaes and Tamayo, 2013; for a review, see Kitzmueller and Shimshack, 2012). Moreover, employees' perceptions of E/S performance induces positive employee-related outcomes according to prior research. The model in Rupp et al. (2006) suggests that corporate E/S performance helps shape employees' attitudes and behaviors such as organizational attractiveness and commitment, as well as job satisfaction and performance. Similarly, Glavas and Piderit (2009) present a model and evidence suggesting that higher employees' E/S performance perceptions is associated with higher levels of engagement and creative involvement, and better connections. Carnahan et al. (2017) show that employees are less likely to quit firms with high E/S engagement following tragic events. Flammer and Luo (2017) provide evidence suggesting that firms strategically increase investments in employee-related E/S activities to improve job motivation and engagement.

Parallel to our discussion on cultural influences on managerial decisions, we expect that the preferences of customers and employees are also shaped by their national cultural values. For example, people in more individualistic societies exhibit higher levels of trust and engage more in charitable and volunteering activities (Allik and Realo, 2004; Nikolaev et al., 2017). This indicates their equal treatment of others, including out-groups. As a result, in a more individualistic society, we expect that stakeholders, such as employees and customers, will be more concerned with firms' reputations for equal treatment of different stakeholder groups. They will thus demand higher levels of E/S performance. In contrast, in a more collectivistic society, stakeholders will be more concerned with firms' preferential treatment of in-groups, and hence demand lower levels of E/S performance that benefits out-groups and in-groups equally. Consistent with this view, Williams and Zinkin (2008) find that customers in individualistic countries are more willing to punish firms who display poor E/S performance.

We next turn to cultural differences in the role of government in influencing the supply of firm-level E/S performance. In collectivistic societies governments are more concerned about fulfilling social obligations and/or public interest and therefore maintain a greater influence on corporate decisions than those in individualistic societies (Boubakri et al., 2016a, 2016b). Boubakri et al. (2016a, 2016b) document that collectivistic governments are less likely to privatize state-owned enterprises or to sell higher stakes to private owners. Furthermore, Boubakri et al. (2019) find evidence of higher E/S performance in partially privatized firms than in fully privatized firms. The authors conclude that government influence over a partially privatized firm is positively related to firm-level E/S performance. Using data on government ownership in publicly listed firms from 43 countries, Hsu et al. (2020) document stronger E/S engagement by state-owned enterprises. They also find that state-owned enterprises are more responsive to environmental issues among domestically operated firms and those with higher domestic government ownership, consistent with the social view of government ownership.

Regulation is another means for collectivistic governments to shape firms' behavior and decisions relating to E/S performance. Davis and Williamson (2016) argue that individualism shapes a society's preferences for regulation through its impact on social policy preferences. In particular, to the extent that they put more emphasis on social rather than private outcomes, collectivistic societies may choose a greater level of regulation. Applied to our setting, collectivistic governments can impose stronger regulations to encourage the supply of E/S performance.

The discussions above yield mixed predictions on the association between individualism and firm-level E/S performance. On the one hand, we argue that firm-level E/S performance will be higher in individualistic societies due to cultural influences on managerial decisions about the supply of E/S performance, as well as customers' and employees' decisions about the demand for E/S performance. On the other hand, we argue that the supply of firm-level E/S performance could be higher in collectivistic societies due to cultural influences favoring government ownership and regulation. Our first hypothesis is thus as follows:

Hypothesis 1. *Individualism is positively (negatively) associated with firm-level E/S performance.*

We now turn to the value implications of E/S performance. Consistent with the prior literature that largely finds positive value implications for U.S. firms (e.g., Cao et al., 2019; Dai et al., 2021; Edmans, 2011; El Ghoul et al., 2011; Flammer, 2015) and our earlier discussion on consumer and employee loyalty to high E/S performing firms, we predict a positive relation between E/S performance and firm value within and across countries.

Next, we examine how the within-country relation between E/S performance and firm value varies with a country's degree of individualism. As argued earlier, in a more individualistic society, we expect that stakeholders, such as employees and customers, will be more concerned with firms' reputations for equal treatment of different stakeholder groups. They will thus reward high-E/S performing firms with greater levels of productivity and greater brand loyalty. Accordingly, our second set of hypotheses is as follows:

Hypothesis 2a. *There is a positive association between firm-level E/S performance and firm value within and across countries.*

Hypothesis 2b. *The positive association between firm-level E/S performance and firm value within countries is stronger in more individualistic countries.*

Finally, we investigate how internationalization influences the link between national culture and firm-level E/S performance, and the link between firm-level E/S performance and firm value. Earlier, we proposed that the effect of culture on E/S performance operates in part through managerial discretion on the supply side. Thus, we expect that the influence of culture will be reduced in firms with a strong set of policies and procedures, as proxied by multinational status (Edwards et al., 2002). Furthermore, prior research shows that trade and financial openness reduce the influence of national culture on economic outcomes by increasing managers' exposure and sensitivity to the values and norms of foreign countries (Eun et al., 2015; Stulz and Williamson, 2003), providing further support for our conjecture that the culture-E/S performance link is attenuated in multinational corporations. Nevertheless, because the link between firm-level E/S performance and firm value is driven by the demand side (Lins et al., 2017; Servaes and Tamayo, 2013), we expect this link to be even stronger in multinational corporations due to their strong branding and investor relations (Hymer, 1976). Accordingly, our third and final set of hypotheses is as follows:

Hypothesis 3a. *The positive (negative) association between individualism and firm-level E/S performance is weaker in multinational corporations.*

Hypothesis 3b. *The positive association between firm-level E/S performance and firm value is stronger in multinational corporations.*

3. Variable construction and sample formation

3.1. E/S performance

To capture firms' E/S performance, we employ the environmental and social performance scores from the widely used Thomson Reuters ASSET4 ESG database (e.g., Dyck et al., 2019; Ioannou and Serafeim, 2012).[2] The environmental performance score pertains to activities such as emission reduction, product innovation, and resource reduction, while the social performance score pertains to activities related to community, diversity & opportunity, employment quality, health & safety, human rights, product responsibility, and training & development. As an example, "Is the company under the spotlight of the media because of a controversy linked to workforce diversity and opportunity?" is an item used to construct the diversity & opportunity component of the social performance score. In total, there are 158 items capturing environmental and social performance. For each firm, we calculate a summary score over these 158 items each year as our primary measure of a firm's E/S performance (henceforth, E/S).

3.2. National culture

We use two proxies for individualism. The first proxy is Hofstede's (1980, 2001) original individualism score. This score was constructed from answers to a survey of 117,000 IBM employees across the company's subsidiaries in 70 countries between 1967 and 1973. Although Hofstede's score is based on survey data from the late 1960s and early 1970s, Beugelsdijk et al. (2015) find that cultural change is absolute rather than relative, i.e., countries' scores on the Hofstede dimensions relative to the scores of other countries have changed little over time, which is important to our empirical analysis.

Our second proxy for individualism is derived using survey data from the World Values Survey (WVS) and its equivalent, the European Values Study (EVS) over the period 1981–2003. Based on questions in the WVS, an individual is considered to be individualistic if he/she: (1) thinks that independence is an important child quality; (2) regards imagination as an important child quality; (3) does not think that obedience is an important child quality; (4) does not live with his/her parents; (5) thinks that divorce is justifiable; or (6) is of the opinion that private ownership of business should increase. Prior work including Ang (2019), Beugelsdijk et al. (2015), Schwartz (1992, 1994), and Triandis (1995) associates these values with individualism. After dropping countries that

[2] This database "provides objective, relevant and systematic environmental, social and governance (ESG) information" for over 6500 listed companies included in the S&P 500, Russell 1000, MSCI Europe, FTSE 250, ASX 300, MSCI World Index, and 250 MSCI emerging-market index. Thomson Reuters states that "using only publicly available information, our 100+ specially trained analysts scour through company reports and other public sources, and transform the results into comparable and consistent units to enable assessment of different entities." See http://im.thomsonreuters.com/solutions/content/asset4-esg/. We do not use the governance component in our E/S performance.

miss key country-level control variables and countries with fewer than 10 firm-year observations, we are left with a final sample of 38 countries with data on individualism (WVS).

3.3. Country-level controls

We use seven measures to control for country-level institutions and economic development: GDP per capita, common law, anti-director rights, years of schooling, public sector employment, government effectiveness, and control of corruption. As Hofstede's original 1984 book reported a 0.82 correlation between individualism and national wealth, we include annual GDP per capita to control for national wealth. Common law countries have been shown to have lower E/S performance scores (Liang and Renneboog, 2017), and so we include La Porta et al.'s (2008) common law indicator. To control for the formal legal institutions that restrict opportunism by majority ownership, which may affect the level of E/S performance chosen, we include Spamann's (2010) revised antidirector rights index (ADRI), which measures the extent to which the legal system protects minority shareholders from managerial or dominant shareholder opportunism.[3] We include education (years of schooling) because education is a key determinant of civil society and its institutions, whereas public sector employment, government effectiveness, and control of corruption control for formal institutional effects of government intervention on corporate E/S performance.[4]

3.4. Firm value and firm-level characteristics

To measure firm value, we use two measures. Tobin's Q is the ratio of the sum of market value of equity and book value of debt to book assets, and return on assets (ROA) is the ratio of net income before extraordinary items to book assets.

