CEO Cultural Values and Environmental Performance: The Role of Heritage and Long-Term Orientation

Dennis Bams [a], Frederique Bouwman [a, b], Bart Frijns [c]

[a] Maastricht University, School of Business and Economics, Maastricht, The Netherlands

[b] Open Universiteit, Faculty of Management Science, Heerlen, The Netherlands

[c] Auckland University of Technology, Auckland, New Zealand

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Abstract

This study examines how CEOs' deeply rooted cultural values shape corporate environmental performance. Based on U.S.-listed firms, we show that higher Long-Term Orientation characterizes CEOs whose cultural heritage is associated with stronger environmental outcomes that reflect credible performance, but not with environmental intentions that are more symbolic or signaling in nature. This contrast highlights how managerial discretion and decision ambiguity amplify the influence of personal values. The association is stronger when the CEO's connection to their cultural heritage is more pronounced, further supporting the idea that cultural values relate to managerial priorities under high discretion. These findings are robust to multiple specifications, including an instrumental variable, an alternative cultural construct, and the use of a different environmental performance measure. This study contributes to the literature by offering new insights into how cultural values shape complex corporate decision-making in a sustainability context, which requires balancing competing objectives.

I. INTRODUCTION

Deeply rooted cultural values formed early in life can shape the way CEOs approach corporate decision-making (e.g., Brochet et al., 2019; Gallén & Peraita, 2018; Griffin et al., 2021; Guiso et al., 2006; Li & Harrison, 2008; Li et al., 2013; Luo & Tang, 2016; Mihet, 2012). Guiso and co-authors define culture as *"those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation"* (2006, p. 23). These beliefs and values shape the way in which CEOs view the world and make trade-offs within their firms. Such values have been shown to play a role in various financial decisions, such as corporate risk taking (Mihet, 2012), takeovers (Marra et al., 2023; Pan et al., 2020), and board member selection (Li & Harrison, 2008), where outcomes are tangible and easily measurable. However, we expect that personal, including cultural, values could be even more influential in less tangible or measurable domains such as non-financial decision-making, most pressingly when balancing social, environmental, and financial goals simultaneously. These different goals create a multifaceted optimization problem that cannot be addressed through conventional profit-maximizing strategies. As a result, corporate social responsibility (CSR) decisions increasingly depend on managerial judgment and subjective interpretation (Luo & Tang, 2016).

Understanding the mechanisms underlying these decisions is crucial not only for explaining variation in CSR strategies but also for identifying the managerial traits that support credible and effective sustainability practices. Historically, corporate purpose has been framed through the lens of shareholder primacy, most prominently articulated in Friedman's doctrine (Friedman, 2007), which asserts that a business's sole responsibility is to maximize its profits. This perspective has increasingly been challenged by scholars, policymakers, and the public, as it fails to account for the social and environmental externalities that firms create. Modern conceptions of CSR promote a broader stakeholder-oriented view. Additionally, the rise of new regulatory frameworks reflects a growing emphasis on transition risks (Krüger et al., 2020), as firms are expected to adapt to changing legal, market, and societal expectations. Given the urgency of the climate crisis, it is essential to understand how CEO's personal values shape corporate sustainability-related decisions.

Managerial judgment is influenced by individual values and life experiences, which shape how executives interpret trade-offs and evaluate competing goals. The Upper Echelons Theory provides a framework to explore these influences. Prior research has demonstrated that the values and experiences of top executives significantly influence CSR performance. For

example, married CEOs are associated with significantly higher CSR scores (Hegde & Mishra, 2019), and directors' exposure to environmental shareholder engagements can shape their future decisions (Bauer et al., 2022). Personal life experiences also matter, as firms led by CEOs with daughters have CSR ratings that are approximately 9.1% higher than those of median firms (Cronqvist &Yu, 2017). Additionally, CEOs with a strong religious social identity are more likely to implement CSR initiatives, particularly when their religious values align with the firm's sustainability goals (Le Breton-Miller et al., 2024). Research also shows that cultural values play a role in shaping corporate sustainability practices around the world. For instance, Wang et al. (2021) find that national cultures characterized by high masculinity and uncertainty avoidance are associated with lower levels of green proactivity, defined as voluntary climate actions that go beyond regulatory requirements. Griffin et al. (2021) show that national culture influences firms' environmental and social performance, which in turn affects firm value. However, these studies do not sufficiently disentangle cultural values from broader national institutional influences, as they often fail to account for unobserved country-level factors that may confound the relationship between culture and corporate behavior (Liang & Renneboog, 2017). Furthermore, by looking at the influence of culture on the firm or country level, specific CEO attributes are not measured.

Our study examines how a CEO's cultural heritage influences CSR decision-making. By focusing on cultural heritage rather than national culture, we are able to differentiate between values driven by culture and national-level institutional factors, but also isolate the effect of CEO attributes specifically. For CSR, we focus on corporate environmental sustainability as it often involves more complex and long-term commitments than social initiatives, which increases the importance of managerial judgement. The cultural value we focus on in this study is the dimension of Long-Term Orientation, which captures the extent to which individuals prioritize long-term oriented values such as perseverance and thrift over adherence to tradition and short-term obligations, which are more past and present focused (Hofstede et al. 2010). This dimension is particularly relevant in the context of environmental sustainability decision-making, where long-term thinking is essential for addressing intertemporal trade-offs and sustainability challenges. Likewise, behaviors such as saving for the future, building long-lasting business partnerships, or investing in education demonstrate how perseverance and thrift guide decisions that favor long-term benefits over short-term gratification (Hofstede et al., 2010). Also, Halkos and Skouloudis (2017) document a positive association between this cultural dimension and their composite CSR index in a cross-country study.

We build directly on Sarker and Elnahas (2025), who show that CEOs whose cultural heritage is characterized by high Power Distance, high Uncertainty Avoidance, and high Indulgence tend to lead firms with stronger CSR performance. We extend their study by incorporating Long-Term Orientation, as well as testing for managerial traits that underpin credible and effective corporate sustainability strategies by distinguishing between Environmental Outcomes and Environmental Intentions. Additionally, we consider all six Hofstede dimensions, reflecting the view that culture emerges from the combination of all dimensions rather than a subset in isolation.

To answer our research question, we examine a sample of 1,485 publicly listed US firms covering 2,688 CEOs. This represents 12,879 firm-year observations over the period 2006 to 2020. Using over 131 environmental indicators from Refinitiv, we construct two distinct measures of environmental performance: one capturing Environmental Outcomes (substantial, credible environmental performance), and one capturing Environmental Intentions (symbolic, signaling environmental performance).[1] This methodological distinction reduces the ambiguity typically associated with ESG ratings, which are known for their inconsistency and limited inter-rater reliability (Berg et al., 2022; Billio et al., 2021). These measures are derived using Wittkowski et al.'s (2004) multi-criteria rank ordering algorithm following Andersen and Bams (2022). The algorithm ranks each firm-year relative to others based on a weak dominance principle, assigning a higher rank when a firm performs at least as well on all dimensions and better on at least one. We compare the Environmental Outcomes and Intentions of firms in relation to the Long-Term Orientation value of the cultural heritage of the CEO. Following an interdisciplinary literature on name-based ethnicity classification, we use a CEO's family/surname to identify the CEO's cultural heritage (e.g. Brochet et al., 2019; Cook et al., 1972; Dodd et al., 2022; Mateos, 2007; Pan et al., 2020).

The results of our study show that CEOs with a cultural heritage characterized by Long-Term Orientation are positively associated with Environmental Outcomes, reflecting a future-oriented commitment to sustainability. Conversely, no significant relationship is found between values characterised by Long-Term Orientation and Environmental Intentions performance, as these strategies require less managerial judgment and subjectivity due to their clearer valuation and more standardized implementation. The association is stronger between Long-Term

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[1]Environmental Outcomes consists of primarily continuous variables, capturing measurable aspects of output performance. Environmental Intentions consists of binary variables, forward-looking or strategic signals which are potentially actions that may appear virtuous on the surface, but defer complex and costly decisions (Bolton & Kacperczyk, 2025).

Orientation and Environmental Outcomes when a CEO's first name heritage matches their surname heritage, and thereby paternal and parental cultural values are aligned. Our findings remain robust across several alternative specifications. First, when using an instrumental variable based on the grammatical structure of a CEO's heritage language, specifically the presence or absence of future-time reference, results hold. Also, replacing Hofstede's measure of Long-Term Orientation with the GLOBE study's concept of Future Orientation confirms the observed relationship. Furthermore, substituting the composite Environmental Outcomes measure with CO_2 emissions as a singular indicator yields consistent results. Next, assigning Long-Term Orientation values to CEOs based on the single most likely cultural heritage, rather than a weighted average allocation, does not alter the findings. Furthermore, a contemporaneous analysis and a sensitivity analysis excluding the most strongly presented countries of heritage yield consistent results. Finally, restricting the sample to male CEOs to address potential limitations related to paternal heritage assignment through surname matching also produces consistent results.

This study contributes to two streams of literature. First, we learn more about how deeply-rooted values, specifically culturally driven values, shape the actions and decisions of CEOs. To the best of our knowledge, this study is the first to examine the influence of Long-Term Orientation as a dimension of cultural heritage on credible and effective corporate environmental performance at the individual CEO level. By focusing on this specific cultural dimension and its impact on sustainability decisions, our research fills a critical gap in the literature and offers novel insights into the cultural values driving environmental performance. Thereby, we contribute to the literature examining the relationship between cultural values and environmental performance (Gallén & Peraita, 2018; Griffin et al., 2021; Wang et al., 2021) by disentangling cultural values from broader national institutional influences, which may confound the relationship between culture and corporate behavior (Liang & Renneboog, 2017; Pan et al., 2020). Furthermore, whereas Pan et al. (2020) look at CEO-level cultural heritage and the relation to uncertainty through corporate acquisitions, we focus on CSR as a form of non-financial decision-making. Lastly, we contribute to Sarker and Elnahas (2025) by expanding their study beyond Power Distance, Individualism, and Indulgence.

The second contribution of this study lies in the CSR literature by better understanding the antecedents influencing CSR strategies and performance. Moreover, by the disaggregation of environmental performance, the analysis can more effectively capture how cultural values influence credible sustainability-related decisions. Rather than relying on aggregated and often opaque ESG ratings (Berg et al., 2022; Billio et al., 2021), this study distinguishes between

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Environmental Outcomes and Intentions. Environmental Outcomes refer to concrete, outcome-based environmental improvements such as reductions in emissions or resource use. In contrast, Environmental Intentions capture more superficial or declarative actions like policy disclosures and target setting. While the distinction itself is not novel (Bolton & Kacperczyk, 2025; Donia et al., 2019; Dyck et al., 2024), its application offers new insights and a more nuanced understanding of corporate sustainability strategies and the antecedents motivating them.

The interpretive strength of this value-based framework brings methodological challenges, most notably concerning the issue of causality. Given the observational nature of the data, causal inference cannot be established. As such, we cannot claim that CEOs are randomly assigned to firms, nor that environmental performance is subsequently shaped solely by their individual beliefs and values. It is plausible that selection effects are at play, whereby CEOs are drawn to firms that align with their personal values, or that boards appoint CEOs whose outlooks are consistent with the firm's environmental priorities. However, the presence of such a selection mechanism does not diminish the value of the findings. Whether the CEO influences the firm or the firm attracts a certain type of CEO, the observed relationship still highlights the relevance of culturally driven values in shaping preferences related to improved Environmental Outcomes.

The remainder of the paper is structured as follows. Section 2 reviews the relevant literature and develops the research hypotheses. Section 3 describes the data, sample selection, and empirical methodology. Section 4 presents the results of the analysis. Section 5 provides a discussion of the findings and concludes the paper.

II.   LITERATURE & HYPOTHESES DEVELOPMENT

This section begins by examining how deeply rooted personal values, shaped by upbringing, early-life experiences, and specifically cultural background, influence managerial decision-making. The Upper Echelons Theory suggests that such personal characteristics can affect firm-level outcomes, particularly in areas requiring managerial judgment. Corporate social responsibility is one such area, as it involves complex trade-offs beyond financial performance. This study focuses on environmental performance and investigates how CEOs' cultural heritage shapes their sustainability decisions.

CEO Values in Decision-Making

While traditional economic models often assume managers to act as fully rational agents who make decisions solely to maximize shareholder value, a growing body of research challenges this view (e.g., Bernile et al., 2017; Brochet et al., 2019; Cronqvist et al., 2019; Li et al., 2013; Malmendier & Nagel, 2011; Pan et al., 2020). In reality, CEOs bring their own experiences, values, and biases to the decision-making process. These personal characteristics, some of which are deeply rooted in early-life socialization and cultural upbringing, shape how executives interpret information, assess trade-offs, and respond to complex strategic dilemmas (Hambrick & Mason, 1984). As such, understanding the influence of these values is critical for explaining variation in corporate behavior, particularly in domains where the optimal course of action is not purely determined by financial optimization.

