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## Temporal Orientation and Corporate Social Responsibility: Global Evidence

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**ABSTRACT** There has been a growing emphasis on the importance of a long-term perspective in academia and practice. Yet understanding of the interdependency of those factors – the temporal preferences embedded in organizations and in societal values as well as the influence of temporal orientation of investors – remains limited. We theorize whether and how a firm's corporate social responsibility (CSR) is affected by the societal temporal orientation, its time horizon, and its investors' time horizon. Using a global sample, we confirm that CSR activity is higher when a country has a long-term orientation culture, when the firm has a long-time horizon, and when the controlling institutional investor has a long-term investment horizon. We also find that the national culture's long-term orientation heightens the effect of a firm's long-time horizon on its CSR. Further, our results show that the effects of temporal orientation are more pronounced in environmental than in social CSR.

**Keywords:** corporate social responsibility, temporal orientation, short-termism, patient capital, stakeholder theory, global corporate governance

### INTRODUCTION

Corporate social responsibility (CSR), defined as socially conscious discretionary corporate actions beyond legal mandates, carries key strategic implications (Carroll, 1979; McWilliams et al., 2006; McWilliams and Siegel, 2001). Whereas all strategic decisions have intertemporal facets since firm's benefits and costs accrue over time (Lavery, 1996; Loewenstein and Thaler, 1989), temporal issues are especially important in CSR decisions because building relationships with stakeholders takes time and requires new organizational capabilities (Teece et al., 1997), and CSR gains amass over time. Acquisition of such capabilities, which may include dealing with employees, suppliers, customers,

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or the community at large in a sustainable fashion, requires changes in organizational routines or structure and may be hard to achieve in the short term.

Prior research examines CSR from various perspectives and levels of analysis. A key lens has been institutional theory (Campbell, 2007), which examines CSR from a comparative institutional perspective, including non-governmental organization activism (Doh and Guay, 2006), political and education systems, governmental labour policies (Ioannou and Serafeim, 2012; Young and Makhija, 2014), and language (Liang et al., 2018), as well as institutional collectivism and power distance (Waldman et al., 2006). For organizational drivers, prior studies identify two sets of CSR antecedents – reactive and proactive (Aguinis and Glavas, 2012), including stakeholder pressure (Kassinis and Vafeas, 2006), firm motives (Bansal and Roth, 2000), and corporate governance (Walls et al., 2012). These organizations are embedded in institutions (North, 1990), and national differences (e.g., shareholder versus stakeholder orientation; Hall and Soskice, 2001) exert a significant impact on firm decisions, including CSR.

As such, strategic choices such as CSR decisions are outcomes of the interaction between institutions and organizations (Peng et al., 2008). Given that CSR is an intertemporal decision in which the timing of costs and benefits is spread over time (Loewenstein and Thaler, 1989), and in light of the significant impact of institutions, understanding how temporal aspects of institutions shape firm CSR is critical. Yet we have limited understanding of this aspect (Aguinis and Glavas, 2012), i.e., how organizations react to institutional temporality and whether it complements or substitutes firm CSR. The extant literature offers limited and inconsistent guidance. Long-term-oriented institutions can facilitate CSR because firms in stakeholder-oriented countries focus more on long-term strategies, including CSR, whereas firms based in short-term-focused, shareholder-centric countries can encourage CSR as a substitute for institutionalized stakeholder forms (Aguilera et al., 2007; Höllerer, 2013; Jackson and Apostolakou, 2010). CSR may be weaker if the societal long-term mindset and infrastructure are taken for granted by the firm, lessening the need for the firm to engage in long-term projects such as CSR, or stronger if a firm is responsive to general societal norms or pressures stemming from the long-term orientation (LTO) culture of the country in which the firm is based.

At the same time, organizational response and performance are a product of the organization's own time horizon (e.g., Flammer and Bansal, 2017; Wang and Bansal, 2012) and the investment time horizon of shareholders (Bushee, 1998; Stein, 1988). Investor's temporal orientation has been further refined as 'patient capital' which refers to financial instruments of a firm where investors or creditors have a long-time horizon or can benefit from long-term investments (Barton and Wiseman, 2014; Cremers and Pareek, 2016; Deeg and Hardie, 2016; Ivashina and Lerner, 2019). Yet understanding of the interdependency of these actors – the temporal preferences embedded in managers and investors at the firm level, and in societal values at the national level – remains limited. Studies on corporate governance and CSR report inconsistent evidence (e.g., Harjoto et al., 2015; Oh et al., 2011; Walls et al., 2012). Furthermore, studies rarely consider investors' temporal orientations and utilize samples limited to a single region, forfeiting comparative opportunities.