Our firm-level characteristics largely follow prior work (e.g., El Ghoul et al., 2017; Ioannou and Serafeim, 2012; Liang and Renneboog, 2017). Firm size is measured as the logarithm of total assets in millions of U.S. dollars (in constant 2010 dollars). Sales growth is annual growth in net sales (net sales$_t$ /net sales$_{t-1}$–1). Leverage is the ratio of total liabilities to total assets. R&D is the ratio of R&D expenditures to net sales. U.S. cross-list is an indicator that takes a value of one if a firm is listed on a major U.S. exchange either directly or through Level II or III American Depositary Receipts (ADRs), and zero otherwise (Doidge et al., 2004) (see Appendix A for detailed variable definitions and data sources). All firm-level continuous variables are winsorized at the 1st and 99th percentiles to reduce the impact of outliers.

3.5. Sample formation

Our main data sources are ASSET4 for firms' E/S scores over the 2003–2015 period, and Thomson Reuters' Worldscope/Datastream and Bloomberg for firm characteristics over the same period. After dropping observations with missing data for country- and firm-level control variables, we obtain a sample of 33,021 firm-year observations for 4272 unique firms from 43 countries, ranging from 919 in 2003 to 2774 in 2015, using individualism (Hofstede). The sample using individualism (WVS) consists of 32,264 firm-year observations from 38 countries. Table IA1 in the Internet Appendix summarizes our sample coverage using individualism (Hofstede) across countries and over time.[5,6]

4. Main results

Our data structure is hierarchically nested across two levels (firms within countries). Our sample spans 43 countries and comprises more than 4000 firms over the period 2003–2015. To distinguish the within-country and cross-country impact of firm-level variables (e.g., the level of E/S performance) on firm value, we employ an HLM specification (see Greene, 2011, Chapter 15.8; Griffin et al., 2021; Li et al., 2011; Raudenbush and Bryk, 2002).

4.1. Descriptive statistics

Table 1, Panel A provides summary statistics for the firm-level variables. Table 1, Panel B presents Pearson correlations among the firm-level variables after removing their respective country-year means. We find that the E/S score and its two components (E score

[3] When the revised index is not available for a country in our sample, we resort to the alternative measure in Djankov et al. (2008).

[4] Helliwell and Putnam (2007) show positive and robust effects of education on trust and social engagement, two key variables often used as measures of social capital. Boix (2001) develops a model of public sector growth as a result of economic development and the political institutions in place. Using a panel data for sixty-five developing and developed nations for the period 1950–90, he shows that public sector grows for two main reasons: the state intervenes to provide certain collective goods such as regulatory agencies and infrastructures; and industrialization and an ageing population translate into higher demands for transfers in the form of unemployment benefits, health insurance, and pensions. Uphoff and Krishna (2004) argue that civil society functions—articulating citizens' interests and demands, defending their rights and meeting their needs—can be performed by a variety of government organisations. Thus, civil society and public sector are much more intertwined than conventionally thought.

[5] The number of firms included by country varies from Czech Republic, Hungary, and Peru on the low end to the U.S., Japan, and the U.K. on the high end. The sample coverage increases over time and achieves the broadest coverage in 2014.

[6] To address the concern that firms covered by ASSET4 might be biased towards firms with particular characteristics, we compare our sample to the Worldscope universe of firms. In untabulated analyses, we find that the mean (median) firm-level characteristics of our sample firms are between the 58 (48) and 94 (93) percentiles of those in the Worldscope universe. Our sample firms tend to be larger, older, and engage more in R&D than the Worldscope universe of firms.

Table 1
Descriptive statistics.

Panel A: Summary statistics for firm-level variables

	Mean	Standard deviation	5th percentile	Median	95th percentile
Tobin's Q	1.328	1.122	0.253	1.002	3.484
ROA	4.265	8.187	−6.362	3.934	16.409
E/S	0.526	0.295	0.101	0.529	0.933
E score	0.523	0.319	0.102	0.530	0.939
S score	0.528	0.306	0.075	0.543	0.948
Size	1.914	1.667	−0.655	1.770	4.936
Sales growth	0.115	0.368	−0.211	0.062	0.519
Leverage	0.247	0.177	0.000	0.231	0.575
R&D	0.019	0.048	0.000	0.000	0.122
U.S. cross-list	0.114	0.317	0.000	0.000	1.000

Panel B: Correlations between firm-level variables

	Tobin's Q	ROA	E/S	E score	S score	Size	Sales growth	Leverage	R&D	U.S. cross-list
Tobin's Q	1.000									
ROA	0.479[a]	1.000								
E/S	−0.101[a]	0.043[a]	1.000							
E score	−0.121[a]	0.020[a]	0.947[a]	1.000						
S score	−0.068[a]	0.061[a]	0.942[a]	0.783[a]	1.000					
Size	−0.409[a]	−0.115[a]	0.398[a]	0.376[a]	0.375[a]	1.000				
Sales growth	0.099[a]	0.023[a]	−0.129[a]	−0.126[a]	−0.118[a]	−0.105[a]	1.000			
Leverage	−0.117[a]	−0.154[a]	0.037[a]	0.049[a]	0.020[a]	0.151[a]	−0.027[a]	1.000		
R&D	0.261[a]	−0.006	0.051[a]	0.056[a]	0.040[a]	−0.122[a]	0.008	−0.168[a]	1.000	
U.S. cross-list	−0.025[a]	−0.010[c]	0.192[a]	0.167[a]	0.196[a]	0.194[a]	−0.021[a]	−0.001	0.045[a]	1.000

Panel C: Summary statistics for country-level variables and country means of firm-level variables

	N	Mean	Standard deviation	5th percentile	Median	95th percentile
Tobin's Q	43	1.263	0.321	0.808	1.240	1.840
ROA	43	4.808	1.793	1.783	4.880	7.169
E/S	43	0.550	0.124	0.382	0.559	0.744
E score	43	0.535	0.126	0.356	0.539	0.758
S score	43	0.564	0.130	0.402	0.558	0.768
Size	43	2.020	0.606	0.805	2.079	2.803
Sales growth	43	0.117	0.057	0.053	0.101	0.218
Leverage	43	0.250	0.054	0.174	0.243	0.332
R&D	43	0.011	0.012	0.000	0.007	0.039
U.S. cross-list	43	0.158	0.132	0.000	0.118	0.428
Individualism (Hofstede)	43	0.517	0.241	0.170	0.550	0.890
Individualism (WVS)	38	0.525	0.206	0.227	0.587	0.784
Log(GDP per capita)	43	9.951	0.997	8.115	10.331	11.199
Legal origin: common law	43	0.279	0.454	0.000	0.000	1.000
Revised ADRI	43	3.570	1.033	2.000	3.500	5.000
Years of schooling	43	10.389	2.026	7.200	10.713	13.162
Public sector employment	43	16.328	8.518	3.964	15.946	30.775
Government effectiveness	43	1.064	0.763	−0.181	1.185	2.103

(*continued on next page*)

Table 1 (*continued*)

Panel C: Summary statistics for country-level variables and country means of firm-level variables

	N	Mean	Standard deviation	5th percentile	Median	95th percentile
Control of corruption	43	0.920	1.016	−0.559	1.064	2.273

Panel D: Correlation between country-level variables and country means of firm-level variables

	Tobin's Q	ROA	E/S	E score	S score	Size	Sales growth	Leverage	R&D	U.S. cross-list	IDV (Hofstede)	IDV (WVS)	Log (GDP per capita)	Common law	ADRI	Years school.	Pub. Sec. emp	Gov. eff.	Contr. corrupt
Tobin's Q	1.000																		
ROA	0.693[a]	1.000																	
E/S	−0.139	−0.157	1.000																
E score	−0.165	−0.211	0.968[a]	1.000															
S score	−0.106	−0.095	0.970[a]	0.877[a]	1.000														
Size	−0.464[a]	−0.219	0.337[b]	0.299[c]	0.352[b]	1.000													
Sales growth	0.316[b]	0.117	−0.384[b]	−0.394[a]	−0.351[b]	−0.331[b]	1.000												
Leverage	−0.032	−0.331[b]	0.342[b]	0.355[b]	0.308[b]	0.145	−0.015	1.000											
R&D	0.099	−0.088	0.147	0.279[c]	0.010	−0.014	−0.417[a]	−0.058	1.000										
U.S. cross-list	0.066	−0.011	−0.016	0.032	−0.062	0.063	−0.138	0.012	0.248	1.000									
IDV (Hofstede)	−0.061	−0.311[b]	0.323[b]	0.358[b]	0.268[c]	−0.200	−0.178	0.029	0.425[a]	0.185	1.000								
IDV (WVS)	−0.051	−0.295[c]	0.449[a]	0.460[a]	0.411[b]	−0.153	−0.337[b]	0.111	0.434[a]	0.101	0.837[a]	1.000							
Log(GDP per cap.)	−0.226	−0.415[a]	0.279[c]	0.388[b]	0.156	−0.066	−0.418[a]	0.117	0.528[a]	0.238	0.628[a]	0.724[a]	1.000						
Common law	0.378[b]	0.135	−0.275[c]	−0.306[b]	−0.228	−0.530[a]	0.265[c]	0.037	0.080	0.018	0.243	0.172	0.001	1.000					
Revised ADRI	0.406[a]	0.294[c]	0.039	0.003	0.072	−0.324[b]	0.128	0.041	0.022	−0.073	−0.042	−0.077	−0.092	0.516[a]	1.000				
Years. School.	−0.241	−0.277[c]	0.082	0.156	0.006	−0.083	−0.431[a]	−0.225	0.568[a]	0.236	0.622[a]	0.577[a]	0.752[a]	0.108	0.025	1.000			
Pub. sec. Emp.	−0.202	−0.210	0.279[c]	0.300[c]	0.240	−0.053	−0.322[b]	0.028	0.344[b]	0.238	0.624[a]	0.674[a]	0.532[a]	−0.023	−0.118	0.558[a]	1.000		
Gov. eff.	−0.064	−0.262[c]	0.242	0.368[b]	0.105	−0.260[c]	−0.374[b]	0.091	0.563[a]	0.177	0.571[a]	0.649[a]	0.883[a]	0.155	0.059	0.676[a]	0.444[a]	1.000	
Contr. corrupt.	−0.052	−0.287[c]	0.243	0.365[b]	0.110	−0.282[c]	−0.331[b]	0.128	0.519[a]	0.258[c]	0.618[a]	0.672[a]	0.884[a]	0.119	0.043	0.631[a]	0.458[a]	0.969[a]	1.000