To better understand managerial judgement, we draw on the Upper Echelons Theory. The Upper Echelons theory states that *"... executives' experiences, values, and personalities greatly influence their interpretations of the situations they face and, in turn, affect their choices"* (Hambrick, 2007, p. 1; Hambrick & Mason, 1984). In other words, the Upper Echelons Theory attributes firm heterogeneity to the characteristics of its top decision-makers. A growing body of research supports this view, showing that life experiences can leave lasting imprints on executives' decision-making. For instance, Malmendier and Nagel (2011) demonstrate that individuals who lived through different economic cycles display distinct investment behaviors. Similarly, Bernile et al. (2017) find that CEOs exposed to fatal natural disasters in early life tend to take more corporate risks. Cronqvist et al. (2019) show that a CEO's childhood socioeconomic background shapes the firm's labor policies. Even the gender of the children of a CEO influences corporate decision-making (Cronqvist & Yu, 2017). Furthermore, married CEOs are associated with significantly higher CSR scores (Hegde & Mishra, 2019). Also in the

workplace itself, directors are influenced by experiences, e.g., environmental shareholder engagements (Bauer et al., 2022). Together, these studies underscore the importance of formative personal experiences in shaping managerial decisions.

These experiences create a particular lens through which events are evaluated, informing what individuals pay attention to, how they interpret challenges, and what they consider to be important or worthwhile goals (Ryan & Deci, 2000). Family and community environments play a pivotal role in transmitting beliefs and behavioral norms during early development. A key mechanism through which this transmission occurs is culture. Culture plays a central role in shaping values during upbringing (Hofstede et al., 2010). Importantly, cultural influences persist even after migration, as families continue to pass down cultural norms and expectations (Hofstede et al., 2010). Thus, culture is not confined to one's country of residence or birth, but extends through family lineage as cultural heritage (Barg et al., 2023; Harrison et al., 1998). This inherited cultural heritage continues to shape attitudes and behaviors across generations (Guiso et al., 2006), a phenomenon well-documented across multiple disciplines.[2]

A general agreement exists within the literature showing a relationship between culture and corporate decision-making (e.g., Brochet et al., 2019; Griffin et al., 2021; Guiso et al., 2006; Li et al., 2013; Miska et al., 2018; Wang et al., 2021). Part of this literature highlights the role of culture in shaping corporate risk-taking, specifically (e.g., Li et al., 2013; Mihet, 2012; Pan et al., 2020). Mihet (2012), using a large cross-country sample, finds that cultural dimensions such as Uncertainty Avoidance, Power Distance, and Individualism have a direct impact on firm-level risk-taking, measured through indicators such as the standard deviation of Return on Assets and R&D intensity. Similarly, Li et al. (2013) show that country-level cultural values such as Individualism, Uncertainty Avoidance, and Harmony influence corporate risk preferences through both economic and psychological mechanisms, even when controlling for formal institutions and economic development. Extending the cultural perspective to the individual level, Pan et al. (2020) demonstrate that the cultural heritage of U.S.-based CEOs affects their strategic decisions. Specifically, CEOs with a heritage rooted in more Uncertainty-Averse cultures are less likely to pursue acquisitions, and when they do, they prefer familiar

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[2]This includes e.g. psychology or health. For instance, Latinx immigrants in the United States often exhibit better health outcomes than their U.S.-born counterparts, a phenomenon attributed to cultural practices related to physical activity, diet, and sleep hygiene (Moise et al., 2019). However, maintaining one's cultural heritage can also have adverse effects. Osokpo et al. (2021) show that cultural norms, combined with structural barriers, influence the self-care behaviors of African immigrants in ways that may hinder effective health management.

and easily integrable targets. These findings suggest that cultural influences operate across multiple levels and contribute to persistent differences in corporate behavior across countries, and within countries through cultural heritage.

Just as culture shapes firms' approaches to risk, it also influences CSR practices and priorities (Gallén & Peraita, 2018; Griffin et al., 2021; Halkos & Skouloudis, 2017; Wang et al., 2021). In contexts where policies and expectations are ambiguous, cultural values may exert a stronger influence on managerial decisions than in more structured settings, such as those focused on profit maximization. Several cross-country studies have investigated the effect of culture on CSR performance. Wang et al. (2021) examine how national culture influences corporate green proactivity, which refers to voluntary climate actions that go beyond regulatory compliance. The study finds that high levels of Masculinity and Uncertainty Avoidance within a national culture are associated with lower levels of green proactivity across countries. Griffin et al. (2021) investigate the influence of national culture on firms' environmental and social performance, as well as its subsequent impact on firm value. Across 43 countries from 2003 to 2015, they find that higher levels of Individualism within a country's culture are positively associated with enhanced environmental and social performance at the firm level. Halkos and Skouloudis (2025) examine national cultures across all six Hofstede dimensions and report that Long-Term Orientation and Indulgence are positively associated with CSR, whereas Uncertainty Avoidance is negatively associated. In another cross-country study, Gallén and Peraita (2018) find that the relationships between cultural dimensions and CSR disclosure are not uniform across countries, but are shaped by national wealth, as reflected in GDP per capita. Sarker and Elnahas (2025) show that CEOs whose cultural heritage aligns with high Power Distance, high Uncertainty Avoidance, and Indulgence tend to lead firms with stronger CSR performance. Not only absolute cultural values, but also relative cultural variation within boards, such as ancestral diversity, shape managers' approach to corporate social responsibility.[3]

Culture plays a crucial role in shaping how firms approach strategic decision-making, and this influence is also evident in the realm of CSR. Cultural norms and values can guide how firms perceive their social and environmental obligations, as well as how they balance stakeholder expectations. Understanding these cultural dynamics is essential for examining why CSR initiatives differ across contexts and how they are implemented in practice. In the

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[3]Barg et al. (2024) examine how board ancestral diversity influences firms' voluntary disclosure of greenhouse gas emissions. Their results indicate that such deep-level cultural attributes within boards are positively associated with more extensive and higher-quality environmental disclosures. Dodd et al. (2022) show that firms with culturally diverse boards tend to perform better on CSR metrics.

following section, we therefore describe how CSR is defined in this study, and highlight the dimensions most relevant for analyzing its interaction with cultural factors.

Corporate Social Responsibility

The Friedman doctrine, which asserts that a firm's sole responsibility is to maximize its profits (Friedman, 2007), is no longer widely accepted. Hart and Zingales (2017) argue that Friedman's separation theory is flawed as investors take externalities into account, and the costs associated with mitigating these externalities may be less for companies than for investors. By moving away from the Friedman doctrine, we come to the triple bottom-line principle (Elkington, 1998). This principle focuses not only on profit but also on the planet and people. Most importantly, a business should not create any negative externalities as a result of maximizing profit. Society, as well as both institutional and individual investors, is increasingly concerned about the sustainability performance of firms. CSR has become widely recognized not only in business and investing but also in academic research.

The presence of the three different focus elements leads to a multifaceted optimization problem. The trade-off becomes more challenging and less transparent when investors and managers hold varying views on CSR. According to Edmans and co-authors, "*directors and investors share the same objective (shareholder value), but view the world differently*" (Edmans et al., 2023, p. 2). From both academic and business viewpoints, the link between financial performance and different aspects of sustainability is relevant, making it a subject of extensive research, although no clear consensus has yet been found (e.g., Awaysheh et al., 2020; Barnett & Salomon, 2012; Freiberg et al., 2020; Lopatta et al., 2022; Pástor et al., 2021; Wang et al., 2008).

There is a vast literature that shows that CSR is not necessarily seen as a value-enhancing investment (Edmans, 2011; Flammer, 2013; Harjoto et al., 2017; Krüger et al., 2020). Other research shows that a firm's sustainability performance has an insurance-like quality (Flammer, 2013) and thereby protects firms from downside risk, while providing little upside potential. According to the survey of Krüger et al. (2020), "*institutional investors believe climate risks have financial implications for their portfolio firms and that these risks, particularly regulatory risks, have already begun to materialize*" (Krüger et al., 2020, p. 1067). Furthermore, other studies show that the valuation of sustainability performances exhibits a reverse U-shaped pattern (Harjoto et al., 2017; Lopatta et al., 2022). Bottom line is, the relationship between CSR and financial performance is conditional at best, creating ambiguity regarding which strategy is 'optimal' or desired.

There is not only ambiguity in the relationship between CSR and financial performance, but an even bigger mystery might be how CSR ought to be measured and reported, which adds to this ambiguity. First of all, CSR is alternatively referred to as sustainability, ESG (environmental, social, and governance), or simply 'green'. Furthermore, different rating agencies such as MSCI, Sustainalytics, Bloomberg, and Refinitiv lack a form of standardization (Billio et al., 2021). Due to differences in methodologies, these agencies regularly have deviating opinions on a company's CSR performance. Additionally, there is disagreement on the purpose of these ratings, whether they should be linked to financial materiality, only represent true sustainability efforts, or be somewhere in between. The study by Berg et al. (2022) finds similar divergence between rating agencies. The source of this divergence is caused by differences in measurement, scope, and weight, in said respective order. Lastly, raters can be biased and give higher scores to firms that are already 'well known' by the respective rating agency (Berg et al., 2022). However, one important improvement has been made in more recent literature: the distinction between symbolic and substantial sustainability (e.g., Zhang et al., 2024), the bite and bark (Dyck et al., 2024), commitments and subsequent real effects such as emission reductions (Bolton & Kacperczyk, 2025), or intentions and outcomes. We adopt this distinction in our empirical design.

CSR is a complex domain marked by ambiguity and uncertainty, particularly in the absence of clear measurements, policies, standards, and norms, which necessitate significant managerial judgment and estimation (Wang et al., 2021). The multifaceted optimization challenges posed by CSR highlight the need for deeper research into the role of managerial discretion. Understanding these mechanisms is crucial not only for explaining variation in CSR strategies but also for identifying the managerial traits that support credible and effective sustainability practices. This requires a clear distinction between substantial and symbolic performance, which allows for a more accurate assessment of the validity of corporate sustainability performance. By differentiating between genuine operational changes and impression management, researchers and stakeholders can better assess whether corporate sustainability efforts truly contribute to environmental goals or merely serve to enhance reputation.

Hypotheses

This study concentrates on the environmental component of CSR, as it generally entails more long-term investments, higher complexity, and clearer operational trade-offs than social initiatives. As noted previously, managerial judgment becomes increasingly important when

strategic decisions involve more ambiguity (Wang et al., 2021). Decisions regarding CSR involve complex trade-offs. Whereas financial decisions typically have clear objectives and measurable outcomes, CSR requires firms to reconcile social, environmental, and financial considerations, thereby heightening the importance of managerial judgment. The Upper Echelons Theory (Hambrick & Mason, 1984) posits that organizational outcomes are partially predicted by the personal characteristics of top executives. These characteristics shape how individuals interpret situations and make strategic choices. One such influence is the cultural background of the executive.

Culture reflects a system of deeply rooted values and beliefs that shape the behavior and preferences of individuals within a community. Culture can be operationalized using a range of quantifiable dimensions. One of the most widely used frameworks is Hofstede's cultural dimensions theory (Hofstede, 1980; Hofstede et al., 2010). Each culture comprises a specific configuration of dimensions: Power Distance, Individualism, Masculinity, Uncertainty Avoidance, Long-Term Orientation, and Indulgence. While all six dimensions interact, certain choices and behaviors are more directly linked to specific cultural values. For instance, cultures high in Power Distance tend to emphasize hierarchical structures; Individualistic cultures prioritize personal autonomy; Masculine cultures value achievement and success; Uncertainty-Averse cultures prefer structure and predictability; Indulgent cultures emphasize pleasure and immediate gratification. Among these dimensions, Long-Term orientation is most conceptually aligned with sustainability-related behavior. It reflects a cultural emphasis on future rewards, perseverance, resourcefulness, thrift, and highlights intertemporal trade-offs, prioritizing the future over the past and present. These values are particularly relevant in the context of environmental performance, which often involves long-term investments, uncertain payoffs, and complex implementation challenges.[4] Consistent with this view, Halkos and Skouloudis (2017) find a positive association between Long-Term Orientation and CSR in a cross-country study.