In this paper, we address these gaps – the temporal aspects of institutions that shape firm CSR and the temporal orientation of investors (i.e., patient capital) in CSR – to theorize the temporal facet of institutions, organizations, and investors. We investigate how the heterogeneity of temporal orientation can lead to diverse responses concerning firm CSR. Our focus on temporal orientation is based on the key role of time in strategic decisions (Ancona et al., 2001; Laverly, 1996, 2004) and its cultural dimensions (Hofstede, 1993; House et al., 2004), including, but not limited to, shareholders' time horizon (Bushee, 1998). Our main prediction is that CSR will vary with the national culture (or, in North's, 1995 language, 'informal institutions') in which the firm is embedded, with LTO associated with higher CSR activity; whereas at the firm level, companies with long-term horizons (LTH) and a controlling shareholder with a longer investment time horizon will be more inclined to engage in CSR. In terms of firm response to institutional temporality, we posit that the complementarity – LTO culture amplifies the positive influence of firm LTH on CSR, rather than substitutes – is more likely if corporate management is responsive to general societal norms or pressures stemming from the LTO culture of the country in which the firm is located.

Empirically, we examine the effects of time orientation on CSR in global firms from 44 countries. We find robust evidence across methods that CSR activities are higher when a country has an LTO culture and when the firm and controlling shareholder have a longer time horizon and are concerned with future value creation. We further document that the time horizon effect on CSR at the firm level is heightened by LTO at the national level. Last, we find heterogeneity in the temporal focus across CSR types, so that a long-term outlook is more important in environmental CSR than in social CSR. In a departure from the CSR literature, we address potential selection and omitted variable biases, using hierarchical multilevel models as proposed by Lindner et al. (2021), and Peterson et al. (2012), among others, as well as the Heckman selection model to address selection bias caused by missing CSR entries.

This study makes several contributions. First, we contribute to the literature at the intersection of CSR and institutional theory (Höllerer, 2013; Ioannou and Serafeim, 2012; Jackson and Apostolakou, 2010; Waldman et al., 2006; Young and Makhija, 2014) by examining organizations and institutions simultaneously and linking them to the temporal facet. Second, we also contribute to understanding the role of investors in CSR beyond the extant literature (e.g., DesJardine et al., 2021; Doh et al., 2010; Hawn et al., 2018). By linking Stein's (1988) and Bushee's (1998) concepts of investor's time horizons, as refined by patient capital literature (Cremers and Pareek, 2016; Deeg and Hardie, 2016; Ivashina and Lerner, 2019), as it relates to CSR, we find that influential investors' time horizon is a predictor of CSR. Third, we contribute to the broader CSR literature that distinguishes between environmental CSR, which purports to serve future stakeholders and has a longer time frame (Russo, 2003), and social CSR, which focuses on contemporary stakeholders and societal issues (Clarkson, 1995; Hillman and Keim, 2001). Specifically, we extend and refine the distinction by showing the temporal differences between the two, suggesting that the long-term perspective is more important in environmental CSR than in social CSR.

## THEORY AND HYPOTHESES

### Theories of CSR

Two seemingly conflicting perspectives exist vis-à-vis CSR. Agency theory (Jensen and Meckling, 1976) views CSR as an expense that reduces profits or cash flows for shareholders, although it may promote employee morale or societal interests (Friedman, 1970; Surroca and Tribó, 2008). Stakeholder theory rather takes a long-term perspective, stressing the building of relationships with stakeholders and creating value for all (Freeman, 1984; Freeman et al., 2004). Both stakeholder theory and CSR underscore the worth of incorporating societal interests in business, though the former views firms from the angle of their stakeholders and the latter embeds the perspective of society, referring to company's activities oriented toward society at large (Dmytriyev et al., 2021; Freeman, 1984; Freeman and Dmytriyev, 2017).