This table presents descriptive statistics for key firm-level and country-level variables. Our sample using individualism (Hofstede) consists of 33,021 firm-year observations from 43 countries for the 2003–2015 period for which we have E/S performance data from ASSET4 and firm characteristics data from Worldscope/Datastream and Bloomberg. Variable definitions are provided in Appendix A. Panel A reports summary statistics for the firm-level variables. Panel B reports pairwise correlations between the firm-level variables after removing their respective country-year means. Panel C reports summary statistics for the country-level variables and country-means of firm-level variables. Panel D reports pairwise correlations between country-level variables and country-means of firm-level variables. Superscripts a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

and S score) are negatively and significantly correlated with Tobin's Q, whereas they are positively and significantly correlated with ROA. These simple correlations do not control, however, for other confounding firm- and country-level variables that may mask the true relation between the E/S performance and firm value. Table 1, Panel C provides country-level summary statistics for the E/S performance, Tobin's Q, ROA, two proxies for the individualism dimension of culture, seven country-level variables, and the country-means of the firm-level controls. Panel D presents Pearson correlations among the country-level variables. We find that country-mean firm size, country-mean leverage, individualism, GDP per capita, and public sector employment are positively and significantly correlated with the E/S performance, whereas country-mean sales growth and common law are negatively and significantly correlated with the E/S performance.

4.2. The relation between national culture and firm-level E/S performance

Table 2, columns (1a) and (1b) present the HLM estimation results where the dependent variable is E/S performance and individualism (Hofstede) is the key independent variable. Columns (2a) and (2b) present the HLM estimation results based on the same HLM specification except that individualism (WVS) is used instead. Regardless of which individualism measure is used, within countries, we find that firm size, R&D, and the U.S. cross-list indicator are positively and significantly associated with the E/S performance, whereas sales growth and leverage are negatively and significantly associated with the E/S performance. Larger firms are more likely to have the resources necessary to comply with the high standards associated with E/S performance. Firms with higher R&D expenditures are likely to be more innovative and thus more likely to keep abreast of current E/S performance. U.S. cross-listed firms have to meet the host country's high E/S standards (Boubakri et al., 2016a, 2016b), hence the U.S. cross-list indicator is positively and significantly associated with the E/S performance. Fast-growing firms may be less concerned about risk management,

Table 2
Explaining firm-level E/S performance.

	Hofstede		WVS	
	(1a)	(1b)	(2a)	(2b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*
Firm Characteristics				
Size	0.109***	0.112***	0.110***	0.113***
	[0.001]	[0.005]	[0.001]	[0.006]
Sales growth	−0.061***	−0.077***	−0.061***	−0.071***
	[0.005]	[0.024]	[0.005]	[0.024]
Leverage	−0.079***	−0.038	−0.081***	0.035
	[0.008]	[0.069]	[0.008]	[0.072]
R&D	0.092***	−1.542***	0.091***	−1.136**
	[0.032]	[0.501]	[0.032]	[0.508]
U.S. cross-list	0.023***	0.194***	0.023***	0.209***
	[0.004]	[0.033]	[0.004]	[0.035]
Country Characteristics				
Individualism (Hofstede)		0.438***		
		[0.081]		
Individualism (WVS)				0.624***
				[0.096]
Log(GDP per capita)		0.007		−0.029**
		[0.013]		[0.014]
Legal origin: common law		−0.095**		−0.073*
		[0.039]		[0.039]
Revised anti-director index		0.049***		0.057***
		[0.015]		[0.016]
Years of schooling		−0.023**		−0.008
		[0.011]		[0.010]
Public sector employment		−0.000		−0.001
		[0.001]		[0.001]
Government effectives		0.033**		0.031**
		[0.014]		[0.014]
Control of corruption		−0.047***		−0.048***
		[0.011]		[0.011]
Industry FEs		Yes		Yes
Year FEs		Yes		Yes
No. of observations		33,021		32,264
No. of countries		43		38

This table presents the estimation results when the dependent variable is the firm-level E/S performance. Our sample in columns (1a) and (1b) ((2a) and (2b)) using individualism (Hofstede) (Individualism (WVS)) consists of 33,021 (32,264) firm-year observations from 43 (38) countries for the 2003–2015 period for which we have E/S performance data from ASSET4 and firm characteristics data from Worldscope/Datastream and Bloomberg. Variable definitions are provided in Appendix A. Two-digit SIC industry fixed effects and year fixed effects are included but not reported. Standard errors are in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

focusing more on expansion than on investing in E/S performance. Leverage is negatively and significantly associated with the E/S performance, indicating greater resource constraints. In summary, our firm-level results are largely consistent with prior work by Barnea and Rubin (2010), Attig et al. (2016), and Boubakri et al. (2016a, 2016b).[7]

Across countries, we find that the associations between firm characteristics and E/S performance are sometimes, but not always, consistent with the associations within countries. In particular, at the country level, we continue to find that firm size and the U.S. cross-listing ratio are positively and significantly associated with the E/S performance, while sales growth is negatively and significantly associated with the E/S performance. At the country level, R&D is negatively and significantly associated with the E/S performance, in contrast to the within-country firm-level evidence. The result for R&D, which indicates that countries with higher R&D expenditures on average have lower E/S scores, is notably at variance with the within-country result. It may be the case that whereas innovative firms are more likely to adopt E/S performance, innovative countries might be focusing on economic rather than environmental and social performance.

Importantly, at the country level, we find that both measures of individualism are positively and significantly associated with the E/S performance. This is consistent with Hypothesis 1 and the findings in Ioannou and Serafeim (2012). Further, we find that common law and control of corruption are negatively and significantly associated with the E/S performance, whereas the revised ADRI and government effectiveness are positively and significantly associated with the E/S performance. Consistent with Liang and Renneboog (2017), countries with a common law origin are less likely to engage in E/S performance, possibly because of fewer regulations concerning stakeholder welfare and weaker state involvement in business. Countries that protect minority shareholders are also more likely to protect other stakeholders through E/S performance. We do not have clear hypotheses for the direction of association found when measures of corruption and government effectiveness are used as controls. Together, these results suggest that the determinants of E/S performance at the country level are not purely economic.

The economic significance of our measure of national culture on the E/S performance is noteworthy: A one-standard-deviation increase in individualism (Hofstede) (individualism (WVS)) is associated with an 10.6% (12.9%) increase in the E/S performance, which represents about 85.1% (103.7%) of its unconditional standard deviation across countries in our sample. In comparison, being a common law country is associated with a 9.5% (7.3%) drop in the E/S performance in the regression using individualism (Hofstede) (individualism (WVS)).[8]

In summary, we find that individualism has a positive and significant association with the E/S performance, supporting Hypothesis 1. We next examine the channels through which individualism may affect E/S performance.

4.3. Channels linking individualism to E/S performance

Having established a positive relation between individualism and E/S performance, we next consider possible underlying channels. Individualistic societies value independence, equal opportunity, and speaking one's mind (Hofstede, 2011, p. 11). We capture individualistic societies' emphasis on individual self-expression using country-level freedom of the press, which has been shown to be correlated with individualism (e.g., Van de Vliert, 2011; Hofstede, 2001; El Ghoul et al., 2019). By investigating and reporting on corporate practices, free media can affect the reputations of firms and managers, thereby increasing their incentives to invest in E/S performance. We capture individualistic societies' emphasis on independence using firm-level managerial discretion (Crossland and Hambrick, 2011). Individualistic societies allow managers more latitude to make decisions according to their own preferences (Griffin et al., 2017). These preferences will in turn be shaped by individualistic values such as equal opportunity and speaking one's mind, leading to greater provision of E/S performance.

We capture individualistic societies' emphasis on equal opportunity across in-groups and out-groups using protection of equal rights at the country level (Cingranelli et al., 2014; Cingranelli et al., 2019; Dreher et al., 2010) and the Gini coefficient on income inequality (Nikolaev et al., 2017), and board diversity at the firm level (Dyck et al., 2018; Ginglinger and Raskopf, 2021). In societies that promote equal treatment of in-groups and out-groups, managers will prefer E/S performance policies that provide more equal treatment of non-shareholding stakeholders. Although board diversity generally reflects corporate concerns about equal opportunity, it also leads to greater awareness of how corporate policies affect underrepresented groups.