In China, for example, cultural norms emphasize saving for future generations and investing heavily in children's education, reflecting a strong future-oriented mindset. Similarly, Japanese corporate culture emphasizes lifelong employment and incremental innovation practices like 'kaizen' (improvement), as exemplified by firms such as Toyota, which prioritize

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[4] *"A society grows great when old men plant trees whose shade they know they shall never sit in"* is commonly attributed to a ancient Greek proverb and was referenced in *After Life* (Season 2, Episode 6). It reflects the essence of Long-Term Orientation: acting in the present to benefit future generations, even without immediate personal gain.

long-term quality and efficiency gains over short-term performance metrics. Conversely, low Long-Term Orientation (short-term oriented) societies, such as the United States, tend to prioritize immediate results and short-term gains. Business environments in such cultures often emphasize quarterly earnings reports, rapid startup growth, and executive performance based on near-term outcomes. This aligns with the broader cultural narrative where success is frequently tied to prompt impact and visibility, such as IPOs or media recognition.[5]

CSR is not a uniform concept. Some sustainability actions are largely symbolic and easy to implement, while others demand significant commitment and yield returns only over a longer horizon. We follow recent literature in differentiating between Environmental Outcomes and Intentions (Donia et al., 2019; Dyck et al., 2024; Bolton and Kacperczyk, 2025). Environmental Outcomes reflect tangible, substantial, and long-term environmental improvements, often requiring considerable financial and organizational commitment. Given the complexity associated with Environmental Outcomes, such decisions are more likely to reflect the personal values and cultural background of the CEO. Consequently, we expect CEO cultural heritage, specifically the cultural value Long-Term Orientation, to play a significant role in shaping Environmental Outcomes. Therefore, our first hypothesis is as follows:

H1: *The dimension of Long-Term Orientation is positively associated with the firm's Environmental Outcomes.*

On the contrary, Environmental Intentions includes policy statements, commitments, or disclosures that do not require sizeable investment or elaborate action and typically yield short-term benefits. These activities are often captured by binary indicators and may reflect "mostly empty promises, a convenient way of appearing virtuous while putting off difficult and costly choices" (Bolton and Kacperczyk, 2025, p. 1). Because symbolic activities are generally standardized, low-cost, they leave little room for managerial discretion or the expression of deeply held personal values. As such, any opportunism embedded in Environmental Intentions is better understood as a generic signaling tactic rather than a culturally contingent behavioral trait. This makes it unlikely that cultural heritage, whether reflected in Long-Term Orientation or in other dimensions such as Individualism, plays a meaningful role in shaping symbolic or signal-related environmental performance. Therefore, we do not expect cultural heritage to

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[5] Roman poet Horace's famous maxim "Carpe diem, quam minimum credula postero" ("Seize the day, put little trust in tomorrow") reflects a cultural motif of prioritizing immediate gains and present enjoyment over deferred rewards.

influence Environmental Intentions. This distinction between Environmental Outcomes and Intentions strengthens our theoretical framework by showing that cultural effects should be most apparent where decision-making complexity and value-driven judgment are greatest. Based on this reasoning, our second hypothesis is as follows:

H2: The dimension of Long-Term Orientation is not associated with the firm's Environmental Intentions.

Building on the first hypothesis, we propose that the degree of cultural involvement strengthens the relationship between Long-Term Orientation and Environmental Outcomes. While Long-Term Orientation is expected to be positively associated with Environmental Outcomes, this effect should be more pronounced when individuals are more strongly connected to their cultural heritage. Stronger ties to one's cultural heritage can make the values of that culture more influential in shaping behavior, thereby increasing the likelihood that these values, when aligned with sustainability, are reflected in corporate decisions. To capture this cultural involvement, we focus on the alignment between CEOs' first name heritage (reflecting parental choices) and the most likely country of their paternal heritage, as inferred from their surname. While surnames are typically inherited, first names are actively chosen and may signal a deliberate effort to maintain cultural identity. We hypothesize that when paternal and parental cultural signals are aligned, the influence of Long-Term Orientation on Environmental Outcomes will be stronger. Therefore, our third hypothesis is as follows:

H3: When involvement in cultural heritage is stronger, the relationship between Long-Term Orientation and Environmental Outcomes becomes stronger.

Together, these hypotheses provide a coherent framework for understanding how cultural heritage and long-term orientation influence substantial and symbolic CSR.

III.   DATA & METHODOLOGY

This section presents our data and discusses the methodology used for name matching to determine CEO cultural heritage. Additionally, we detail the construction of our environmental performance variables. Finally, we provide insights into firm and CEO characteristics for the firms in our sample by showing summary statistics and correlations.

Data Description

We focus on U.S.-listed firms over the period from 2006 to 2020. We merge data from several sources. Environmental performance measures, which form our dependent variables, as well as selected governance controls, are obtained from Refinitiv. CEO characteristics, including name, age, gender, and compensation, are sourced from ExecuComp. Firm-level control variables are drawn from CRSP and Compustat.

Since ESG ratings from agencies like MSCI, FTSE, S&P, Sustainalytics, and Moody's correlate poorly, with correlations ranging from 0.38 to 0.71 (Berg et al., 2022),[6] we take a granular approach to assessing CSR performance. We do this by obtaining environmental activity and performance information from Refinitiv ESG from 2006 to 2020. Refinitiv ESG data includes 131 individual environmental indicators. Examples of environmental performance variables include whether the company has a policy for water efficiency, an environmental management team, or disclosed CO_2 emissions. Lastly, we collect several governance variables from Refinitiv to control for differences in governance structures. Next, we use Execucomp to match the company data with the CEO and CEO control variables. Finally, we obtain other company data from CRSP and Compustat. Appendix Table 1A provides variable definitions. After excluding firms for which either Execucomp or ESG data are missing, the final sample contains 1,485 unique firms and 2,688 CEOs, representing 12,879 firm-year observations.[7]

CEO Cultural Heritage

To identify a director's cultural heritage, we build on recent literature that maps a person's surname to the geographic area that most likely represents their country of heritage

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[6]This reflects fundamental disagreements about what ESG performance entails. This inconsistency makes it unclear what exactly these ratings measure, limiting their reliability. Furthermore, it is often not clear how well these ratings represent the actual CSR performance of a firm (Billio et al., 2021).

[7] For years in which a CEO change occurred, we assign the observation to the CEO who served the longest during that year.

(e.g., Brochet et al., 2019; Dodd et al., 2022; Liu, 2016; Merkeley et al., 2020; Pan et al., 2017, 2020). This method focuses on the transmission of paternal cultural heritage, as it is most often the father's surname, which is passed on to the next generation. Although this is a limitation,[8] Pan et al. (2020) shows that male CEOs reflect their fathers' cultural heritage while female CEOs are shaped by their mothers' culture.[9] To identify the country of origin for each CEO's surname, we rely on three sources following Dodd et al. (2022). Our primary source is the historical U.S. census records from the Integrated Public Use Microdata Series (IPUMS) (Ruggles et al., 2024). We use census records from 1850, 1860, 1870, 1880, 1920, and 1940. These records contain first names and surnames, marital status, and birth countries of all foreign-born individuals immigrating to the U.S. at that time. We remove married females from these records, as they could have adopted their husbands' surnames. After excluding married females and surnames that only occur once or twice, these census records provide 330,685 unique surnames originating from 78 countries. If the name is not represented (sufficiently) in the first reference list of census records, we cross-check the surname in the other reference lists. Although there are many different countries represented in this dataset, names of Asian and Latin heritage are insufficiently available.

To address this limitation, we supplement the census-based list with a second source, the Asian American surname database compiled by Lauderdale and Kestenbaum (2000), which includes 20,693 common surnames across six major Asian ethnic groups (Chinese, Japanese, Filipino, Korean, Indian, and Vietnamese). This dataset improves the identification of heritage for CEOs of Asian origin. After matching all surnames for which we have entries in the two reference libraries, we cross-check using the Oxford Dictionary of American Family Names to see whether that surname is a common Jewish name. If so, we replace the origin of that surname. This dictionary contains regions of origin (sometimes countries, at other times broader regions) for nearly 70,000 of the most common American family names. We match these surnames to cultural scores attributed to Israel in the Hofstede framework. While Israel did not yet exist as an independent state at the time of the relevant census data, we use Israel's cultural scores as a proxy for Jewish cultural heritage, consistent with prior literature employing this approach (Dodd et al., 2022). In summary, the first reference list has the best coverage of European

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[8] In our dataset, only 4% of CEOs are female; we exclude them in one of the robustness tests to address this limitation.
[9] They use CEOs' mother's maiden names from a subset to identify maternal cultural heritage and find evidence of same-sex intergenerational transmission: male CEOs' preferences align more with their fathers' heritage, while female CEOs' align more with their mothers' (Pan et al., 2020).

descent, the second of Asian descent, and the third of Jewish descent.[10] Using this procedure, we match 86% of the surnames in the sample and identify 40 countries of heritage based on the three reference lists we employ. The CEOs who remain unmatched are individually researched using sources such as Google, LinkedIn, Wikipedia, and company websites, which brings the total to over 98% of CEOs matched to a country of heritage.

Once we have a list of all potential heritages of all surnames, we employ two different approaches to match these to a cultural dimension. The first one is based on using a weighted average across multiple possible countries of heritage as per Pan et al. (2020), and the second one is only the single most likely country of heritage based on Dodd et al. (2022). Initially, based solely on the U.S. census records, we retain the country-specific percentage distribution for each surname. For our main analyses, we compute an average dimension score based on a weighted average score of all potential countries of heritage, reflecting the likelihood that a given name is associated with specific national cultural characteristics. If the name is not sufficiently presented in the census records, we use the country of heritage presented by the other reference lists with a 100% likelihood, as in these databases, only one country of heritage is given.

For the second approach, we obtain the number of surname occurrences and the percentage of that surname coming from each most likely country, following the approach of Dodd et al. (2022). If a surname has more than 100 entries in the census-based reference list and over 60% of those come from one country, we assign that country as the most likely country of origin. If a surname is associated with the same country of origin in two or more reference lists, we take that as the most likely country of origin. If we find no match in the census reference list but have a match in the Asian reference list, we use that as the country of origin. Only the dimension value of that single country is linked to the CEO as their respective cultural heritage. Again, cross-check the surname in the other two reference lists if the name is not sufficiently represented. To ensure the results are not confounded by the second and third most likely heritage countries, this alternative method serves as a robustness check.

Next, we use two frameworks to quantify culture. To capture individual cultural backgrounds systematically, this study employs established cultural dimensions to quantify culture. These dimensions provide a structured representation of underlying cultural values. Over the past years, various methods have been developed. The most widely recognized and

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[10] The reference lists still do not eliminate the limitation for CEOs from a Latin heritage. However, as reported by Pan et al. (2020), the Institutional Shareholder Services' corporate director database shows that among S&P 1500 companies, Latino CEOs account for less than 1.5%.

utilized are those by Hofstede (2010; 1980). Assisted by others, he identified six fundamental challenges that a society must address to 'organize itself'. These challenges are known as the dimensions of culture. The first four scores were constructed using survey data from 117,000 IBM employees in over 70 countries between 1967 and 1973. The last two dimensions were added later to broaden the scope of the initial model, as that model was initially more focused on the Western part of the world and thereby Western cultures. The initial four dimensions, outlined in Hofstede (1980), include 'Collectivism versus Individualism', 'Power Distance', 'Masculinity versus Femininity', and 'Uncertainty Avoidance'. The final two dimensions, introduced later in Hofstede et al. (2010), include 'Long-Term versus Short-Term Orientation' and ' Indulgence versus Restraint'.[11]

The majority of existing research has focused on Hofstede's (1980) original four dimensions.[12] Our study focuses on the fifth dimension, Long-Term Orientation, as a predicting variable for environmental performance. Long-Term Orientation refers to the extent to which a culture emphasizes values such as thrift and long-term planning, as opposed to values like respect for tradition and fulfilling social obligations. Long-Term Orientation illustrates how cultures think about time and change. Long-Term Orientation describes the importance a society places on future-oriented behaviors, such as perseverance, savings, and adaptability, vs. short-term values like tradition, fulfilling social obligations, or quick success. Tradition is part of a short-term-oriented culture, as such cultures prioritize respect for past practices and social norms to maintain immediate social cohesion and stability rather than pursuing long-term adaptation or change.

Although Hofstede's dimensions are the most widely used method of quantifying culture, there is also criticism of his method. The two main concerns revolve around the time relevance of Hofstede's data and the generalizability. As most of the data was collected between 1968 and 1973, it can be seen as outdated. However, research shows that although culture does change in absolute terms, it does not change significantly in relative terms (Beugelsdijk et al., 2015). In other words, cultures change, but cultural differences do not. The second concern

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[11] Countries with a high level are, for example, for Power Distance, Russia and Mexico, for Individualism, the USA and Australia, for Masculinity, Japan and Hungary, for Uncertainty Avoidance, Belgium and Portugal, for Long-Term Orientation, Korea or Germany, and Indulgence, Mexico and Sweden. Countries with low levels are, for example, for Power Distance Austria and Denmark, for Individualism Pakistan and Thailand, for Masculinity Sweden and the Netherlands, for Uncertainty Avoidance Jamaica and Singapore, for Long-Term Orientation Ireland and Iran, and Indulgence Ukraine and China.

[12] For an overview of previous studies on culture's effects on corporate sustainable practices, see Miska et al. (2018).

stems from the fact that his data are collected in a corporate setting, solely from IBM employees. But the consistency of IBM's corporate environment across countries did provide a unique opportunity to isolate the impact of national culture on employee attitudes and behaviors (Hofstede, 1980). In his paper, Karolyi (2016) concludes that although there are conceptual and methodological problems, "I would be remiss in failing to point to the enormous evidence of the resilience of the scholarly work using these measures" (Karolyi, 2016, p. 615).