Social and environmental practices boost labour productivity (Edmans, 2011), elicit support from other significant stakeholders (Henisz et al., 2014), and decrease a firm's operational risk exposure to unfavourable market events (Godfrey et al., 2009). In a similar vein, Jensen (2010) acknowledges the need to consider the interests of various stakeholders to maximize long-term firm value, calling for 'enlightened value maximization' and encouraging the addition of integrity to the financial economics paradigm (Erhard and Jensen, 2014). From this perspective, firms pay attention to salient stakeholder relations that affect or are affected by corporate activities or outcomes (Freeman, 1984), making them more likely to consider CSR when a stakeholder possesses power and/or legitimacy (Mitchell et al., 1997). Indeed, by engaging in CSR in response to societal needs, a firm may gain social and political legitimacy, which can help ensure its long-term survival (Meyer and Rowan, 1977). CSR may thus signal responsiveness to the concerns of key stakeholders (Bansal and Roth, 2000).

Implicit in stakeholder theory is that a long-term perspective is necessary to build intangible assets such as stakeholder relationship and reputation, which takes time and indicates long accrual and hence deferred gain (Sully de Luque et al., 2008). In addition, a longer time horizon alleviates myopic behaviours and increases the proclivity to invest in stakeholder relationships and exhibit stronger performance (Barton et al., 2017; Flammer and Bansal, 2017). Corporate engagement in social and environmental issues is one example of intertemporal choice in which the timing of costs and benefits are spread over time (Loewenstein and Thaler, 1989); the best choice in the short term is not necessarily optimal over the long run, and vice versa (Laverty, 1996). Thus, a long-term perspective is necessary not only to build intangible assets such as reputation and stakeholder relations but also to accrue investment gains over the long term.

Yet, deficiencies of myopic managers and investors are well recognized in both scholarly (e.g., Porter, 1992; Shleifer and Vishny, 1990) and popular circles. The latter is exemplified by a statement made by Richard Lambert, the head of the Confederation of British Industry: *'If you concentrate on maximizing value to shareholders over the short term, you put at risk the relationships that will determine your longer-term success'* (The Economist, 2010). Various authors (Bebchuk and Stole, 1993; Bushee, 2001; Stein, 1989; Thakor, 1990)

argue that myopic firms tend to pursue short-term results, manipulate quarterly earnings, and distort capital allocation – reducing long-term investments such as research and developments (R&D). Narayanan (1985) and others attribute this short-termism to managerial incentives or compensation tied to short-term performance. Thus, it is plausible that the long-term investment horizon of a firm's controlling investors can rectify the myopic behaviour of its managers, enabling the pursuit of long-term strategies such as CSR. This should hold irrespective of the drivers behind the firm's LTO (e.g., managerial incentives, innate management values, or the national culture in which firms and managers are embedded).

Firms are sensitive to how they are perceived by others, including the general public, as their reputation may have a wide-ranging impact not only on financial performance but also on staff recruitment and motivation, and on relationships with government, investors, and business partners (e.g., inclusion of CSR score in *Fortune's* list of Most Admired Companies) (Doh et al., 2010; Shenkar and Yuchtman-Yaar, 1997). At the same time, CSR may increase stakeholders' attention to corporate crises, mitigating potentially adverse impacts (Janssen et al., 2015).

### LTO of the National Culture

Firm behaviour is affected by the national environments in which they are embedded (North, 1990), and societal-level culture – values, beliefs, and assumptions – predicts organizational practices that are regarded as acceptable and most often enacted (Hofstede, 1993; House et al., 2004; Peng et al., 2008). Organizations are in part socially constructed with coercive, normative, or mimetic pressures to adopt practices that enhance legitimacy (DiMaggio and Powell, 1983). Thus, culture and socio-economics constrain or enable socially responsible practices (Aguilera et al., 2007; Ioannou and Serafeim, 2012; Matten and Moon, 2008).

Time orientation is a key cultural dimension that guides human behaviour and is found in all cultures (Ashkanasy et al., 2004; Kluckhohn and Strodtbeck, 1961). National culture influences organizational practices, such as the design of managerial compensation and '*a propensity to save and invest*' (Hofstede et al., 2010), and we posit that the long-term/future orientation of society influences the proclivity of a firm to engage in CSR.