We capture individualistic societies' emphasis on speaking one's mind over preserving relationships and in-group harmony (Gray and Vint, 1995) using transparency in E/S performance reporting at the firm level (Dyck et al. (2019) use this separately from their E/S performance measure). In collectivistic societies, managers' preference for in-group harmony may reduce the collection and provision of damaging or negative information to market participants (e.g., creditors, analysts, credit rating agencies, and regulators), hence reducing firms' incentives to invest in transparent reporting and E/S performance. In summary, we identify three country-level – freedom of the press, equal rights, and income inequality – and three firm-level variables – managerial discretion, board diversity, and

[7] When we include institutional ownership as a firm characteristic following the specification in Dyck et al. (2019), our main findings on the positive association between individualism and the E/S performance do not change; moreover, we replicate their main findings on the positive association between institutional ownership and the E/S performance.

[8] In unreported analysis, we add Hofstede's (1980, 2001) three other cultural dimensions—power distance, masculinity, and uncertainty avoidance—to the model. We find that our main results are unchanged after controlling for these additional cultural dimensions. Interestingly, none of these additional cultural dimensions is significantly associated with the E/S performance. These results are consistent with observations in Aggarwal et al. (2016) that individualism is the most important dimension of national culture and that its effect subsumes the effects of other cultural dimensions.

Table 3
Channels linking individualism to firm-level E/S performance.

Panel A: Individualism ≥ Country-level channel variables

	Press freedom	CIRI empowerment	Gini	Press freedom	CIRI empowerment	Gini
	(1)	(2)	(3)	(4)	(5)	(6)
Individualism (Hofstede)	0.320**	7.083***	−0.155*			
	[0.136]	[2.005]	[0.076]			
Individualism (WVS)				0.613***	8.254***	−0.025
				[0.166]	[2.645]	[0.113]
Log(GDP per capita)	0.057	0.163	0.006	−0.015	−0.481	0.002
	[0.052]	[0.773]	[0.027]	[0.055]	[0.869]	[0.033]
Legal origin: common law	−0.112*	−2.801***	0.074**	−0.124**	−1.809*	0.039
	[0.057]	[0.838]	[0.032]	[0.057]	[0.910]	[0.036]
Revised anti-director index	0.040*	0.592*	0.006	0.053**	0.589	0.006
	[0.023]	[0.336]	[0.012]	[0.023]	[0.358]	[0.014]
Years of Schooling	0.003	−0.060	0.004	0.020	0.210	−0.001
	[0.016]	[0.240]	[0.009]	[0.016]	[0.248]	[0.009]
Public sector employment	0.000	−0.097**	−0.001	−0.002	−0.079	−0.002
	[0.003]	[0.046]	[0.002]	[0.003]	[0.052]	[0.002]
Government Effectiveness	−0.052	−2.583	−0.167***	−0.117	−2.634	−0.201**
	[0.112]	[1.652]	[0.061]	[0.123]	[1.955]	[0.081]
Control of Corruption	0.074	3.019**	0.091*	0.143	3.083*	0.112*
	[0.086]	[1.274]	[0.049]	[0.096]	[1.531]	[0.064]
Constant	−0.073	4.714	0.414*	0.301	7.221	0.468*
	[0.437]	[6.450]	[0.228]	[0.435]	[6.920]	[0.266]
Adjusted R-squared	0.582	0.576	0.463	0.647	0.486	0.425
No. of countries	43	43	40	38	38	35

Panel B: Individualism ≥ Firm-level channel variables

	Managerial discretion	Board diversity	Transparency	Managerial discretion	Board diversity	Transparency
	(1)	(2)	(3)	(4)	(5)	(6)
Individualism (Hofstede)	1.651***	0.817***	0.497***			
	[0.483]	[0.222]	[0.089]			
Individualism (WVS)				2.214***	1.338***	0.677***
				[0.633]	[0.300]	[0.104]
Log(GDP per capita)	0.005	−0.076***	−0.000	−0.074	−0.122***	−0.040**
	[0.097]	[0.027]	[0.014]	[0.119]	[0.032]	[0.017]
Legal origin: common law	−0.169	−0.019	−0.004	−0.043	−0.029	0.027
	[0.221]	[0.107]	[0.043]	[0.240]	[0.126]	[0.042]
Revised anti-director index	0.026	0.065	0.038**	0.033	0.113**	0.040**
	[0.087]	[0.041]	[0.017]	[0.096]	[0.049]	[0.017]
Years of Schooling	−0.066	0.062**	−0.031**	−0.027	0.080***	−0.012
	[0.067]	[0.027]	[0.012]	[0.068]	[0.029]	[0.011]
Public sector employment	0.018**	−0.011***	0.000	0.020**	−0.012***	−0.000
	[0.008]	[0.001]	[0.001]	[0.009]	[0.001]	[0.001]
Government effectives	−0.145	−0.111***	−0.019	−0.194	−0.103***	−0.022
	[0.170]	[0.016]	[0.016]	[0.176]	[0.017]	[0.016]
Control of Corruption	−0.057	0.025**	0.016	−0.081	0.011	0.018
	[0.125]	[0.012]	[0.012]	[0.132]	[0.013]	[0.012]
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	32,663	31,934	29,090	31,916	31,209	28,387
No. of countries	43	43	43	38	38	38

Panel C: Predicted country-level channel variables ≥ firm-level E/S performance, using individualism (Hofstede)

	E/S	E/S	E/S
	(1)	(2)	(3)
Predicted press freedom index	1.060***		
	[0.333]		
Predicted empowerment rights index		0.048***	
		[0.015]	
Predicted Gini coefficient			−2.195***
			[0.781]
Log(GDP per capita)	−0.029	0.024	0.042
	[0.047]	[0.041]	[0.043]

(*continued on next page*)

Table 3 (*continued*)

Panel C: Predicted country-level channel variables ≥ firm-level E/S performance, using individualism (Hofstede)

	E/S	E/S	E/S
	(1)	(2)	(3)
Legal origin: common law	−0.057	−0.041	0.003
	[0.045]	[0.047]	[0.058]
Revised anti-director index	0.008	0.022	0.058***
	[0.020]	[0.018]	[0.020]
Years of Schooling	−0.041***	−0.035***	−0.031**
	[0.013]	[0.013]	[0.013]
Public sector employment	0.001	0.006**	0.001
	[0.002]	[0.002]	[0.003]
Government Effectiveness	0.270***	0.339***	−0.176
	[0.094]	[0.105]	[0.145]
Control of Corruption	−0.235***	−0.301***	0.067
	[0.079]	[0.093]	[0.089]
Constant	0.292	−0.011	1.178**
	[0.345]	[0.348]	[0.502]
Adjusted R-squared	0.379	0.379	0.349
No. of countries	43	43	40

Panel D: Predicted country-level channel variables≥ firm-level E/S performance, using individualism (WVS)

	E/S	E/S	E/S
	(1)	(2)	(3)
Predicted press freedom index	0.627**		
	[0.238]		
Predicted empowerment rights index		0.047**	
		[0.018]	
Predicted Gini coefficient			−16.958**
			[7.132]
Log(GDP per capita)	0.012	0.025	0.035
	[0.047]	[0.046]	[0.048]
Legal origin: common law	−0.075	−0.068	0.525*
	[0.051]	[0.052]	[0.267]
Revised anti-director index	0.018	0.023	0.152***
	[0.021]	[0.020]	[0.051]
Years of Schooling	−0.036**	−0.033**	−0.038**
	[0.014]	[0.014]	[0.015]
Public sector employment	0.003	0.006**	−0.026*
	[0.003]	[0.002]	[0.013]
Government Effectiveness	0.250**	0.299**	−3.271**
	[0.111]	[0.117]	[1.458]
Control of Corruption	−0.213**	−0.267**	1.817**
	[0.091]	[0.101]	[0.819]
Constant	0.132	−0.015	8.354**
	[0.375]	[0.378]	[3.481]
Adjusted R-squared	0.367	0.367	0.336
Observations	38	38	35

Panel E: Predicted firm-level channel variables ≥ firm-level E/S performance, using individualism (Hofstede)

	E/S		E/S_alt		E/S	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*
Firm-level Channels						
Predicted managerial discretion	0.296***	0.273***				
	[0.052]	[0.050]				
Predicted board diversity			−0.092	0.231***		
			[0.114]	[0.044]		
Predicted transparency					0.961***	0.809***
					[0.209]	[0.158]
Firm characteristics		Yes		Yes		Yes
Country characteristics		Yes		Yes		Yes
Industry FEs		Yes		Yes		Yes
Year FEs		Yes		Yes		Yes
No. of observations		32,663		31,934		29,090

(*continued on next page*)

Table 3 (*continued*)

Panel E: Predicted firm-level channel variables ≥ firm-level E/S performance, using individualism (Hofstede)						
	E/S		E/S_alt		E/S	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*
No. of countries		43		43		43

Panel F: Predicted firm-level channel variables ≥ firm-level E/S performance, using individualism (WVS)						
	E/S		E/S_alt		E/S	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*
Firm-level Channels						
Predicted managerial discretion	0.310***	0.285***				
	[0.046]	[0.045]				
Predicted board diversity			−0.202*	0.195***		
			[0.112]	[0.031]		
Predicted transparency					0.822***	0.859***
					[0.199]	[0.137]
Firm characteristics		Yes		Yes		Yes
Country characteristics		Yes		Yes		Yes
Industry FEs		Yes		Yes		Yes
Year FEs		Yes		Yes		Yes
No. of observations		31,916		31,209		28,387
No. of countries		38		38		38

This table presents channels that may explain the link between individualism and firm-level E/S performance. Panels A and B present the first stage where the country- and firm-level channel variables are regressed on individualism. Panels C and D present the second stage where E/S performance is regressed on the country- variables predicted from the first-stage regressions with individualism (Hofstede) and individualism (WVS), respectively. Panels E and F present the second stage where E/S performance is regressed on the firm-level variables predicted from the first-stage regressions with individualism (Hofstede) and individualism (WVS), respectively. *E/S_alt* differs from *E/S* by removing the subcategory of "Diversity and Opportunity". Variable definitions are provided in Appendix A. Two-digit SIC industry fixed effects and year fixed effects are included but not reported in regressions with the firm-level channel variables. Standard errors are in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

transparency – that may serve as channels linking the individualism dimension of culture to firm-level E/S performance (see variable definitions in Appendix A).