Nonetheless, to address these limitations, we additionally employ another source of cultural constructs. Specifically, the GLOBE study (House et al., 2004) which is based on survey data from over 17,000 middle managers in 62 cultures. Both cultural dimensions from Hofstede and GLOBE are widely used in academic research (Gallén & Peraita, 2018; Griffin et al., 2021; Li et al., 2013; Miska et al., 2018; Pan et al., 2020; Wang et al., 2021). The GLOBE study identifies nine cultural constructs, including, amongst others, Institutional Collectivism, Power Distance, Uncertainty Avoidance, Future Orientation, and Performance Orientation. Although there is some overlap with the dimensions of Hofstede, there are also clear distinctions. One of them is that, unlike the Hofstede dimensions, the GLOBE project also distinguishes between values (what societies ideally desire) and practices (what occurs), offering a nuanced understanding of how culture shapes organizational norms and managerial decision-making. As we study the relationship between culture and CSR performance, this study will only focus on the practices. Therefore, in our robustness analysis, we use the GLOBE dimension of the practice score for Future Orientation, "the degree to which individuals in organizations or societies engage in future-oriented behaviors such as planning, investing in the future, and delaying gratification" (House et al., 2004). Examples of countries scoring high in Future Orientation Practices are Singapore, Switzerland, and the Netherlands. Those scoring low are, e.g., Russia, Argentina, and Italy. Although Long-Term Orientation by Hofstede et al. (2010) and Future Orientation by House et al. (2004) stem from different methodologies, both constructs capture a similar intertemporal trade-off essential for understanding corporate environmental performances.

Corporate Environmental Performance

To analyze firms' environmental performance, we begin with 131 raw environmental variables from Refinitiv ESG. The first important distinction we make is between Environmental Outcomes and Intentions. This distinction allows for a more detailed interpretation of corporate sustainability behavior, reflecting the difference between what firms do versus what they intend or signal (Bolton & Kacperczyk, 2025). To do this, we classify all

environmental variables into six categories: policy, reporting, target, activity, performance, and controversy based on the methodology of Andersen and Bams (2022) and Bams and van der Korft (2022). Environmental Outcomes are defined as variables that reflect realized impact, specifically those in the performance and controversy categories. These variables are primarily continuous, capturing measurable aspects of output performance. This would, for example, include clean water use or CO_2 emissions.[13] Environmental Intentions include forward-looking or strategic signals, such as policy, reporting, target, and activity indicators. It is important to consider these indicators as a separate category, as these binary variables are potentially actions that may appear virtuous on the surface, but defer complex and costly decisions (Bolton & Kacperczyk, 2025). Appendix Table 2A provides examples of the different categories.

To compute scores for the two categories, we adopt the multi-criteria rank-ordering algorithm introduced by Wittkowski et al. (2004). This method is applied at the firm-year level and ranks each observation relative to all others across firms and years. The algorithm follows a weak dominance principle, i.e., a firm-year is strictly higher in ranking if it scores at least as well as another firm-year on all aspects and strictly better on at least one aspect. A firm-year is strictly lower in ranking if it scores at least strictly worse on one aspect than another and never strictly better. If neither condition is met, the firm-years are considered non-comparable. The algorithm accommodates missing data by comparing only available variables, giving relatively greater influence to areas with more complete coverage.[14] As a result, variables with broader data coverage naturally exert more influence on the rankings, though this weighting emerges from the data structure rather than weights being attributed to certain variables.

The final rank of a firm-year follows from the sum of strictly higher rankings minus the sum of strictly lower rankings. Wittkowski et al. (2004) show that the resulting rankings asymptotically converge to a normal distribution when the number of firm-years gets large, allowing the ranking to be interpreted as a score. We standardize the rankings on a 0 to 10 scale, where 0 means the firm scores poorly on a particular aspect, and 10 means it scores excellently.

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[13] We use CO_2 emissions as an additional individual dependent variable in a robustness check. Reflecting both regulatory requirements set by the International Sustainability Standards Board (ISSB) and their material importance, a growing number of finance studies now treat emissions as the primary indicator of environmental impact (e.g., Bolton & Kacperczyk, 2025; Dyck et al., 2024).

[14] This is one of the aspects of this algorithm that makes this method preferable to others. Especially when using sustainability data, there are a considerable number of missing observations. Furthermore, this method does not assume or require any weights being attributed to variables.

The final scores are relative to the entire sample. Although we use industry fixed effects in most analyses, the rankings are defined over the full sample.[15]

Using this algorithm, we compute scores for Environmental Outcomes and Environmental Intentions. This distinction is important, as each type reflects different investment requirements, time horizons, and sustainability impacts. For example, Environmental Intentions include activities such as publishing a sustainability policy, joining environmental initiatives, or setting carbon reduction targets. A company might commit to becoming carbon neutral by 2040, release an annual sustainability report, or sign on to the UN Global Compact. These actions are relatively low-cost, can be implemented quickly, and signal commitment, but their direct environmental impact is limited. In contrast, Environmental Outcomes capture tangible improvements in sustainability performance. Examples include reducing CO_2 emissions through energy-efficient upgrades, transitioning to electric vehicle fleets, or investing in renewable energy sources. These Outcomes typically involve substantial investment and long-term planning and lead to measurable environmental benefits.

Control Variables

Following Griffin et al. (2021), in our analyses, we control for firm value using a book-to-market ratio and for the firm-level characteristics, market value of equity (Size), and return on equity (ROE). Next, we include control variables for the board composition and governance structure by including size (Board Size), CEO duality (CEO duality), and the percentage of non-executive board members on the board (Non Exec). Furthermore, we control for CEO characteristics, Age, and Gender, and the total value of compensation (Total Comp), and a dummy variable which shows if any type of sustainability metrics is linked to compensation (Sust Comp Incent).

Descriptives

Table 1 provides the descriptive statistics for the environmental variables, Long-Term Orientation, together with all other Hofstede cultural dimensions, Future Orientation from the GLOBE study, and all control variables. The variables Environmental Outcomes and Environmental Intentions range from 0 to 10 by design. The constructed environmental variables show significant dispersion, which suggests substantial cross-sectional variation in

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[15] By ranking all industries together, we get a better representation of the magnitude of how much 'better' certain firms are.

CSR activities at the firm level. As we do not have all countries of origin represented in our sample, which are included in the study by Hofstede et al. (2010), not all dimensions in the sample range from 0 to 100. Long-Term Orientation has a spread of scores between 0 and 93. The companies in the sample are, on average, larger than the average firm in the market. This is mostly due to the selection effect of reporting/being reported on by Refinitiv. The board characteristics of our sample are representative of the average size of firms in the sample. The average CEO age in the sample is 57, and 96% of the CEOs are male.

Table 2 shows the correlations. Notable is the negative correlation between Environmental Outcomes and Environmental Intentions.[16] This is consistent with prior research, as, for example, Dyck et al. (2024) show that family-controlled firms often reduce carbon emissions, which reflects substantive action or outcomes, despite receiving lower ESG scores, which largely capture symbolic or intentional indicators. Furthermore, Rodrigue and co-authors (2013) similarly find that most environmental governance mechanisms, such as committees, reporting systems, and executive incentives, show little association with actual environmental performance. The negative correlation between Environmental Outcomes and CO_2 emissions is evident, as the Environmental Outcomes are positively coded, more is better, whereas CO_2 emissions are the opposite. Furthermore, we see purely positive correlations between Long-Term Orientation and the CSR variables. Lastly, larger firms, on average, perform better on Environmental Intentions than they do on Environmental Outcomes.

Table 3 shows the distribution of the countries represented in the sample through the surname matching of the CEOs. In line with Pan et al. (2020) and Barg et al. (2023), the four major countries of origin are Ireland, Germany, Great Britain, and Italy. Although there is no equal distribution of the countries in the sample, one of our robustness analyses shows that none of these countries of heritage solely drives the results.

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[16] To further examine this disconnect, we conduct a regression analysis which tests whether *Environmental Intentions* have any explanatory power over subsequent *Environmental Outcomes*, controlling for other firm-level characteristics. Overall, the results suggest that Environmental Intentions do not serve as a reliable predictor of Environmental Outcomes. Results are shown in Appendix Table 3A.

IV.   RESULTS

In this section, we present our main findings, examining the relationship between cultural values characterized by Long-Term Orientation and Environmental Outcomes and Intentions, and how a deeper cultural alignment strengthens this. Furthermore, in additional tests, we include an instrumental variable in our analyses, an alternative dependent variable, an alternative proxy for culture, and several additional tests to enhance the robustness of the main findings.

CEO Cultural Heritage

First, we examine the relationship between CEO cultural Long-Term Orientation and environmental performance. To do this, we estimate the following model for the full sample.

$$Env_{it+1} = \beta_0 + \beta_1 Culture_{i,t} + \gamma' Controls_{i,t} + \tau_t + \eta_i + \varepsilon_{it} \tag{1}$$

The dependent variable (Env_{it+1}) in Equation (1) is one of the following: *Environmental Outcomes* or *Environmental Intentions*. To account for the time it takes for CEO decisions to materialize, we use a one-year lead of the dependent variable, assuming that the current CEO influences next year's environmental performance.[17] By doing so, we also consider a possible change in CEO during the sample period. $Controls_{i,t}$ is a vector of control variables, τ_t denotes the year fixed effect for year *t* and η_i the industry fixed effect for firm *i*. The variable *Culture* reflects the cultural dimension of *Long-Term Orientation* from Hofstede (Hofstede et al., 2010), or all dimensions from Hofstede together as separate independent variables. As control variables, we include firm size (*Size)* as the log market value of equity, profitability using return on equity (*ROE*), and growth potential as the book-to-market ratio (*BM*). The company control variables are winsorized at the 1st and 99th percentiles. Concerning CEO characteristics, we include *Age*, *Gender, Total Compensation*, and *Sustainable Compensation Incentives*. We control for board structure using *Board size*, board independence (percentage of non-executive board members, *Non-exec*), and CEO power (*CEO duality*). In addition to the industry and year fixed effects, we include year-by-industry fixed effects to

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[17]As an additional test, we run this analysis using the dependent variable measured contemporaneously (Table 13).

control for variation, both specific to a particular industry and a particular year. All standard errors are clustered at the firm level.

Table 4 documents the results of these analyses. In Models (1) and (2), only the predicting variable *Long-Term Orientation*, year, and industry fixed effects are included. In Models (3) and (4), we also incorporate year-by-industry fixed effects. This allows for a more flexible and nuanced understanding of how the impact of time varies across different industries, capturing trends that are specific to certain industries in certain years. In Models (5), (6), (7), and (8), all control variables are added. Here again, we run the analyses using either year and industry fixed effects or year-by-industry fixed effects. The results show overall a positive and significant relationship between *Long-Term Orientation* and *Environmental Outcomes,* supporting Hypothesis 1. This is robust to adding CEO, Board, and Firm controls, and to using either year and industry fixed effects, or year-by-industry fixed effects. The coefficient for *Environmental Outcomes* becomes smaller when the control variables are added. However, the results do not change in significance. Furthermore, in line with Hypothesis 2, *Long-Term Orientation* is not related to *Environmental Intentions*. These findings suggest that cultural values indeed primarily influence concrete, outcome-based actions rather than symbolic or declarative commitments to environmental performance.

For the next analysis, we include all six cultural dimensions by Hofstede. Culture is a composite construct shaped by the interplay of multiple dimensions. Controlling for all dimensions allows us to isolate the unique effect of *Long-Term Orientation* while accounting for the broader cultural context that may also influence environmental performance. The results are shown in Table 5. Models (1) and (2) include the six dimensions, CEO, Board, and Firm controls, and year-by-industry fixed effects. Year-by-industry fixed effects are used here due to the higher R-squared in the previous analyses. Results show that *Long-Term Orientation* is still significantly related to *Environmental Outcomes,* whilst for the other dimensions, no relation is found. No relation is found between Environmental Intentions and none of the six cultural dimensions. These results indicate that although *Long-Term Orientation* is correlated with *Indulgence* and *Uncertainty Avoidance*, it is ultimately *Long-Term Orientation* that drives the relationship between cultural values and *Environmental Outcomes*. These findings suggest that, while previous research has shown that various cultural dimensions shape firm performance, such as risk-taking, Long-Term Orientation in particular is important for understanding a firm's environmental strategies.

To support the mechanism we hypothesize, cultural heritage truly influences CEOs' commitment to substantial CSR; a stronger link to cultural identity should amplify this

relationship. Accordingly, we use the heritage of the first name as an indicator of parents' cultural attachment. While individuals typically do not choose their surnames, first names are actively selected by parents. Those parents who place greater value on preserving their cultural heritage may be more inclined to choose a first name that reflects their cultural background. The cultural heritage associated with first names is derived using the same method applied to surnames. To capture this dimension of cultural engagement, we conduct an interaction analysis including the match between CEOs' first names and the most likely country of heritage based on the surname. This serves as a proxy for the strength of parental ties to their cultural origins, following the approach of Pan et al. (2020) and Goldstein and Stecklov (2016). In our sample, more than 25% of the CEOs have a first name that matches their surname based on the single most likely country of heritage. When incorporating the interaction between *Long-Term Orientation* and the first name heritage match, we observe that the overall effect of cultural heritage is stronger when the first name aligns with the heritage indicated by the surname.