Hofstede's LTO (Hofstede, 1993, 2010)<sup>[1]</sup> refers to '*the fostering of virtues oriented towards future rewards, in particular perseverance and thrift*'. Ranking high on LTO implies fostering pragmatic virtues oriented toward future rewards and preference for delayed gratification, even at the expense of current profit. In contrast, a low LTO ranking indicates a tendency to focus on immediate gains. Similarly, in the GLOBE schema, high future orientation (FO) suggests patience and working toward long-term success, spiritual fulfilment along with material success, and flexible organizations (House et al., 2004). FO cultures show a strong willingness to formulate goals and develop strategies for achieving them (Ashkanasy et al., 2004), and firms embedded in those cultures demonstrate greater CSR (Miska et al., 2018). We define LTO/FO culture as the fostering of virtues directed toward future rewards, featuring thrift, perseverance, and planning. This captures both Hofstede's (1993, 2010) thrift-focused LTO and GLOBE's FO culture.



In sum, given that the CSR decision is an intertemporal choice where the timing of costs and benefits is spread over time (Loewenstein and Thaler, 1989), firms in high LTO/FO cultures that foster future goals rather than present virtues are more inclined to conduct CSR. We recognize that cultural traits are not the only factor affecting CSR and that sensitivity to cultural traits vary depending on firm and industry features. We posit that CSR is associated with country LTO/FO culture, *ceteris paribus*.

*Hypothesis 1:* Long-term orientation (LTO) or Future orientation (FO) of a firm's home culture is positively associated with its CSR.

### **LTH (Long-term Horizon) at the Firm Level**

Time horizon is a temporal factor affecting organizational decisions (Ancona et al., 2001). Within organizations, timing norms are expected patterns of paced activity, which governs organizational activities with organization-specific information such as explicit pressures, implicit cycles, or cultural norms of time (Ancona et al., 2001; Bluedorn and Denhardt, 1988). Firms are not uniform in their cultural norms of time; some are short-term oriented, whereas firms with LTH generally reward long-term benefits over short-term outcomes.

A decision about social investment is an intertemporal choice, which may not accrue short-run benefits. Such investment may not contribute to quarterly earnings or other short-term outcomes, but is crucial to the building and nurturing of intangible assets (e.g., social capital, legitimacy, and reputation) that take time to form, deploy, and generate a payoff (Hart, 1995; Russo and Fouts, 1997; Wang and Bansal, 2012). Managing stakeholders, a crucial part of such investment, requires new capabilities which in turn requires changes in firm routines or structures and may be difficult to achieve in the short term.

Rewards from social and environmental practices accrue over the long run and a firm increases investment in stakeholder relationships when long-term incentives are meted. Intangible assets accumulated from a social investment elicit support from stakeholders (Henisz et al., 2014) or serve as a buffer, shielding the firm from unfavourable market events (Godfrey et al., 2009). Given the nature of intangible assets and the uncertainty of short-term variabilities, it is hard to predict direct and tangible benefits of CSR investment in the short run. To the extent that social and environmental practices are associated with stakeholder interests, LTH at the firm level also pertains to long-term organizational strategies such as CSR. Related findings suggest that LTH increases a firm's proclivity to invest in stakeholder relationships and contribute to value creation, increasing employee satisfaction (Edmans, 2011) or shareholder value (Flammer and Bansal, 2017) through mechanisms such as intangible assets (Hillman and Keim, 2001) or organizational resilience (Ortiz-de-Mandojana and Bansal, 2016).

Barton et al. (2017) show that organizations with strong short-term pressures delay new projects, whereas those with long-term goals invest consistently and care less about quarterly targets, fostering diverse cultures. Managerial incentives (Narayanan, 1985) also contribute to an increase in managers' myopic behaviour, which may lead to underinvestment in long-term projects (Bebchuk and Stole, 1993). Stein (1989) develops a model where myopic

corporate behaviour in efficient capital markets leads to a reduction in long-term investment such as R&D. He shows that capital market pressures determined by takeover attempts and the financial slack that funded investment add to myopic behaviour by managers. Because the fruits of CSR are realized in the distant future, CSR is incompatible with the behaviour of myopic firms or firms with a short-term time horizon (Graves and Waddock, 1994). In sum, we expect a positive association between a firm's time horizon and CSR.

*Hypothesis 2:* Long-term horizon (LTH) of a firm is positively associated with its CSR.

### **Interactions between National and Firm Temporal Effects**

In the prior section, we propose that both LTO at the national level and LTH at the firm level result in higher CSR engagement. In this section, we examine how firm-level temporal factors interact with national LTO. We argue that the relationship between the temporal orientation of a firm and CSR is contingent on national culture. Specifically, LTO of a country and LTH of a firm interact and reinforce each other, creating a virtuous circle (Weber et al., 1996). As organizations are embedded in a society, the societal system has major influence on organizational practices; society's cultural values and beliefs are reflected in the organizations in which they function (House et al., 2004, p. 656).