Following Liang and Renneboog (2017), we conduct our channel analysis in two stages. In the first stage, the country- and firm-level channel variables are regressed on individualism, and in the second stage, the E/S performance is in turn regressed on the channel variables predicted from the first stage. We include control variables in both stages. This approach is similar to an instrumental variables approach except that the objective is to explore whether variation in the channel variables accounted for by individualism is associated with the E/S performance. Table 3 presents the results. Panels B, E, and F employ an HLM specification for firm-level channel variables. Similar to Table 2, we report results using both proxies for individualism.

In Panel A, the coefficient for the channel from individualism to freedom of the press is positive and significant, the coefficient for the channel from individualism to the equal rights index is positive and significant at the 1% level, while the coefficient for the channel from individualism to income inequality as measured by Gini coefficient is significant at the 10% level when using individualism (Hofstede) but insignificant when using individualism (WVS). In Panel B, the coefficients for the channels from individualism to managerial discretion, from individualism to board diversity, and from individualism to transparency are all positive and significant at the 1% level, regardless of the individualism proxy used.

In Panels C and D, the coefficients for the channels from predicted country-level freedom of the press to E/S performance, and from predicted country-level equal rights index to E/S performance, are positive and significant, and the coefficients for the channel from predicted country-level inequality to E/S performance are negative and significant.

Finally, in Panels E and F, the coefficients for the channels from predicted country-level managerial discretion to E/S performance, from predicted country-level board diversity to E/S performance, and from predicted country-level firm transparency to E/S performance are all positive and significant, regardless of the individualism proxy used.[9]

In summary, we identify two country-level variables—freedom of the press and equal rights—and three firm-level variables—managerial discretion, board diversity, and transparency—that plausibly serve as channels through which individualism could affect E/S performance.

[9] In this channel analysis, we exclude the subcategory of "Diversity and Opportunity" when constructing the E/S performance (*E/S_alt*) to avoid a potential mechanical relation between board diversity and E/S performance. We thank an anonymous referee for this suggestion.

Table 4
The relation between firm-level E/S performance and firm value.

Panel A: Firm-level E/S performance≥ firm value, using individualism (Hofstede)

	Tobin's Q		ROA	
	(1a)	(1b)	(2a)	(2b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*
Firm Characteristics				
E/S	0.346***	0.404***	2.824***	3.298***
	[0.022]	[0.146]	[0.186]	[1.192]
Size	−0.274***	−0.069***	−0.648***	0.523**
	[0.005]	[0.026]	[0.041]	[0.208]
Sales growth	0.350***	0.522***	1.854***	4.567***
	[0.018]	[0.092]	[0.154]	[0.765]
Leverage	−0.251***	−1.087***	−8.101***	−12.022***
	[0.032]	[0.291]	[0.269]	[2.394]
R&D	3.771***	−2.305	−17.526***	−86.631***
	[0.128]	[1.963]	[1.073]	[15.625]
U.S. cross-list	0.191***	0.650***	0.527***	6.276***
	[0.018]	[0.163]	[0.147]	[1.298]
Country Characteristics				
Individualism (Hofstede)		−0.243		−4.484**
		[0.261]		[1.809]
Log(GDP per capita)		0.042		−0.136
		[0.042]		[0.307]
Legal origin: common law		0.065		0.918
		[0.122]		[0.835]
Revised anti-director index		0.159***		0.727**
		[0.048]		[0.331]
Years of Schooling		0.006		0.110
		[0.034]		[0.239]
Public sector employment		−0.005*		0.072***
		[0.003]		[0.023]
Government effectives		−0.189***		−0.208
		[0.055]		[0.452]
Control of Corruption		0.158***		0.440
		[0.041]		[0.332]
Cross-Level Interactions		*Within-country* × *Cross-country*		*Within-country* × *Cross-country*
E/S × Individualism (Hofstede)		0.393***		4.719***
		[0.078]		[0.653]
Industry FEs		Yes		Yes
Year FEs		Yes		Yes
No. of observations		33,021		33,021
No. of countries		43		43

Panel B: Firm-level E/S performance≥ firm value, using individualism (WVS)

	Tobin's Q		ROA	
	(1a)	(1b)	(2a)	(2b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*
Firm Characteristics				
E/S	0.326***	0.306**	2.662***	2.439*
	[0.023]	[0.152]	[0.189]	[1.261]
Size	−0.269***	−0.054**	−0.601***	0.682***
	[0.005]	[0.027]	[0.041]	[0.219]
Sales growth	0.360***	0.458***	1.922***	4.023***
	[0.019]	[0.096]	[0.156]	[0.801]
Leverage	−0.253***	−1.044***	−8.135***	−10.824***
	[0.033]	[0.304]	[0.274]	[2.519]
R&D	3.816***	−1.575	−17.421***	−84.212***
	[0.129]	[2.017]	[1.078]	[16.408]
U.S. cross-list	0.195***	0.665***	0.541***	6.337***
	[0.018]	[0.173]	[0.148]	[1.400]
Country Characteristics				
Individualism (WVS)		0.226		−2.241
		[0.323]		[2.383]
Log(GDP per capita)		−0.077		−0.752**
		[0.048]		[0.371]
Legal origin: common law		−0.038		0.102

(*continued on next page*)

Table 4 (*continued*)

Panel B: Firm-level E/S performance≥ firm value, using individualism (WVS)				
	Tobin's Q		ROA	
	(1a)	(1b)	(2a)	(2b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*
		[0.126]		[0.917]
Revised anti-director index		0.163***		0.848**
		[0.051]		[0.372]
Years of Schooling		0.013		0.099
		[0.033]		[0.243]
Public sector employment		−0.006*		0.070***
		[0.003]		[0.024]
Government effectives		−0.165***		0.042
		[0.056]		[0.463]
Control of Corruption		0.164***		0.458
		[0.042]		[0.348]
Cross-Level Interactions		*Within-country* × *Cross-country*		*Within-country* × *Cross-country*
E/S × Individualism (WVS)		0.425***		6.303***
		[0.097]		[0.817]
Industry FEs		Yes		Yes
Year FEs		Yes		Yes
No. of observations		32,264		32,264
No. of countries		38		38

This table presents the estimation results when the dependent variables are Tobin's Q and ROA. The individualism measures in Panels A and B are individualism (Hofstede) and individualism (WVS), respectively. Our sample using individualism (Hofstede) (individualism (WVS)) consists of 33,021 (32,264) firm-year observations from 43 (38) countries for the 2003–2015 period for which we have E/S performance data from ASSET4 and firm characteristics data from Worldscope/Datastream and Bloomberg. Variable definitions are provided in Appendix A. Two-digit SIC industry fixed effects and year fixed effects are included but not reported. Standard errors are in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

4.4. The relation between firm-level E/S performance and firm value

Table 4 presents the HLM estimation results where the dependent variables are Tobin's Q and ROA. Panel A (B) presents the result using individualism (Hofstede) (individualism (WVS)). Across both panels, we find that within countries, the E/S performance is positively and significantly associated with both Tobin's Q and ROA. Our results on other firm-level controls are largely consistent with prior work by Servaes and Tamayo (2013), Ferrell et al. (2016), and El Ghoul et al. (2017). The positive association between the E/S performance and firm value within countries is consistent with Hypothesis 2a.

The relation between the firm-level E/S performance and Tobin's Q (ROA) is economically meaningful: Based on Panel A, a one-standard-deviation increase in the E/S performance is associated with an 10.2% (0.83) increase in Tobin's Q (ROA), which represents about 9.1% (10.2%) of its unconditional standard deviation across firms in our sample. In comparison, a one-standard-deviation increase in sales growth is associated with a 12.9% (0.55) increase in Tobin's Q (ROA), which represents 11.4% (8.3%) of its unconditional standard deviation across firms in our sample. The results in Panel B using WVS proxy for individualism are similar.

In both Panels, we find that across countries, the E/S performance is positively and significantly associated with ROA and Tobin's Q. The positive association between the E/S performance and ROA/Tobin's Q across countries is consistent with Hypothesis 2a.

The relation between the country-level E/S performance and country-level Tobin's Q (ROA) is economically meaningful: Based on Panel A, a one-standard-deviation increase in the E/S performance is associated with a 5% (0.41) increase in Tobin'Q (ROA), which represents about 15.6% (22.8%) of its unconditional standard deviation across countries in our sample.

Finally, we examine the interaction between the firm-level E/S performance and individualism. Regardless of the proxy for individualism used, we find that the positive within-country association between the E/S performance and Tobin's Q (ROA) is stronger in countries with high individualism scores, consistent with Hypothesis 2b. We thus show that in more individualistic countries where E/S performance are more common, there is greater reward in engaging in E/S performance.