The results in Table 6 show that while the main effect of *Long-Term Orientation* is small and not statistically significant, the interaction term between *Long-Term Orientation* and *First Name Match* is positive and significant at the 5% level. This suggests that when the CEO's first name also matches their heritage, the positive association between *Long-Term Orientation* and *Environmental Outcomes* becomes stronger. When comparing the interaction model to the baseline models from Table 4, the results suggest that name-based cultural alignment enhances the explanatory power of *Long-term Orientation* for *Environmental Outcomes*. After including the interaction term, the coefficient increases from 0.006 to 0.010. The effect of *Long-Term Orientation* becomes stronger when both paternal (surname) and parental choice (first name) heritage indicators align, suggesting a deeper cultural imprint on the CEO's decision-making and values. Moreover, incorporating first names alleviates the concern that cultural heritage is proxied solely through the male line of descent. The parental choice of a first name may reflect shared cultural roots, thereby serving as an additional robustness check on our results. Thus, the interaction effect supports our hypothesized mechanism that culture shapes environmental preferences, with deeper cultural alignment strengthening this influence.

Additional Tests

First, we employ an instrumental variable to proxy for the quantification of culture. We do this by employing the grammar of a heritage country's dominant language as an instrumental variable for *Long-Term Orientation*, following Chen (2013). This approach provides an alternative to designed cultural dimensions, which may suffer from measurement error or

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subjective bias. Unlike survey-based scores, grammatical structures are stable and exogenous to firm-level decisions. Linguistic features, such as future-time reference, therefore offer a robust and objective source of variation in time orientation. A valid instrument should exhibit a strong and theoretically grounded correlation with national cultural indicators, satisfying the relevance condition. Furthermore, to meet the exclusion condition, it must influence environmental performance only through cultural channels and remain uncorrelated with the regression's error term.

We use the language-based instrumental variable introduced by Chen (2013) as a predictor of economic outcomes (Nash & Patel, 2019). Saussure (1916), credited as the progenitor of both structural linguistics and semiotics, described reality as an 'unstructured phenomenon' that undergoes discretization and organization through language. He explains that if words stood for pre-existing entities, they would all have exact equivalents in meaning from one language to the next, but this is not true. Chen uses future-time reference as the difference between languages and thereby between cultures. Some languages, like English, need to mark future events grammatically by using a future tense, whereas a language like German does not or less so. [18] His hypothesis states that by not separating current and future events grammatically, the future might feel less distant. Therefore, we predict future-time referencing to be negatively related to Long-Term Orientation.

The preceding discussion argues in favor of our instruments meeting the relevance criteria. Moreover, we argue they also meet the exclusion criteria, given that language is not directly linked to environmental performance apart from through culture. Given that the instrumental variable reflects ancestral linguistic structures, not the language spoken in the work environment, it plausibly affects environmental performance only through the cultural imprint on time orientation. Especially since, in the work environment, all CEOs in the U.S. will be speaking English at least the majority of the time. Furthermore, considering environmental performance's improbable impact on language, our instruments can be legitimately regarded as exogenous.

As an instrumental variable, we employ the future-time reference (FTR) in a prediction context, as it has no intentional component, and it cannot be influenced. The data from Chen (2013) includes a web scraping of full-sentence weather forecasts. By focusing on weather reports only, it creates a controlled set of texts on future events. The variable for future-time

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[18] In English, a weather forecast typically uses an explicit future tense: "*It will rain tomorrow.*" By contrast, in Dutch and German, the present tense is often used instead: "*Morgen regent het,*" or "*Morgen regnet es,*" which both directly translate to "*Tomorrow it rains*".

reference in a prediction context is a dummy variable with 1 showing strong future-time reference and 0 showing weak future-time reference. Only Belgium and Switzerland have a value between 0 and 1, as they have more primary languages, depending on the region. This instrumental variable is employed as a robustness test to evaluate the extent to which the results may be influenced by measurement error associated with survey-derived cultural constructs.

The correlation between *Long-Term Orientation* and grammatical future-time reference is -0.71. This is in line with the literature as a future-time reference (FTR) should increase the cognitive distance between the present and the future, and thereby make people more short-term oriented. Table 7 presents the instrumental variable regression results. Panel A reports the results of the first-stage regression. The F-test for the joint significance of the instruments is large and highly significant ($F_{(170, 10521)} = 294.34$, $p < 0.001$), indicating that the instrument is a strong predictor of *Long-Term Orientation*. Model (1) shows that countries with strong FTR scores have significantly lower Long-Term Orientation. Panel B reports the second-stage results: Model (2) shows that the coefficient on the FTR predicted *Long-Term Orientation* is significant at the 5% level, indicating again a positive relation between *Long-Term Orientation* and *Environmental Outcomes*. In Model (3), consistent with expectations, we find no relationship between by FTR instrumented *Long-Term Orientation* and *Environmental Intentions*. These results support the validity of the relationship between *Long-Term Orientation* and *Environmental Outcomes*.

Another way in which we can quantify culture is by replacing the *Long-Term Orientation* scores from Hofstede with the *Future Orientation* scores derived from the GLOBE study. While both measures aim to capture the extent to which individuals or societies prioritize future-oriented behavior, they stem from different foundations. GLOBE's *Future-Orientation* focuses more on behavioral practices and institutional support for long-term planning. By using this alternative measure, we test the sensitivity of our findings to the conceptualization of temporal orientation and confirm whether the predictive power of culturally driven sustainability preferences holds across frameworks. Including the same control variables and year-by-industry fixed effects, the results in Table 8 show that the findings are robust to using *Future Orientation* instead of *Long-Term Orientation*.[19]

Furthermore, due to the ambiguity and critique surrounding CSR performance data, additional analyses examine the relationship between *Long-Term Orientation* and CO_2

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[19] Due to the limited variation of Future Orientation between the countries in our sample, we employ a dummy variable illustrating either a high or low level of Future Orientation.

Emissions. The variable CO_2 emissions represent the total CO_2 and CO_2 equivalent emissions in tonnes divided by net sales or revenue in US dollars in millions. Recent finance literature increasingly adopts emissions as the key measure of environmental performance (e.g., Bolton & Kacperczyk, 2025; Dyck et al., 2024)[20]. The results in Table 9 show a negative relationship between *Long-Term Orientation* and *CO_2 Emissions*. In Model (1), the year and industry fixed effects, together with the predicting variable *Long-Term Orientation,* are included.[21] In Model (2), all other control variables are added. By adding the control variables, the size of the coefficients decreases slightly, and the significance level drops a bit. However, the coefficient remains significant and shows that a higher level of *Long-Term Orientation* leads to a decrease in *CO_2 emissions* and thereby to better credible environmental performance. To assess the economic significance of the relationship, we consider the effect of a one-standard-deviation increase in *Long-Term Orientation*. This change is associated with a reduction of approximately 70 tonnes of *CO_2 emissions* per million USD in revenue. This represents a 14% decrease relative to the sample mean and a 5.5% decrease relative to the standard deviation of *CO_2 emissions*.

To assess the sensitivity of our cultural heritage measure and to ensure that our results are not influenced by how multiple potential countries of origin are handled, we conduct an additional robustness analysis. In our primary methodology, we assign CEOs a weighted average *Long-Term Orientation* score based on multiple likely countries of heritage, following Pan et al. (2020). To verify that including the second and third most likely countries does not dilute the effect of the most likely country, we re-estimate our models using only the *Long-Term Orientation* score of the single most likely country of heritage, as determined following Dodd et al. (2022). Results reported in Table 10 confirm that our findings remain robust when using only the *Long-Term Orientation* value of the most likely country of heritage.

As the next additional test, we include state fixed effects in the regression analyses. The state fixed effects serve two primary purposes. First, it helps control for potential cultural and institutional differences across states that may independently influence firms' environmental practices. Second, historical immigration patterns often concentrated specific ethnic groups in particular states. For instance, a large share of Italian immigrants settled in certain northeastern states during the early 20th century. Controlling for state-level heterogeneity ensures that the observed effects of cultural heritage are not confounded by the regional clustering of cultural

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[20] We do not solely use CO_2 emissions in our main analysis due to the limited coverage. As can be seen in Table 1, only about one/third of the firm year observations remain.
[21] For this analysis we only use year and industry fixed effects due to the significantly smaller number of observations.

groups. In Table 11, we again use year fixed effects and industry fixed effects, or year-by-industry fixed effects. Additionally, in all analyses, the state fixed effects are added. California, New York, and Texas are the most prominently represented states in the sample. Nonetheless, the dataset maintains broad coverage across a wide range of other states. After including state fixed effects, the main results remain largely consistent. This suggests that the findings are not driven by state-level variation.

Moreover, all dependent variables used in the analyses are specified with a one-year lead. This approach helps account for changes in the CEO position, recognizing that while cultural heritage itself does not change, a firm's cultural profile would shift when a new CEO is appointed. However, there is also a rationale for estimating contemporaneous effects. Therefore, as an additional robustness check, we conduct a contemporaneous analysis to test whether the relationship between Long-Term Orientation and environmental performance holds when both variables are measured within the same year. This ensures that our main results are not sensitive to the choice of lead specification and provides evidence that the effect is not driven solely by delayed adjustments but also reflects immediate managerial decision-making. The results, shown in Table 12, remain consistent with our main findings reported in Table 4.

Next, we mitigate a potential limitation related to the way cultural heritage is transmitted through surnames. The methodology used to infer cultural heritage is based on the assumption that the CEO's surname reflects paternal heritage, as surnames are typically passed down from the father. Previous research has shown that male CEOs tend to embody the cultural background of their fathers, while female CEOs are often more influenced by their mothers' cultural heritage (Pan et al., 2020). To address the concern of paternal-based heritage, we exclude the approximately four percent of CEOs in our sample who are female and re-estimate the main analyses accordingly. Results in Table 13 show that the findings hold and even strengthen slightly. This finding supports the notion that for male CEOs, the cultural heritage associated with their surname, typically inherited from their father, serves as a stronger indicator of their underlying values and thereby environmental preferences.

As a final robustness test, we want to ensure that the results of our main analyses are not overly influenced by any single country of origin represented in the sample. This is especially important for countries of origin that appear most frequently, such as Great Britain, Germany, or Ireland.[22] These countries contribute a large share of observations, and their

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[22] Pan et al. (2020) exclude Canada as a country of origin, given that its population is also largely composed of immigrants. When we follow this approach and remove Canada from our sample, the results remain unchanged.

cultural characteristics could dominate the effects if not properly accounted for. To test this, we perform a sensitivity analysis by systematically excluding each of the most represented countries from the dataset and re-estimating the model. The findings shown in Table 14 remain consistent across these iterations, which strengthens the argument that the observed effects are not driven by one specific country of heritage but reflect the broader and more generalizable pattern of the cultural dimension *Long-Term Orientation*.

V.   DISCUSSION & CONCLUSION

This study investigates the relationship between CEOs' cultural heritage value of Long-Term Orientation and their firms' environmental performance. We find that CEOs with a cultural heritage characterized by higher Long-Term Orientation values are associated with stronger Environmental Outcomes performance. In contrast, Environmental Intentions performance shows no relationship with cultural heritage in general and Long-Term Orientation in particular. To test the proposed mechanism, we examine whether a stronger connection to cultural heritage amplifies this relationship and find supporting evidence. None of the other cultural dimensions is related to the environmental performance of the firm.

The results are robust across alternative tests and model specifications. First, an instrumental variable analysis using grammatical future-time referencing in heritage languages reinforces the interpretation that cultural heritage influences environmental performance independently of survey-based cultural dimensions. Second, the findings remain consistent under various alternative specifications, including: employing GLOBE's Future Orientation as an alternative cultural construct, using CO_2 emissions as a singular environmental outcome variable, applying an alternative attribution of Long-Term Orientation values, including state fixed effects to rule out differences between U.S. states with distinct immigration streams, analyzing the relationship contemporaneously, restricting the sample to male CEOs to isolate paternal heritage, and excluding major heritage countries.

Our empirical analyses provide support for all three hypotheses. First, the results confirm Hypothesis 1, which proposed that the aspect of Long-Term Orientation in the cultural heritage of the CEO is associated with the firm's Environmental Outcomes. This finding aligns with previous studies demonstrating the influence of cultural values on CSR across countries (Gallén & Peraita, 2018; D. Griffin et al., 2021; Halkos & Skouloudis, 2017; Wang et al., 2021) and contributes to the literature by providing a novel within-country perspective on the relationship between cultural values and environmental performance. This result offers new insights into the role of Long-Term Orientation values in shaping strategic decision-making, specifically related to sustainability. Second, Hypothesis 2 is also supported. The lack of a significant association between CEO Long-Term Orientation, or any other cultural value, and Environmental Intentions suggests that cultural values matter more when decisions require greater managerial discretion and are less standardized. These findings reinforce prior work emphasizing the conceptual and practical differences between symbolic gestures or signalling strategies and substantive or credible sustainability efforts (Bolton & Kacperczyk, 2025; Dyck

et al., 2024; Zhang et al., 2024). Finally, support for Hypothesis 3 suggests that the strength of the relationship between Long-Term Orientation values and Environmental Outcomes is moderated by the CEO's level of involvement in their cultural heritage. This finding strengthens the argument that it is indeed culturally rooted values that influence managerial priorities in the domain of environmental performance.