National differences explain the diversity of corporate governance, an influential factor in organizational decisions (Denis and McConnell, 2003; Hall and Soskice, 2001; Shleifer and Vishny, 1997). To illustrate, market-based governance is characterized by shareholder orientation, impatient short-term orientation, and ownership dispersion. In contrast, bank-centred governance shows greater ownership concentration, stakeholder consideration (e.g., creditors, employees, community), and patient long-term culture (Weimer and Pape, 1999). Since firms build relationships with stakeholders in line with societal or national institutions (Hall and Soskice, 2001), there should be an interactive relation in the temporal effects between firm and national levels. That is, in a country emphasizing long-term relationships, firms would be more concerned with relationships between firms and stakeholders in the long term.

In addition, a patient longer term culture may promote long-term minded institutional activists interested in mobilizing and deploying resources toward long-term social enterprise. An example is a socially responsible investment (e.g., public pension fund) that has a long investment horizon and may speak up on ethical issues as well as environmental, social, and governance matters. Another example is Principles for Responsible Investment, a non-governmental organization and a United Nations partner that emphasizes long-term value creation and encourages institutional investors to consider social, environmental, and governance issues in investment decisions. We surmise that the influence of institutional activists is more important in LTO countries, which reinforces the effect of firm LTH on CSR.

In sum, an LTO culture should amplify the positive influence of firm LTH on CSR. In a country that puts a high value on long-term relationships, decisions on social investment may be encouraged and be more acceptable to others, compared to one where short-term value maximization is emphasized.<sup>[2]</sup>



*Hypothesis 3:* The association between a firm's LTH and CSR is heightened if the firm is in a country with LTO/FO culture.

### **LTH of Controlling Shareholders**

Berle and Means (1932) concept of the modern corporation presupposes the primacy of shareholder interests as a defining firm objective, subject to adaptation for agency costs due to the divergence of interests between ownership and management (Jensen and Meckling, 1976). Ironically, the development of modern capital markets may have contributed to the preoccupation with short-run results. Such pressure toward myopic behaviour stems from an emphasis on short-term returns and managerial incentives based on short-term earnings (e.g., Narayanan, 1985; Stein, 1989) as well as from general societal culture. Stein (1988) argues that takeover pressure could lead managers to sacrifice long-term interests to boost current profits. Bushee (2001), in contrast, argues that managerial myopia stems from an ownership base dominated by short-term-focused institutional investors. According to Bushee (1998), many transient institutions (i.e., impatient capital) have short-term investment horizons, and dedicated institutions tend to provide longer-term and stable ownership. This is typified by low investment turnover and a preference for long-term value over short-term gain. Although overall institutional ownership, on average, encourages CSR (Dyck et al., 2019), this aggregate effect may mask the heterogeneity of investor time preferences.

Patient capital refers to financial instruments of a firm where investors or creditors with a long-time investment horizon or can benefit from long-term investments (Barton and Wiseman, 2014; Ivashina and Lerner, 2019). The comparative economic and management literature (Aguilera and Jackson, 2010; Goyer, 2011; Porter, 1992) contrasts patient capital from relationship banks with market-based commercial banking, which is less patient. The finance literature documents the effect of managerial myopia on long-term investments (e.g., Bebchuk and Stole, 1993; Bushee, 1998; Stein, 1988) and improved corporate decisions with long-term investors (Harford et al., 2018). Deeg and Hardie (2016) extend the concept of patient capital and provide a framework for rating patient capital as a continuum depending on investors' willingness to engage and exit as well as their initial projected investment horizon. By spreading benefits and costs over time, such investors improve corporate decisions, provide better monitoring (Dharwadkar et al., 2008), resist short-term pressure (Zhang and Gimeno, 2016), show superior post-merger performance (Chen et al., 2007), and outperform short-term investors (Cremers and Pareek, 2016). In his 2020 annual letter, BlackRock CEO Larry Fink hails the role of patient capital, claiming a firm cannot achieve long-term profitability without embracing the needs of a broad range of stakeholders.

We posit that the shorter the controlling investors' time horizon, the lower the interest of managers in engaging in CSR that may bear fruit over the long haul. Since corporate managers are sensitive to the controlling owner's time preference, this suggests that a firm controlled by long-term-oriented institutional investors tends to engage in more long-term projects including CSR, well suited to long-term value creation via

legitimacy, reputation, resilience, and social capital, as well as organic value-added investments.