In summary, Table 4 provides strong support for Hypothesis 2. We find a positive association between the firm-level E/S performance and firm value both within and across countries, with the former association more pronounced in more individualistic countries.

4.5. Channels linking E/S performance to firm value

We next consider channels through which E/S performance may affect firm value. If E/S performance enhance a firm's reputation and reduce the occurrence of, and sensitivity of a firm's performance to, negative events, we would expect them to have a positive effect on a firm's cash flows and a negative effect on a firm's cash flow variability (Lins et al., 2017; Servaes and Tamayo, 2013). Moreover, if E/S performance reduce litigation costs associated with environmentally and socially irresponsible behavior, we would expect them to have a negative effect on a firm's cost of capital (e.g., Dhaliwal et al., 2011). In summary, we expect E/S performance

Table 5
Channels linking firm-level E/S performance to firm value.

Panel A: Firm-level E/S performance ≥ Firm-level channel variables, using individualism (Hofstede)

	Cash flow		Cash flow variability		Cost of equity		Cost of debt	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*
E/S	3.569***	5.727***	−0.099***	−0.078*	−0.562***	−1.305*	−0.067	−2.293***
	[0.157]	[1.010]	[0.007]	[0.047]	[0.140]	[0.750]	[0.126]	[0.807]
Other firm characteristics		Yes		Yes		Yes		Yes
Country characteristics		Yes		Yes		Yes		Yes
Industry FEs		Yes		Yes		Yes		Yes
Year FEs		Yes		Yes		Yes		Yes
No. of observations		32,689		32,680		14,993		30,850
No. of countries		43		43		42		43

Panel B: Firm-level E/S performance ≥ Firm-level channel variables, using individualism (WVS)

	Cash flow		Cash flow variability		Cost of equity		Cost of debt	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*
E/S	3.428***	5.070***	−0.095***	−0.041	−0.526***	−1.246	−0.054	−2.158**
	[0.160]	[1.066]	[0.008]	[0.049]	[0.141]	[0.757]	[0.128]	[0.858]
Other firm characteristics		Yes		Yes		Yes		Yes
Country characteristics		Yes		Yes		Yes		Yes
Industry FEs		Yes		Yes		Yes		Yes
Year FEs		Yes		Yes		Yes		Yes
No. of observations		31,946		31,936		14,717		30,164
No. of countries		38		38		37		38

Panel C: Predicted firm-level channel variables ≥ Tobin's Q, using individualism (Hofstede)

	Tobin's Q		Tobin's Q		Tobin's Q		Tobin's Q	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*
Firm-level Channels								
Predicted cash flow	0.093***	0.059***						
	[0.006]	[0.016]						
Predicted cash flow variability			−3.363***	−3.675***				
			[0.224]	[0.591]				
Predicted cost of equity					−0.634***	−0.565***		
					[0.051]	[0.065]		
Predicted cost of debt							−0.406***	−0.281***
							[0.077]	[0.058]
Firm characteristics		Yes		Yes		Yes		Yes
Country characteristics		Yes		Yes		Yes		Yes
Industry FEs		Yes		Yes		Yes		Yes
Year FEs		Yes		Yes		Yes		Yes
No. of observations		32,689		32,680		14,993		30,850
No. of countries		43		43		42		43

Panel D: Predicted firm-level channel variables ≥ ROA, using individualism (WVS)

	ROA		ROA		ROA		ROA	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*
Firm-level Channels								
Predicted cash flow	0.741***	0.649***						
	[0.051]	[0.131]						
Predicted cash flow variability			−26.897***	−31.029***				
			[1.858]	[4.796]				
Predicted cost of equity					−4.924***	−5.092***		
					[0.348]	[0.435]		
Predicted cost of debt							−3.458***	−2.134***

(*continued on next page*)

Table 5 (*continued*)

Panel D: Predicted firm-level channel variables ≥ ROA, using individualism (WVS)

	ROA		ROA		ROA		ROA	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*
							[0.653]	[0.498]
Firm characteristics		Yes		Yes		Yes		Yes
Country characteristics		Yes		Yes		Yes		Yes
Industry FEs		Yes		Yes		Yes		Yes
Year FEs		Yes		Yes		Yes		Yes
No. of observations		32,689		32,680		14,993		30,850
No. of countries		43		43		42		43

Panel E: Predicted firm-level channel variables ≥ Tobin's Q, using individualism (Hofstede)

	Tobin's Q		Tobin's Q		Tobin's Q		Tobin's Q	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*
Firm-level Channels								
Predicted cash flow	0.092***	0.059***						
	[0.007]	[0.017]						
Predicted cash flow variability			−3.333***	−3.780***				
			[0.238]	[0.640]				
Predicted cost of equity					−0.653***	−0.583***		
					[0.055]	[0.068]		
Predicted cost of debt							−0.321***	−0.235***
							[0.086]	[0.066]
Firm characteristics		Yes		Yes		Yes		Yes
Country characteristics		Yes		Yes		Yes		Yes
Industry FEs		Yes		Yes		Yes		Yes
Year FEs		Yes		Yes		Yes		Yes
No. of observations		31,946		31,936		14,717		30,164
No. of countries		38		38		37		38

Panel F: Predicted firm-level channel variables ≥ ROA, using individualism (WVS)

	ROA		ROA		ROA		ROA	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*	*Within-country*	*Cross-country*
Firm-level Channels								
Predicted cash flow	0.724***	0.650***						
	[0.054]	[0.141]						
Predicted cash flow variability			−26.468***	−32.416***				
			[1.983]	[5.242]				
Predicted cost of equity					−5.076***	−5.222***		
					[0.375]	[0.464]		
Predicted cost of debt							−2.570***	−1.657***
							[0.741]	[0.568]
Firm characteristics		Yes		Yes		Yes		Yes
Country characteristics		Yes		Yes		Yes		Yes
Industry FEs		Yes		Yes		Yes		Yes
Year FEs		Yes		Yes		Yes		Yes
No. of observations		31,946		31,936		14,717		30,164
No. of countries		38		38		37		38

This table presents channels that may explain the link between firm-level E/S performance and firm value. Panels A and B present the first stage where the firm-level channel variables are regressed on the firm-level E/S performance. Panels C, D, E, and F present the second stage where Tobin's Q/ROA is regressed on the firm-level channel variables predicted from the corresponding first-stage regressions. Panel C presents the second stage where ROA is regressed on the firm-level channel variables predicted from the first-stage regressions. The individualism measure in Panels A, C, and E is individualism (Hofstede), and the individualism measure in Panels B, D, and F is individualism (WVS). Variable definitions are provided in Appendix A. Two-digit SIC industry fixed effects and year fixed effects are included but not reported. Standard errors are in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 6
Multinational versus domestic firms.

Panel A: Explaining firm-level E/S performance

	Hofstede		WVS	
	(1a)	(1b)	(2a)	(2b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*
Firm Characteristics				
Size	0.108***	0.103***	0.109***	0.104***
	[0.001]	[0.006]	[0.001]	[0.006]
Sales growth	−0.062***	−0.069***	−0.061***	−0.064***
	[0.005]	[0.023]	[0.005]	[0.024]
Leverage	−0.079***	0.012	−0.081***	0.069
	[0.008]	[0.074]	[0.008]	[0.076]
R&D	0.098***	−1.962***	0.092***	−1.774***
	[0.032]	[0.505]	[0.032]	[0.514]
U.S. cross-list	0.022***	0.187***	0.021***	0.196***
	[0.004]	[0.042]	[0.004]	[0.044]
MNC	0.018***	0.069**	0.019***	0.086***
	[0.003]	[0.028]	[0.003]	[0.029]
Country Characteristics				
Individualism (Hofstede)		0.414***		
		[0.079]		
Individualism (WVS)				0.585***
				[0.092]
Log(GDP per capita)		0.005		−0.028**
		[0.012]		[0.014]
Legal origin: common law		−0.092**		−0.071*
		[0.037]		[0.037]
Revised anti-director index		0.049***		0.055***
		[0.015]		[0.015]
Years of Schooling		−0.022**		−0.007
		[0.010]		[0.010]
Public sector employment		−0.001		−0.001
		[0.001]		[0.001]
Government effectives		0.026*		0.022
		[0.014]		[0.014]
Control of Corruption		−0.043***		−0.043***
		[0.010]		[0.011]
Cross-Level Interactions		*Within-country* × *Cross-country*		*Within-country* × *Cross-country*
Individualism (Hofstede) × MNC		−0.083***		
		[0.013]		
Individualism (WVS) × MNC				−0.073***
				[0.017]
Industry FEs		Yes		Yes
Year FEs		Yes		Yes
No. of observations		33,021		32,264
No. of countries		43		38

Panel B: Firm-level E/S performance and firm value, using individualism (Hofstede)

	Tobin's Q		ROA	
	(1a)	(1b)	(2a)	(2b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*
Firm Characteristics				
E/S	0.355***	0.358**	2.879***	2.493*
	[0.023]	[0.156]	[0.195]	[1.288]
Size	−0.282***	−0.079***	−0.650***	0.552**
	[0.005]	[0.027]	[0.043]	[0.217]
Sales growth	0.367***	0.531***	1.884***	4.583***
	[0.019]	[0.096]	[0.161]	[0.799]
Leverage	−0.272***	−1.050***	−8.220***	−11.623***
	[0.034]	[0.303]	[0.281]	[2.502]
R&D	3.861***	−2.521	−18.829***	−93.968***
	[0.134]	[2.043]	[1.122]	[16.411]
U.S. cross-list	0.195***	0.571***	0.459***	5.562***
	[0.018]	[0.172]	[0.154]	[1.383]
MNC	−0.003	0.263**	0.351***	2.898***
	[0.013]	[0.117]	[0.110]	[0.963]