Taken together, the empirical findings provide support for the hypotheses developed in this study and reinforce its contributions to the literature. By confirming that CEOs' Long-Term Orientation values, as shaped by their cultural heritage, are positively associated with firms' Environmental Outcomes, this research demonstrates that deeply rooted personal values can meaningfully shape environmental performance. The results also highlight that this effect is specific to substantial or credible actions that require significant commitment and long-term investment, and does not extend to more symbolic or signaling environmental activities. Overall, these findings extend our understanding of how individual-level cultural characteristics translate into concrete corporate behavior, while advancing the broader literature on the role of non-financial motivations in environmental strategy.

The findings of this study have several important implications. Most notably, they underscore the relevance of CEO's deeply-rooted values in shaping environmental performance. This suggests that boards and nomination committees should be mindful of the value systems embedded in leadership backgrounds, particularly when aiming to improve credible environmental performance. Although it is not necessary to solely focus on candidates from countries with higher values of Long-Term Orientation, firms may consider broader indicators of Long-Term Orientation values, such as perseverance and thrift, when selecting top executives if improved environmental performance is desired or required. Our study raises an important question of causality. Do CEOs change environmental strategies once appointed, or are they selected because their values already align with a firm's existing or intended sustainability goals? Although this study does not directly resolve this question, both interpretations support the idea that cultural heritage plays a role in shaping CEO preferences and priorities in corporate decision-making regarding environmental sustainability.

REFERENCES

2004, 2007 Studies—GLOBE Project. (n.d.). Retrieved 30 April 2025, from
http://www.globeproject.com

Andersen, I., & Bams, D. (2022). Environmental management: An industry classification. *Journal of Cleaner Production*, *344*, 130853. https://doi.org/10.1016/j.jclepro.2022.130853

Awaysheh, A., Heron, R. A., Perry, T., & Wilson, J. I. (2020). On the relation between corporate social responsibility and financial performance. *Strategic Management Journal*, *41*(6), 965–987. https://doi.org/10.1002/smj.3122

Bams, D., & van der Kroft, B. (2022). *Tilting the Wrong Firms? How Inflated ESG Ratings Negate Socially Responsible Investing Under Information Asymmetries* (SSRN Scholarly Paper No. 4271852). https://doi.org/10.2139/ssrn.4271852

Barg, J. A., Drobetz, W., El Ghoul, S., Guedhami, O., & Schröder, H. (2023). Board Ancestral Diversity and Voluntary Greenhouse Gas Emission Disclosure. *British Journal of Management*, *n/a*(n/a). https://doi.org/10.1111/1467-8551.12778

Bauer, R., Derwall, J., & Tissen, C. (2022). *Corporate Directors Learn From Environmental Shareholder Engagements* (SSRN Scholarly Paper 3981634). Social Science Research Network. https://doi.org/10.2139/ssrn.3981634

Berg, F., Kölbel, J. F., & Rigobon, R. (2022). Aggregate Confusion: The Divergence of ESG Ratings. *Review of Finance*, *26*(6), 1315–1344. https://doi.org/10.1093/rof/rfac033

Bernile, G., Bhagwat, V., & Rau, P. R. (2017). What Doesn't Kill You Will Only Make You More Risk-Loving: Early-Life Disasters and CEO Behavior. *The Journal of Finance*, *72*(1), 167–206. https://doi.org/10.1111/jofi.12432

Beugelsdijk, S., Maseland, R., & van Hoorn, A. (2015). Are Scores on Hofstede's Dimensions of National Culture Stable over Time? A Cohort Analysis. *Global Strategy Journal*, *5*(3), 223–240. https://doi.org/10.1002/gsj.1098

Billio, M., Costola, M., Hristova, I., Latino, C., & Pelizzon, L. (2021). Inside the ESG ratings: (Dis)agreement and performance. *Corporate Social Responsibility and Environmental Management*, *28*(5), 1426–1445. https://doi.org/10.1002/csr.2177

Bolton, P., & Kacperczyk, M. T. (2025). Firm Commitments. *Management Science*. https://doi.org/10.2139/ssrn.3840813

Brochet, F., Miller, G. S., Naranjo, P., & Yu, G. (2019). Managers' Cultural Background and Disclosure Attributes. *The Accounting Review*, *94*(3), 57–86. https://doi.org/10.2308/accr-52290

Causes of climate change—European Commission. (n.d.). Retrieved 20 January 2024, from https://climate.ec.europa.eu/climate-change/causes-climate-change_en

Chen, M. K. (2013). The Effect of Language on Economic Behavior: Evidence from Savings Rates, Health Behaviors, and Retirement Assets. *American Economic Review*, *103*(2), 690–731. https://doi.org/10.1257/aer.103.2.690

Cook, D., Hewitt, D., & Milner, J. (1972). Uses of the Surname in Epidemiologic Research. *American Journal of Epidemiology*, *95*(1), 38–45. https://doi.org/10.1093/oxfordjournals.aje.a121367

Cronqvist, H., Hutton, I., & Jiang, D. (2019). *Working Class CEOs: Formation of Occupational Norms and Corporate Labor Policies* (SSRN Scholarly Paper ID 3501928). Social Science Research Network. https://doi.org/10.2139/ssrn.3501928

Cronqvist, H., & Yu, F. (2017). *Shaped by their daughters: Executives, female socialization, and corporate social responsibility | Elsevier Enhanced Reader*. https://doi.org/10.1016/j.jfineco.2017.09.003

Dodd, O., Frijns, B., & Garel, A. (2022). Cultural diversity among directors and corporate social responsibility. *International Review of Financial Analysis*, *83*, 102337. https://doi.org/10.1016/j.irfa.2022.102337

Donia, M. B. L., Ronen, S., Tetrault Sirsly, C.-A., & Bonaccio, S. (2019). CSR by Any Other Name? The Differential Impact of Substantive and Symbolic CSR Attributions on Employee Outcomes. *Journal of Business Ethics*, *157*(2), 503–523. https://doi.org/10.1007/s10551-017-3673-5

Dyck, I. J. A., Lins, K. V., Roth, L., Towner, M., & Wagner, H. F. (2024). *Family-Controlled*

Firms and Environmental Sustainability: All Bite and No Bark (SSRN Scholarly Paper 4829162). Social Science Research Network. https://doi.org/10.2139/ssrn.4829162

Edmans, A. (2011). Does the stock market fully value intangibles? Employee satisfaction and equity prices. *Journal of Financial Economics*, *101*(3), 621–640. https://doi.org/10.1016/j.jfineco.2011.03.021

Edmans, A., Gosling, T., & Jenter, D. (2023). CEO compensation: Evidence from the field. *Journal of Financial Economics*, *150*(3), 103718. https://doi.org/10.1016/j.jfineco.2023.103718

El Ghoul, S., & Zheng, X. (2016). Trade credit provision and national culture. *Journal of Corporate Finance*, *41*, 475–501. https://doi.org/10.1016/j.jcorpfin.2016.07.002

Elkington, J. (1998). *Cannibals with forks: The triple bottom line of 21st century business*. New Society Publishers.

Fishbach, A., & Woolley, K. (2022). The Structure of Intrinsic Motivation. *Annual Review of Organizational Psychology and Organizational Behavior*, *9*(1), 339–363. https://doi.org/10.1146/annurev-orgpsych-012420-091122

Flammer, C. (2013). Corporate Social Responsibility and Shareholder Reaction: The Environmental Awareness of Investors. *The Academy of Management Journal*, *56*(3), 758–781. https://doi.org/10.5465/amj.2011.0744

Friedman, M. (2007). The Social Responsibility of Business Is to Increase Its Profits. In W. C. Zimmerli, M. Holzinger, & K. Richter (Eds.), *Corporate Ethics and Corporate Governance* (pp. 173–178). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-540-70818-6_14

Gallén, M. L., & Peraita, C. (2018). The effects of national culture on corporate social responsibility disclosure: A cross-country comparison. *Applied Economics*, *50*(27), 2967–2979. Scopus. https://doi.org/10.1080/00036846.2017.1412082

Goldstein, J. R., & Stecklov, G. (2016). From Patrick to John F.: Ethnic Names and Occupational Success in the Last Era of Mass Migration. *American Sociological Review*, *81*(1), 85–106. https://doi.org/10.1177/0003122415621910

Griffin, D., Guedhami, O., Li, K., & Lu, G. (2021). National Culture and the Value Implications of Corporate Environmental and Social Performance. *Journal of Corporate Finance*, *71*, 102123. https://doi.org/10.1016/j.jcorpfin.2021.102123

Guiso, L., Sapienza, P., & Zingales, L. (2006). Does Culture Affect Economic Outcomes? *Journal of Economic Perspectives*, *20*(2), 23–48. https://doi.org/10.1257/jep.20.2.23

Halkos, G., & Skouloudis, A. (2017). Revisiting the relationship between corporate social responsibility and national culture: A quantitative assessment. Management Decision, 55(3), 595–613. https://doi.org/10.1108/MD-12-2016-0868

Hambrick, D. C. (2007). Upper Echelons Theory: An Update. *The Academy of Management Review*, *32*(2), 334–343. https://doi.org/10.2307/20159303

Hambrick, D. C., & Mason, P. A. (1984). Upper Echelons: The Organization as a Reflection of Its Top Managers. *The Academy of Management Review*, *9*(2), 193–206. https://doi.org/10.2307/258434

Harjoto, M., Jo, H., & Kim, Y. (2017). Is Institutional Ownership Related to Corporate Social Responsibility? The Nonlinear Relation and Its Implication for Stock Return Volatility. *Journal of Business Ethics*, *146*(1), 77–109. https://doi.org/10.1007/s10551-015-2883-y

Harrison, D. A., Price, K. H., & Bell, M. P. (1998). Beyond Relational Demography: Time and the Effects of Surface- and Deep-Level Diversity on Work Group Cohesion. *The Academy of Management Journal*, *41*(1), 96–107. https://doi.org/10.2307/256901

Hart, O., & Zingales, L. (2017). Companies Should Maximize Shareholder Welfare Not Market Value. *Journal of Law, Finance, and Accounting*, *2*(2), 247–275. https://doi.org/10.1561/108.00000022

Hegde, S., & Mishra, D. R. (2019). Married CEOs and Corporate Social Responsibility. *SRPN: Corporate Social Responsibility Issues (Topic)*. https://doi.org/10.2139/ssrn.3055306

Hofstede, G. (2001). Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations. *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations*. https://doi.org/10.1016/S0005-7967(02)00184-5

Hofstede, G. H. (1980). *Culture's consequences: International differences in work-related values*. Sage Publications.

Hofstede, Hofstede, G. J., & Minkov, M. (2010). *Cultures and organizations: Software of the mind: intercultural cooperation and its importance for survival* (3rd ed). McGraw-Hill.

House, R., Hanges, P., Javidan, M., Dorfman, P., & Gupta, V. (2004). Leadership and Organizations: The GLOBE Study of 62 Societies. *ResearchGate*. https://www.researchgate.net/publication/240475527_Leadership_and_Organizations_The_GLOBE_Study_of_62_Societies

Karolyi, G. A. (2016). The gravity of culture for finance. *Journal of Corporate Finance*, *41*, 610–625. https://doi.org/10.1016/j.jcorpfin.2016.07.003

Krüger, P., Sautner, Z., & Starks, L. T. (2020). The Importance of Climate Risks for Institutional Investors. *The Review of Financial Studies*, *33*(3), 1067–1111. https://doi.org/10.1093/rfs/hhz137

Le Breton-Miller, I., Miller, D., Tang, Z., & Xu, X. (2024). CEO Religion and Corporate Social Responsibility: A Socio-behavioral Model. Journal of Business Ethics, 195(1), 167–189. https://doi.org/10.1007/s10551-024-05650-x

Li, J., & Harrison, J. R. (2008). National Culture and the Composition and Leadership Structure of Boards of Directors. *Corporate Governance: An International Review*, *16*(5), 375–385. https://doi.org/10.1111/j.1467-8683.2008.00697.x

Li, K., Griffin, D., Yue, H., & Zhao, L. (2013). How does culture influence corporate risk taking? *Journal of Corporate Finance*, *23*, 1–22. https://doi.org/10.1016/j.jcorpfin.2013.07.008

Liang, H., & Renneboog, L. (2017). On the Foundations of Corporate Social Responsibility. *The Journal of Finance*, *72*(2), 853–910. https://doi.org/10.1111/jofi.12487

Liu, X. (2016). Corruption culture and corporate misconduct. *Journal of Financial Economics*, *122*(2), 307–327. https://doi.org/10.1016/j.jfineco.2016.06.005

Luo, L. L., & Tang, Q. (2016). Does National Culture Influence Corporate Carbon Disclosure Propensity? *Journal of International Accounting Research*, *15*(1), 17–47. https://doi.org/10.2308/jiar-51131

Malmendier, U., & Nagel, S. (2011). Depression Babies: Do Macroeconomic Experiences Affect Risk Taking?*. *The Quarterly Journal of Economics*, *126*(1), 373–416. https://doi.org/10.1093/qje/qjq004

Marra, M., Petmezas, D., Ruan, J., & Yin, C. (2023). *The Impact of CEO Ethnic Cultural Identity: Evidence from Cross-Border Acquisitions* (SSRN Scholarly Paper 4343330). https://doi.org/10.2139/ssrn.4343330

Mateos, P. (2007). A review of name-based ethnicity classification methods and their potential in population studies. *Population, Space and Place*, *13*(4), 243–263. https://doi.org/10.1002/psp.457

McInerney, D. (2019). Motivation. *Educational Psychology*, *39*, 427–429. https://doi.org/10.1080/01443410.2019.1600774

Mihet, R. (2012). Effects of Culture on Firm Risk-Taking: A Cross-Country and Cross Industry Analysis. *Journal of Cultural Economics*, *37*. https://doi.org/10.1007/s10824-012-9186-2

Miska, C., Szőcs, I., & Schiffinger, M. (2018). Culture's effects on corporate sustainability practices: A multi-domain and multi-level view. *Journal of World Business*, *53*(2), 263–279. https://doi.org/10.1016/j.jwb.2017.12.001

Moise, R. K., Meca, A., Schwartz, S. J., Unger, J. B., Lorenzo-Blanco, E. I., Ángel Cano, M., Szapocznik, J., Piña-Watson, B., Des Rosiers, S. E., Baezconde-Garbanati, L., Soto, D. W., Pattarroyo, M., Villamar, J. A., & Lizzi, K. M. (2019). The use of cultural identity in predicting health lifestyle behaviors in Latinx immigrant adolescents. *Cultural Diversity and Ethnic Minority Psychology*, *25*(3), 371–378. https://doi.org/10.1037/cdp0000229

Nash, R., & Patel, A. (2019). Instrumental Variables Analysis and the Role of National Culture in Corporate Finance. *Financial Management*, *48*(2), 385–416.

Osokpo, O., James, R., & Riegel, B. (2021). Maintaining cultural identity: A systematic

mixed studies review of cultural influences on the self-care of African immigrants living with non-communicable disease. *Journal of Advanced Nursing*, *77*(9), 3600–3617. https://doi.org/10.1111/jan.14804

Pan, Y., Siegel, S., & Wang, T. Y. (2017). Corporate Risk Culture. *Journal of Financial and Quantitative Analysis*, *52*(6), 2327–2367. https://doi.org/10.1017/S0022109017000771

Pan, Y., Siegel, S., & Yue Wang, T. (2020). The Cultural Origin of CEOs' Attitudes toward Uncertainty: Evidence from Corporate Acquisitions. *The Review of Financial Studies*, *33*(7), 2977–3030. https://doi.org/10.1093/rfs/hhz109

Rodrigue, M., Magnan, M., & Cho, C. (2013). Is Environmental Governance Substantive or Symbolic? An Empirical Investigation. Journal of Business Ethics, 114. https://doi.org/10.1007/s10551-012-1331-5

Ruggles, S., Nelson, M. A., Sobek, M., Fitch, C. A., Goeken, J., Hacker, J. D., Roberts, E., & Warren, J. R. IPUMS Ancestry Full Count Restricted Data: Version 4.0R [dataset]. Minneapolis, MN: IPUMS, 2024. https://doi.org/10.18128/D014.V4.0R

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology*, *25*(1), 54–67. https://doi.org/10.1006/ceps.1999.1020

Sarker, M. S., & Elnahas, A. (2025). CEO cultural heritage and corporate social responsibility. Journal of Corporate Finance, 94, 102857. https://doi.org/10.1016/j.jcorpfin.2025.102857

Saussure, F. (1916). *Course in General Linguistics*.

Schunk, D. H., & DiBenedetto, M. K. (2020). Motivation and social cognitive theory. *Contemporary Educational Psychology*, *60*, 101832. https://doi.org/10.1016/j.cedpsych.2019.101832

Wang, H., Guo, T., & Tang, Q. (2021). The effect of national culture on corporate green proactivity. *Journal of Business Research*, *131*, 140–150. https://doi.org/10.1016/j.jbusres.2021.03.023

Wittkowski, K. M., Lee, E., Nussbaum, R., Chamian, F. N., & Krueger, J. G. (2004). Combining several ordinal measures in clinical studies. *Statistics in Medicine*, *23*(10), 1579–1592. https://doi.org/10.1002/sim.1778

Zhang, Z., Hou, Y., Li, Z., & Li, M. (2024). From symbolic to substantive green innovation: How does ESG ratings optimize corporate green innovation structure. *Finance Research Letters*, *63*, 105401. https://doi.org/10.1016/j.frl.2024.105401

TABLES

Table 1
Descriptive statistics.

	N	Mean	Std. Dev.	Min	Max	p25	Median	p75
CSR Variables								
E outcomes	12,879	5.403	2.639	0.005	9.786	3.156	5.784	7.641
E intentions	12,879	4.859	1.816	0.685	8.017	3.588	5.294	6.306
CO_2 emissions	4,635	502.077	1262.436	0.861	7,097.615	15.945	45.216	261.842
Culture Variable								
Power Distance	12,676	39.34	14.24	0	104	31.5	34.806	39.338
Individualism	12,676	69.106	12.757	0	90	67	71	76
Masculinity	12,676	60.416	12.743	0	110	60.82	64.935	66.491
Uncertainty Avoidance	12,676	52.343	17.986	0	112	36.63	44.678	65
Long-Term Orientation	12,676	51.678	18.306	0	93	38	49.077	66.081
Indulgence	12,485	54.018	14.436	0	97	42.395	59.833	65.121
Future Orientation Practice	12,249	4.068	0.343	2.88	4.73	3.98	4.27	4.28
Control Variables								
Total Compensation	12,879	7,570.024	6,309.174	240	35,728.762	3,256.32	5,883.409	9,841.581
Sust Comp Incent	12,879	0.222	0.416	0	1	0	0	0
Age	12,856	57.167	6.786	28	90	53	57	61
Gender	12,879	0.043	0.203	0	1	0	0	0
Board Size	12,879	10.092	2.459	3	35	8	10	12
Non Exec	12,879	83.854	8.238	57.143	94.118	80	85.714	90.909
CEO Duality	12,879	0.653	0.476	0	1	0	1	1
Size	12,873	8.566	1.483	5.21	12.316	7.548	8.443	9.532
Book/Market	12,879	0.527	0.418	0	2.288	0.235	0.424	0.719
ROE	12,879	0.129	0.226	-0.699	1.232	0.052	0.111	0.192

Note: This table provides descriptive statistics for the variables used in the analyses over the sample period. The observations are yearly from 2006 up to 2020. The sample contains 1,491 unique firms and 2693 CEOs. The Culture Variables are taken from the Hofstede Six Cultural Dimensions and Future Orientation Practice from GLOBE values. All company control variables are winsorised on the 1st and 99th percentile. The variable gender is coded that 0=male and 1=female. All variables are defined in the Appendix in Table 1A.

Table 2

Pearson correlation.

Variables	1	2	3	4	5	6	7	8	9	10
(1) E outcomes	1									
(2) E intentions	-0.393*	1								
(3) CO_2 emissions	-0.455*	-0.246*	1							
(4) Power Distance	0.045*	0.024*	-0.013	1						
(5) Individualism	-0.074*	-0.006	0.03	-0.649*	1					
(6) Masculinity	-0.015	-0.042*	0.058*	-0.187*	0.284*	1				
(7) Uncertainty Avoidance	0.021	0.022	-0.016	0.581*	-0.518*	-0.126*	1			
(8) Long-Term Orientation	0.057*	0.011	-0.068*	0.264*	-0.141*	-0.047*	0.509*	1		
(9) Indulgence	-0.087*	0.018	0.062*	-0.599*	0.532*	0.034*	-0.670*	-0.605*	1	
(10) Future Orientation Prac.	0.022	0.021	-0.056*	-0.062*	0.148*	-0.198*	-0.019	0.522*	-0.065*	1
(11) Total Comp	-0.308*	0.244*	-0.135*	0.025*	-0.019	-0.047*	0.048*	-0.026*	-0.011	-0.039*
(12) Sust Comp Incent	-0.336*	0.181*	0.207*	0.014	0.021	0.006	0.003	-0.023	0.026*	-0.021
(13) Age	-0.022	-0.033*	-0.001	0.001	-0.017	-0.011	0.023*	-0.02	-0.008	-0.030*
(14) Gender	-0.024*	0.032*	0.027	-0.006	-0.017	0.031*	-0.01	-0.014	0	0.001
(15) Board Size	-0.274*	0.167*	0.044*	-0.064*	0.067*	0.034*	-0.037*	-0.050*	0.085*	-0.036*
(16) Non Exec	-0.248*	0.147*	0.091*	-0.046*	0.042*	0.040*	-0.026*	-0.055*	0.076*	-0.033*
(17) CEO Duality	-0.144*	0.062*	-0.012	-0.034*	0.046*	0.015	-0.015	-0.02	0.031*	-0.003
(18) Size	-0.520*	0.338*	-0.100*	0.017	0.006	-0.022	0.017	-0.042*	0.030*	-0.045*
(19) Book/Market	-0.081*	0.018	0.292*	-0.031*	0.040*	0.022	-0.039*	-0.007	0.026*	-0.01
(20) ROE	-0.074*	0.089*	-0.142*	-0.006	-0.001	-0.019	0.011	-0.011	0.012	0.015

Note: This table reports the Pearson correlation among variables for all observations over fiscal years 2006 to 2020. The '*' indicates significance level at 1%.

Table 3

Country Distribution.

Top		Freq.	Percent
1	Ireland	3465	27.33
2	Germany	3021	23.82
3	Great Britain	2350	18.53
4	Canada	602	4.75
5	Italy	570	4.5
6	Sweden	304	2.4
7	Poland	215	1.7
8	India	207	1.63
9	France	203	1.6
10	Israel	179	1.41
11	Mexico	142	1.12
12	Norway	131	1.03
13	Russia	122	0.96
14	China	121	0.95
15	CzechRep	109	0.86
16	Netherlands	86	0.68
17	Switzerland	82	0.65
18	Greece	74	0.58
19	Iran	58	0.46
20	Hungary	49	0.39

Note: This table reports the distribution of the 20 most presented countries of most likely heritage within the full sample.

Table 4
Regression Long-Term Orientation and CSR performances.

	(1) E outcomes	(2) E intentions	(3) E outcomes	(4) E intentions	(5) E outcomes	(6) E intentions	(7) E outcomes	(8) E intentions
Long-Term Orientation	0.010***	-0.000	0.010***	-0.000	0.006***	0.002	0.006***	0.002
	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
CEO Controls	No	No	No	No	Yes	Yes	Yes	Yes
Board Controls	No	No	No	No	Yes	Yes	Yes	Yes
Firm Controls	No	No	No	No	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No	Yes	Yes	No	No
Industry FE	Yes	Yes	No	No	Yes	Yes	No	No
Year*Industry FE	No	No	Yes	Yes	No	No	Yes	Yes
Observations	11,141	11,141	11,141	11,141	11,114	11,114	11,114	11,114
R-squared	0.292	0.119	0.300	0.135	0.590	0.271	0.593	0.281

Note: This table documents the regression results of the relationship between CEO Long-Term Orientation and Environmental Outcomes and Intentions. The dependent variables are led by one year. All firm control variables are winsorized at the 1st and 99th percentile. Long-Term Orientation presents the weighted average score of the most likely countries of heritage of the CEO. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test). The model uses robust standard errors clustered at the firm level.

Table 5
Regression Hofstede Cultural Dimensions and CSR performances.

	(1) E outcomes	(2) E intentions
Power Distance	-0.003	0.005
	(0.004)	(0.004)
Individualism	-0.006	-0.002
	(0.004)	(0.004)
Masculinity	-0.003	-0.002
	(0.003)	(0.003)
Uncertainty Avoidance	-0.005	-0.000
	(0.003)	(0.003)
Long-Term Orientation	0.006**	0.003
	(0.003)	(0.002)
Indulgence	-0.005	0.005
	(0.005)	(0.003)
CEO Controls	Yes	Yes
Board Controls	Yes	Yes
Firm Controls	Yes	Yes
Year*Industry FE	Yes	Yes
Observations	10,949	10,949
R-squared	0.597	0.284

Note: This table documents the regression results of the relationship between all CEO cultural dimensions from Hofstede and Environmental Outcomes and Intentions. The dependent variables are lead by one year. All firm control variables are winsorized at the 1st and 99th percentile. All cultural dimension scores present the weighted average score of the most likely countries of heritage of the CEO. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test). The model uses robust standard errors clustered on firm level.