(*continued on next page*)

Table 6 (*continued*)

Panel B: Firm-level E/S performance and firm value, using individualism (Hofstede)

	Tobin's Q		ROA	
	(1a)	(1b)	(2a)	(2b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*
Country Characteristics				
Individualism (Hofstede)		−0.281		−4.909***
		[0.268]		[1.903]
Log(GDP per capita)		0.042		−0.167
		[0.043]		[0.323]
Legal origin: common law		0.085		1.110
		[0.125]		[0.880]
Revised anti-director index		0.163***		0.780**
		[0.050]		[0.349]
Years of Schooling		0.005		0.100
		[0.035]		[0.251]
Public sector employment		−0.005*		0.072***
		[0.003]		[0.024]
Government effectives		−0.226***		−0.416
		[0.058]		[0.475]
Control of Corruption		0.164***		0.439
		[0.043]		[0.347]
Cross-Level Interactions		*Within-country* × *Cross-country*		*Within-country* × *Cross-country*
E/S × Individualism (Hofstede)		0.359***		4.663***
		[0.081]		[0.682]
Within-Level Interactions				
E/S × MNC		0.165***		1.494***
		[0.044]		[0.370]
Industry FEs		Yes		Yes
Year FEs		Yes		Yes
No. of observations		33,021		33,021
No. of countries		43		43

Panel C: Firm-level E/S performance and firm value, using individualism (WVS)

	Tobin's Q		ROA	
	(1a)	(1b)	(2a)	(2b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*
Firm Characteristics				
E/S	0.333***	0.278*	2.708***	1.531
	[0.023]	[0.165]	[0.198]	[1.373]
Size	−0.277***	−0.062**	−0.601***	0.728***
	[0.005]	[0.028]	[0.043]	[0.229]
Sales growth	0.376***	0.468***	1.954***	4.043***
	[0.019]	[0.100]	[0.163]	[0.836]
Leverage	−0.274***	−1.037***	−8.249***	−10.646***
	[0.034]	[0.315]	[0.286]	[2.630]
R&D	3.906***	−1.709	−18.732***	−92.421***
	[0.134]	[2.100]	[1.127]	[17.263]
U.S. cross-list	0.199***	0.604***	0.474***	5.660***
	[0.018]	[0.181]	[0.156]	[1.490]
MNC	−0.002	0.196	0.343***	2.899***
	[0.013]	[0.123]	[0.112]	[1.022]
Country Characteristics				
Individualism (WVS)		0.198		−2.714
		[0.331]		[2.516]
Log(GDP per capita)		−0.076		−0.765*
		[0.050]		[0.391]
Legal origin: common law		−0.024		0.265
		[0.129]		[0.970]
Revised anti-director index		0.166***		0.920**
		[0.052]		[0.394]
Years of Schooling		0.012		0.084
		[0.034]		[0.257]
Public sector employment		−0.006*		0.069***
		[0.003]		[0.026]
Government effectives		−0.197***		−0.146
		[0.058]		[0.486]

(*continued on next page*)

Table 6 (*continued*)

Panel C: Firm-level E/S performance and firm value, using individualism (WVS)				
	Tobin's Q		ROA	
	(1a)	(1b)	(2a)	(2b)
	Within-country	*Cross-country*	*Within-country*	*Cross-country*
Control of Corruption		0.171***		0.455
		[0.044]		[0.364]
Cross-Level Interactions		*Within-country* × *Cross-country*		*Within-country* × *Cross-country*
E/S × Individualism (WVS)		0.395***		6.334***
		[0.101]		[0.853]
Within-Level Interactions				
E/S × MNC		0.175***		1.566***
		[0.044]		[0.374]
Industry FEs		Yes		Yes
Year FEs		Yes		Yes
No. of observations		32,264		32,264
No. of countries		38		38

This table replicates the analysis in Tables 2 and 4 by comparing multinational corporations (MNCs) with domestic firms. Panel A presents the estimation results where the dependent variable is the firm-level E/S performance. Panels B and C present the estimation results where the dependent variables are Tobin's Q/ROA. The individualism measures in Panels B and C are individualism (Hofstede) and individualism (WVS), respectively. Variable definitions are provided in Appendix A. Two-digit SIC industry fixed effects and year fixed effects are included but not reported. Standard errors are in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

can increase firm value by increasing the level of cash flows and lowering the variability of cash flows and the cost of capital (Attig et al., 2013; Dhaliwal et al., 2011; Gao et al., 2021; Lins et al., 2017; Pastor et al., 2020; Servaes and Tamayo, 2013).

Table 5 presents the firm-level channels that may explain the link between firm-level E/S performance and firm value. Using either proxy for individualism, we show that the coefficient for the channel from firm-level E/S performance to the level of cash flows is positive and significant, and the coefficients for the channels from firm-level E/S performance to the variability of cash flows and from firm-level E/S performance to the cost of equity are negative and significant. The coefficient for the channels from country-level E/S performance to the level of cash flows is positive and significant in both Panel A using individualism (Hofstede) and Panel B using individualism (WVS). The coefficient for the channels from country-level E/S performance to the variability of cash flows and from country-level E/S performance to the cost of equity is negative and significant at the 10% level in Panel A, while the corresponding coefficient is insignificant but of the same sign in Panel B. The coefficient for the channels from country-level E/S performance to the cost of debt is negative and significant in both Panels A and B.[10]

In Panels C and D using individualism (Hofstede), the coefficients for the channel from predicted firm-level (country-level) cash flows to firm value are positive and significant (positive and significant). The coefficients for the channels from predicted firm-level (country-level) cash flow variability to firm value, from predicted firm-level (country-level) cost of equity to firm value, and from predicted firm-level (country-level) cost of debt to firm value are all negative and significant (negative and significant). The results are the same in Panels E and F using individualism (WVS).

In summary, we identify three firm-level variables—cash flows, cash flow variability, and cost of equity—that could serve as channels through which E/S performance affects firm value.

5. Comparing multinational corporations and domestic firms

Firms with strong policies and procedures are expected to be less influenced by national culture. Furthermore, internationalization increases managers' exposure and sensitivity to the values and norms of host countries, hence reducing the influence of home-country culture (Eun et al., 2015; Stulz and Williamson, 2003). In this section, we examine whether internationalization influences the role of national culture in corporate decisions about E/S performance. To test Hypothesis 3, we introduce an indicator, *MNC*, that takes the value of one if a firm's share of foreign sales is equal to or greater than 50%, and zero otherwise.[11]

Table 6 presents the results. Panel A shows that when the dependent variable is the firm-level E/S performance, both within countries and across countries the coefficients on the MNC indicator are positive and significant regardless of the individualism proxy used. Attig et al. (2016) posit that multinational corporations face intensified pressure from a larger, more diverse stakeholder environment and expanded media and analyst coverage, and benefit from greater economies of scope from E/S performance, leading to a positive association between internationalization of corporate activities and firm-level E/S performance. Our results provide support for their arguments. Moreover, we find that the positive association between individualism and firm-level E/S performance is weakened for multinational corporations, consistent with Hypothesis 3a where we predict that the influence of culture will be reduced

[10] Attig et al. (2013) observe that the evidence relating E/S performance to the cost of debt is mixed.

[11] Using a continuous measure of MNC based on the share of foreign sales does not change our main findings.

in multinational corporations because of their strong policies and procedures as well as their greater exposure to different values and norms.

Panels B and C show that the positive association between firm-level E/S performance and firm value is strengthened for multinational corporations, consistent with Hypothesis 3b. Due to their strong branding and investor relations, it is more beneficial for multinational corporations to engage in E/S performance compared to their domestic counterparts. As is typical of E/S performance studies, deriving causal effects is challenging in an international context, and our findings on the role of internationalization should be interpreted with this caveat and caution.

We conclude that internationalization weakens the role of culture; however, it accentuates the positive association between E/S performance and firm value.

6. Robustness checks

6.1. Using alternative measures of E/S performance

Liang and Renneboog (2020) note that the correlation between ESG ratings across different data providers is about 0.3. Following Liang and Renneboog (2017), we use one of the most established ESG ratings from the MSCI's Intangible Value Assessment (IVA) database as an alternative measure of firm-level E/S performance. We also employ two summary indices on environmental and social performance separately. Table IA2 in the Internet Appendix show that our main findings on the positive association between individualism and firm-level E/S performance remain when using MSCI IVA as the dependent variable. Similarly, results in the same table show that individualism is positively and significantly associated with E score (S score). Table IA3 shows that within countries, there remains a significantly positive association between all three firm-level measures of E/S performance and firm value. Across countries, there remains a significantly positive association between country-average E score and firm value.

6.2. Excluding firms from U.S./U.K./Japan

According to Table IA1 in the Internet Appendix, U.S./U.K./Japanese firms contribute almost half of the sample. Thus, it is important to check whether our main findings remain if we exclude firms from those countries. Table IA4 presents the estimation results after excluding firms from U.S./U.K./Japan. Our main findings largely remain.

7. Conclusions

In this paper, we propose a balanced and nuanced conceptual framework with testable hypotheses on the central role of national culture in explaining cross-country differences in firm-level E/S performance, and the relation between E/S performance and firm value.