Table 6
Regression Long-Term Orientation and CSR, incl interaction first name.

	(1) E outcomes	(2) E intentions
Long-Term Orientation * First Name Match	0.001	0.001
	(0.002)	(0.002)
First Name Match	-0.472*	0.145
	(0.246)	(0.211)
Long-Term Orientation * First Name Match	0.010**	-0.004
	(0.005)	(0.004)
CEO Controls	Yes	Yes
Board Controls	Yes	Yes
Firm Controls	Yes	Yes
Year*Industry FE	Yes	Yes
State FE	Yes	Yes
Observations	10,935	10,935
R-squared	0,632	0,304

Note: This table documents the regression results of the relationship between CEO Long-Term Orientation and Environmental Outcomes, including an interaction effect with First Name Match which is a dummy variable. The dependent variables are lead by one year. All firm control variables are winsorized at the 1st and 99th percnetile. Long-Term Orientation present the weighted average score of the most likely countries of heritage of the CEO. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test). The model uses robust standard errors clustered on firm level.

Table 7

Instrumental variable regressions of culture on CSR.

	(1) Long-Term Orien.	(2) E outcomes	(3) E intentions
Panel A.			
Future Referencing	-27.841***		
	(0.695)		
CEO Controls	Yes		
Board Controls	Yes		
Firm Controls	Yes		
Panel B.			
Predicted Long-Term Orientation		0.007**	0.000
		(0.003)	(0.002)
CEO Controls		Yes	Yes
Board Controls		Yes	Yes
Firm Controls		Yes	Yes
Year*Industry FE	Yes	Yes	Yes
Observations	10,699	10,773	10,773

Note: This table documents the two-stage least squares regression between CEO Long-Term Orientation and Environmental Outcomes and Intentions. The dependent variables are lead by one year. All firm control variables are winsorized at the 1st and 99th percnetile. All cultural dimension scores present the weighted average score of the most likely countries of heritage of the CEO. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test). The model uses robust standard errors clustered on firm level.

Table 8

Regression Future Orientation and CSR Performance.

	(1) E outcomes	(2) E intentions
Future Orientation	0.160**	0.045
	(0.080)	(0.063)
CEO Controls	Yes	Yes
Board Controls	Yes	Yes
Firm Controls	Yes	Yes
Year * Industry FE	Yes	Yes
Observations	11,285	11,285
R-squared	0.592	0.281

Note: This table documents the regression results of the relationship between CEO Future Orientation and Environmental Outcomes and Intentions The dependent variables are lead by one year. All firm control variables are winsorized at the 1st and 99th percnetile. Future Orientation presents a dummy variable for high or low future orientation based on the single most likely country of heritage of the CEO. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test). The model uses robust standard errors clustered on firm level.

Table 9
Regression Long-Term Orientation and CO_2 emissions.

	(1) CO_2 Emissions	(2) CO_2 Emissions
Long-Term Orientation	-5.568**	-3.825*
	(2.618)	(2.278)
CEO Controls		Yes
Board Controls		Yes
Firm Controls		Yes
Year FE	Yes	Yes
Industry FE	Yes	Yes
Observations	4,364	4,358
R-squared	0.119	0.250

Note: This table documents the regression results of the relationship between CEO Long-Term Orientation and CO_2 emissions. The dependent variables are led by one year. All firm control variables are winsorized at the 1st and 99th percentile. All cultural dimension scores present the weighted average score of the most likely countries of heritage of the CEO. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test). The model uses robust standard errors clustered at the firm level.

Table 10
Regression Max Country Long-Term Orientation and CSR performances.

	(1) E outcomes	(2) E intentions
Long-Term Orientation	0.005***	0.001
	(0.002)	(0.001)
CEO Controls	Yes	Yes
Board Controls	Yes	Yes
Firm Controls	Yes	Yes
Year*Industry FE	Yes	Yes
Observations	11,112	11,112
R-squared	0.594	0.281

Note: This table documents the regression results of the relationship between CEO Long-Term Orientation and Environmental Outcomes and Intentions. The dependent variables are lead by one year. All firm control variables are winsorized at the 1st and 99th percentile. Long-Term Orientation presents the score from the single most likely country of heritage of the CEO. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test). The model uses robust standard errors clustered on firm level.

Table 11
Regression Long-Term Orientation and CSR, incl State FE.

	(1) E outcomes	(2) E intentions	(3) E outcomes	(4) E intentions
Long-Term Orientation	0.004**	0.001	0.004**	0.001
	(0.002)	(0.002)	(0.002)	(0.002)
CEO Controls	Yes	Yes	Yes	Yes
Board Controls	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No
Industry FE	Yes	Yes	No	No
Year*Industry FE	No	No	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Observations	11,114	11,114	11,114	11,114
R-squared	0.625	0.293	0.629	0.303

Note: This table documents the regression results of the relationship between CEO Long-Term Orientation and Environmental Outcomes and Intentions. The dependent variables are lead by one year. All firm control variables are winsorized at the 1st and 99th percentile. Long-Term Orientation presents the weighted average score of the most likely countries of heritage of the CEO. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test). The model uses robust standard errors clustered on firm level.

Table 12
Regression Long-Term Orientation and Environmental Outcomes, Contemporanously.

	(1) E outcomes	(2) E intentions
Long-Term Orientation	0.005**	0.002
	(0.002)	(0.002)
CEO Controls	Yes	Yes
Board Controls	Yes	Yes
Firm Controls	Yes	Yes
Year * Industry FE	Yes	Yes
Observations	12,648	12,648
R-squared	0.584	0.303

Note: This table documents the regression results of the relationship between CEO Long-Term Orientation and Environmental Outcomes and Intentions. All firm control variables are winsorized at the 1st and 99th percentile. Long-Term Orientation presents the weighted average score of the most likely countries of heritage of the CEO. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test). The model uses robust standard errors clustered on firm level.

Table 13

Regression Long-Term Orientation and CSR Performance, male only.

	(1) E outcomes	(2) E intentions	(3) CO_2 Emissions
Long-Term Orientation	0.007***	0.002	-4.846**
	(0.002)	(0.002)	(2.377)
CEO Controls	Yes	Yes	Yes
Board Controls	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes
Year*Industry FE	Yes	Yes	Yes
Observations	10,671	10,671	4,146
R-squared	0.595	0.282	0.266

Note: This table documents the regression results of the relationship between CEO Long-Term Orientation and Environmental Outcomes and Intentions in a male CEO sample only. The dependent variables are lead by one year. All firm control variables are winsorized at the 1st and 99th percnetile. Long-Term Orientation presents the weighted average score of the most likely countries of heritage of the CEO. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test). The model uses robust standard errors clustered on firm level.

Table 14

Regression Long-Term Orientation and Environmental Outcomes, excluding countries.

	(1) E outcomes	(2) E outcomes	(3) E outcomes	(4) E outcomes	(5) E outcomes
Long-Term Orientation	0.006***	0.005*	0.007**	0.006***	0.006***
	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
CEO Controls	Yes	Yes	Yes	Yes	Yes
Board Controls	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes
Excluded Country	Great Britian	Ireland	Germany	Canada	Italy
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Observations	9,065	8,024	8,466	10,589	10,626
R-squared	0.591	0.594	0.592	0.589	0.589

Note: This table documents the regression results of the relationship between CEO Long-Term Orientation and Environmental Outcomes. The dependent variables are lead by one year. All firm control variables are winsorized at the 1st and 99th percnetile. Long-Term Orientation presents the weighted average score of the most likely countries of heritage of the CEO. In every model, one of the most well presented countries of heritage is excluded from the analysis. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test). The model uses robust standard errors clustered on firm level.

Table 1A
Variable Definitions and Data Sources.

Variable	Source	Definition
Panel A: Culture		
Long-Term Orientation	Hofstede Dimensions	The focus on future rewards through persistence and thrift versus respect for tradition and fulfilling social obligations.
Power Distance	Hofstede Dimensions	The extent to which less powerful members of a society accept and expect unequal power distribution.
Individualism	Hofstede Dimensions	The degree to which people prioritize personal goals over group goals and relationships.
Masculinity	Hofstede Dimensions	The preference for achievement, competition, and material success versus cooperation, care, and quality of life.
Uncertainty Avoidance	Hofstede Dimensions	The extent to which a culture feels threatened by ambiguity and relies on rules and structures to reduce uncertainty.
Indulgence	Hofstede Dimensions	The degree to which societies allow relatively free gratification of basic human drives versus regulating them through strict norms.
Future Orientation	GLOBE Project	The extent to which individuals in a society engage in future-oriented behaviors such as planning, investing, and delaying gratification in daily life.
Panel B: Sustainability Performances		
Environmental Outcomes	Calculated based on data from Refinitiv	333 granular environmental and social variables are ranked using Wittkowski's method for multivariate ordinal data (Wittkowski, 2003). After all variables have been ranked relative to all other companies in the sample, they have been separated into 2 different categories.
Environmental Intentions	Calculated based on data from Refinitiv	Environmental outcomes, environmental intentions. Outcomes for both the environmental variables include measurable outcomes and controversies. Intentions for environmental variables include targets, actions, policies, and reporting.
CO_2 Emissions	Refinitiv	Total CO2 and CO2 equivalents emission in tonnes divided by net sales or revenu in US dollars in million
Panel C: Firm Characteristics		
Firm size	CRSP/Compustat	Market value in millions of US dollars measured at the end of the calendar year; log-transformed and winsorized at 1st and 99th percenti
Book to Market	CRSP/Compustat	Book to market ratio.
ROE	CRSP/Compustat	Return on equity (in%): (Operating income / Shareholders' equity) and winsorized at 1st and 99th percentile.
Panel D: Board Characteristics		
Boardsize	Refinitiv	Board size of the firm
Non Exec	Refinitiv	The percentage of non-executive board members in the board.
CEO Duality	Refinitiv	Dummy variable of CEO / chairman duality
Panel E: CEO Characteristics		
Age	Execucomp	Age of director
Gender	Execucomp	Gender of director (0=male, 1=female)
Total Compensation	Execucomp	Salary, bonus, restricted stock and stock options, long-term non-equity incentive pay-outs, and all other compensation
Sust. Comp. Incent.	Refinitiv	Dummy variable showing if CSR metrics are included in CEO compensation package.

Note: This table contains definitions for all variables employed in our empirical analysis and principal sources of data used to compute their values.

Table 2A

Composition CSR variables examples.

Variable Name	Category	Description
Environmental Intentions		
Resource Reduction Policy	Policy	Policy for reducing use of natural resources or to lessen environmental impact of its supplychain
Policy Water Efficiency	Policy	Policy to improve water efficiency
Resource Reduction Targets	Target	Specific targets set on resource efficiency
Targets Water Efficiency	Target	Specific targets on water efficiency
Environment Management Team	Activity	Does the company have an environmental management team
Environmental Supply Chain Monitoring	Activity	Does the company conduct surveys of the environmental performance of its suppliers
Toxic Chemicals Reduction	Report	Does the company report on initiatives to reduce toxic chemicals
Green Buildings	Report	Does the company report about environmentally friendly or green sites or offices
Environmental Outcomes		
Total Energy Use to Revenues USD in M	Performance	Total direct and indirect energy consumption and gigajoules divided by net sales or revenu
Renewable Energy Use Ratio	Performance	Total energy purchased from primary renewable energy sources divided by total energy use
Environmental Controversies Count	Controversy	Number of controversies related to environmental impact
Recent Environmental Controversies	Controversy	Number of controversies related to environmental impact since the last fiscal year company update

Note: This table contains examples for which variables are included into which category within our environmental outcomes and intentions variables.

Table A3
Regression Environmental Intentions and Environmental Outcomes.

	(1) E outcomes	(2) E outcomes	(3) E outcomes	(4) E outcomes	(5) E outcomes	(6) E outcomes
E intentions	-0.165*** (0.023)			-0.003 (0.011)		
E intentions $_{t-1}$		-0.170*** (0.024)			-0.008 (0.011)	
CO_2 Emissions			-0.001*** (0.000)			-0.000*** (0.000)
CEO Controls	Yes	Yes	Yes	Yes	Yes	Yes
Board Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year * Industry FE	Yes	Yes	Yes	No	No	No
Firm FE	No	No	No	Yes	Yes	Yes
Year FE	No	No	No	Yes	Yes	Yes
Observations	11,285	9,831	4,027	11,242	9,758	3,945
R-squared	0.600	0.601	0.622	0.955	0.958	0.955

Note: This table documents the regression results of the relationship between Environmental Intentions and Outcomes. In this model, we use firm-fixed effects as well as of year-by-industry fixed effects to get a within-firm perspective. The Environmental Outcomes variables are lead by one year. Environmental Intentions t-1 is the lagged variable for Environmental Intentions. All firm control variables are winsorized at the 1st and 99th percentile. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test). The model uses robust standard errors clustered on firm level.