Using Thomson Reuters' ASSET4 database on the level of E/S performance for a large number of firms from 43 countries over the 2003–2015 period, and employing a hierarchical linear model specification, we find that the individualism dimension of national culture is positively and significantly associated with firm-level E/S performance, and that both between and within countries, firm-level E/S performance is positively and significantly associated with firm value. Importantly, we investigate the channels and identify two country-level variables—freedom of the press and protection of equal rights—and three firm-level variables—managerial discretion, board diversity, and corporate transparency—linking individualism to E/S performance, and identify three firm-level variables—the level and variability of cash flows and cost of equity—linking E/S performance to firm value. We then show that the positive association between firm-level E/S performance and firm value is stronger in more individualistic countries. Finally, we provide evidence that internationalization weakens the role of culture; however, it accentuates the positive association between firm-level E/S performance and firm value. We suggest applying caution in drawing strong causal inferences from our country-level analyses.

Overall, our findings contribute to the growing body of research on the determinants and value implications of E/S performance. While most studies in this literature rely on data from a single country (U.S.) and generally treat the determinants and value implications of E/S performance separately, we provide a broader perspective by examining country- and firm-level channels driving E/S performance within and across countries, and the value implications of E/S performance across firms and countries. We show that national culture, as captured by the individualism dimension, has an economically important role in both E/S performance around the world and the value implications of E/S performance.

Appendix A. Variable definitions and data sources

A.1. Country-level cultural dimension

Individualism (Hofstede): This cultural dimension is related to the integration of individuals into primary groups (Hofstede, 2011). In a general review of his cultural dimensions, Hofstede (2011) provides 10 contrasts between individualism and collectivism. Here are the first five contrasts, which are the most relevant to organizational decision-making:

Individualism	*Collectivism*
"I" – consciousness	"We" – consciousness
Right of privacy	Stress on belonging
Speaking one's mind is healthy	Harmony should always be maintained
Others classified as individuals	Others classified as in-group or out-group
Personal opinion expected: one person, one vote	Opinions and votes predetermined by in-group

Source: Hofstede (1980, 2001, 2011).

Individualism (WVS): We use survey data from the World Values Survey (WVS) and its equivalent, the European Values Study (EVS), which employs a similar set of survey questions but mostly for European countries, over the period 1981–2003. (Going forward, we refer these two surveys collectively as WVS.) Based on questions in the WVS, an individual is considered to be individualistic if he/she: (1) thinks that independence is an important child quality; (2) regards imagination as an important child quality; (3) does not think that obedience is an important child quality; (4) does not live with his/her parents; (5) thinks that divorce is justifiable; or (6) is of the opinion that private ownership of business should increase. Prior work including Ang (2019), Beugelsdijk et al. (2015), Schwartz (1992, 1994), and Triandis (1995) associates these values with individualism.

To construct our measure of the national cultural value of individualism, we take the following steps. First, for each WVS variable listed above, we compute a country-mean of that variable across all survey years prior to the start of our sample period 2003–2015. There are 77 countries with non-missing country mean variables. Second, for a sample of 45 countries with data available from both Thomson Reuters' ASSET4 and the WVS, we regress Hofstede's individualism on the country-mean variables as constructed from the step before. Finally, using the fitted regression linking Hofstede's individualism to country-means of WVS survey questions, we obtain predicted country-level individualism for those countries.

A.2. Country-level control variables

GDP* per capita*: The logarithm of GPD per capita. Source: World Bank's World Development Indicators Database.

Legal origin indicators: Countries in our sample are classified into four major legal origins: English common law, French commercial code (civil law), German commercial code (civil law), or Scandinavian civil law. Source: La Porta et al. (2008).

Revised antidirector rights index (ADRI): The index is formed by adding one when (1) the country allows shareholders to mail their proxy vote to the firm, (2) shareholders are not required to deposit their shares prior to the general shareholders' meeting, (3) cumulative voting or proportional representation of minorities in the board of directors is allowed, (4) an oppressed minorities mechanism is in place, (5) the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10%, or (6) shareholders have preemptive rights that can be waived only by a shareholders' vote. The index ranges from zero to six. Source: Spamann (2010) and Djankov et al. (2008).

Years of schooling: Average number of completed years of education of a country's population aged 25 years and older. Source: World Bank.

Public sector employment: Ratio of public sector employment to total employment (in percentage points). It covers employment in the government sector plus employment in publicly-owned resident enterprises and companies, operating at central, state (or regional) and local levels of government. It covers all persons employed directly by those institutions, regardless of the particular type of employment contract. Source: World Competitiveness Yearbook by IMD.

Government effectiveness: It measures the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. A higher score indicates a better governance outcome. Source: World Bank's World Governance Indicators Database.

Control of corruption: It measures the extent to which public power is exercised for private gain, including petty and grand forms of corruption, as well as the "capture" of the state by elites and private interests. A higher score indicates a better governance outcome. Source: World Bank's World Governance Indicators Database.

Press freedom index: It is a survey-based measure of global media independence. The index evaluates the legal environment for the media, political pressures that influence reporting, and economic factors that affect access to news and information. A higher score indicates a higher degree of press freedom. Source: Freedom House.

Equal rights index: It measures equal rights in a country as the sum of six components of the Empowerment Rights Index from CIRIGHTS data project: (1) freedom of foreign movement, (2) freedom of domestic movement, (3) freedom of assembly and association, (4) workers' rights, (5) electoral self-determination, and (6) freedom of religion. It ranges from 0 (no government respect for these six rights) to 12 (full government respect for these six rights). Source: Cingranelli et al. (2014) and Cingranelli et al. (2019).

Gini coefficient: It measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A Gini coefficient of 0 represents perfect equality, while a coefficient of 100 implies perfect inequality. Source: World Bank.

A.3. Firm-year level variables

All firm-level variables are from Worldscope/Datastream unless noted otherwise. All firm-level variables are winsorized at the 1% level in both tails of the distribution.

E/S: The average of the environmental performance index (*z*-score) and the social performance index (*z*-score) from Thomson Reuters ASSET4 ESG database. ASSET4 constructs the environmental performance index from three granular subindices that measure firm activities on emission reduction, product innovation, and resource reduction. It constructs the social performance index from seven granular subindices that measure firm activities related to community, diversity & opportunity, employment quality, health & safety, human rights, product responsibility, and training & development. These rank-based scores range from 0 to 100 and measure the E&S performance relative to all other companies in a given year.

E/S_alt: The average of the environmental performance score and the social performance score constructed from the raw data items in Thomson Reuters ASSET4 ESG database. We follow the methodology in Dyck et al. (2019) to construct the score. When constructing the social performance score, we exclude the subcategory of "Diversity and Opportunity", which are mostly related to firm policies in promoting diversity and opportunity in the workforce.

MSCI IVA: The MSCI Intangible Value Assessment (IVA) rating identifies key environmental, social, and governance issues that hold the greatest potential risk or opportunity for each industry sector. Environmental themes include climate change, natural resources, pollution and waste, and environmental opportunities. Social themes include human capital, product liability, stakeholder opposition, and social opportunities. IVA analyzes each company's risk exposure, measuring the extent to which a company's core business is at risk of incurring unanticipated losses. When comparing companies, the data are normalized by the most relevant, available factor, such as sales or production levels. The data are then converted to a relative rating by giving the company with the best performance in its industry sector in a given category an AAA rating, the top rating, while giving the company with the worst performance a CCC rating, the lowest rating, and then converting these ratings to scores between 6 and 0. The rating in a firm-year is constructed as the average of the monthly ratings. Source: MSCI Intangible Value Assessment.

Tobin's Q: Ratio of the sum of market value of equity and book value of debt to book assets.

ROA: Ratio of net income before extraordinary items or preferred dividend to total assets.

Size: Logarithm of total assets in millions (in constant 2010 U.S. dollars).

Sales growth: Annual growth of net sales (net $sales_t$/net $sales_{t-1}$ - 1) averaged over the past three years.

Leverage: Ratio of total liabilities to total assets.

R&D: Ratio of R&D expense to net sales.

U.S. cross-list: An indicator that takes the value of one if a firm is listed on a major U.S. exchange either directly or through Level II or III ADRs, and zero otherwise (Doidge et al., 2004). Source: Worldscope/Datastream, Bloomberg, and (Sarkissian and Schill, 2016).

MNC: An indicator that takes the value of one if a firm's share of foreign sales over total sales is greater than or equal to 50%, and zero otherwise.

Managerial discretion: Ratio of selling, general, and administrative expenses (SGA) to property, plant, and equipment (PPE) following Himmelberg et al. (1999).

Board diversity: An index that measures female representation or foreign culture representation on a board. Source: ASSET4.

Transparency: The ratio of the number of data items reported by a company to all the items tracked as part of the ASSET4 scoring system. Source: ASSET4.

Cash flow: Constructed by the authors following Givoly and Hayn (2000), the ratio of cash flows from operation over total assets.

Cash flow variability: The standard deviation of a firm's cash flows over the past five years divided by the average of the absolute value of its cash flows over the same period.

Cost of equity: The average of implied cost of equity estimated from the Claus and Thomas (2001) model, the Ohlson and Juettner-Nauroth (2005) model, the Gebhardt et al. (2001) model, and the Easton (2004) model.

Cost of debt: Constructed by the authors following Francis et al. (2005), it is the ratio of interest expense on debt to the average short- and long-term debt over a year.

Appendix B. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jcorpfin.2021.102123.

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