*Hypothesis 4:* LTH of a firm's controlling investor is positively related to its CSR.

## Environmental Versus Social CSR

Early CSR studies tend to focus on social issues, whereas sustainability studies emphasize environmental issues. However, this distinction blurs over time and studies include both social and environmental duties (Bansal and Song, 2017; Flammer, 2013). To decipher the theoretical mechanism of temporal orientation, one should unpack CSR types, social vs. environmental. Social CSR is relevant to relations with stakeholder management and social issues management (Clarkson, 1995; Hillman and Keim, 2001), whereas sustainability or environmental CSR emphasizes the link between the environment or its goals, and economic activity or its goals (Hart, 1995; Russo, 2003). To address environmental issues, firms reduce emissions, minimize the use of natural resources, and invest in environmentally friendly technologies.

Drawing on prior literature, we define environmental CSR as environment-related engagement or investment for future generations, and social CSR as activities that address societal concerns with a focus on current stakeholders, including internal stakeholders' concerns, such as paying fair wages to employees, and external stakeholders' issues such as maintaining relationships with suppliers, consumers, and community; caring about diversity; and so forth.

Although CSR broadly requires long-term commitment compared to ordinary non-CSR activities, there could be a difference in the degree of temporal orientation across CSR types. To illustrate, benefits from employment well-being or disaster relief philanthropy are tangible but short-lived, whereas benefits from reducing pollution are intangible and long haul. In particular, the sustainability concept contains a time dimension as it refers to a commitment to economic and environmental goals for a lengthy time frame (Russo, 2003). In that sense, the outcome of environmental CSR can be obscure in the short term, compared to social CSR, which addresses concurrent societal issues of current stakeholders. Thus, investment in environmental CSR projects requires a longer-term commitment than investment in social CSR projects.

*Hypothesis 5:* The association between temporal orientation (LTO/FO, LTH) and CSR is stronger with environmental CSR than with social CSR.

## DATA AND METHOD

### Data

Data on CSR were obtained for all listed firms around the world from Thomson Reuters ASSET4, which contains data for more than 4000 listed firms in 50 countries. The CSR data are available for each firm and include three dimensions of corporate CSR activities:

social, environmental, and governance. We constructed a sample of all publicly listed firms in 50 countries. It includes both firms with a CSR performance index in ASSET4 and firms that did not report their CSR engagement to the public from 2010 to 2012 in Datastream. We restricted the sample to firms with total assets of at least US\$10 million and required firms to show the ownership percentage and identity of the largest shareholder. We screened out firms that violate basic balance sheet identity. We also required that the total number of firm-year observations be at least 25 for each country, and with a minimum of 10 CSR observations during the sample period. Overall, we have 66,290 firm-year observations, which include 10,705 firm-year observations with CSR information and 55,585 observations without CSR information in 44 countries. We combine these data with firm-specific variables obtained from Worldscope.

Appendix 1 presents the number of observations for firms with and without CSR ratings by country. Of the 10,705 CSR observations, 2853 (26.7 per cent) are US firms. Compared to the global CSR percentage of 19.3 per cent, US firms are more engaged in CSR than the average world firm. Non-US nations with high CSR observations include Japan, UK, Australia, and Canada, in that order. However, in terms of the number of observations conducting CSR as a percentage of total firm-year observations in each country, Japanese firms are below the world average at 16.1 per cent, whereas UK, Australian, and Canadian firms are above the world average.<sup>[3]</sup>

## Dependent Variable

CSR at the firm level in ASSET4 is composed of three sub-indices: social, environmental, and governance. The social CSR index measures a firm's CSR performance on employment quality (employee satisfaction, fringe benefits, turnover), health and safety (policy, injury rate), training and development (hours, costs), diversity (gender ratio, flexible working hours, daycare services), human rights, community (donation), and product responsibility. The environmental CSR index includes information on resource or emission reduction (carbon dioxide, waste, recycling ratio), renewable energy usage (green building, water recycled), and environmental R&D expenditure. The governance CSR index indicates a firm's corporate governance (e.g., board structure, compensation policy, board function, and shareholder rights). Behind the three sub-CSR indexes are more than 250 key performance indicators, computed by the data vendor based on more than 750 individual, auditable, and public data points with multistep verification and process control.

In line with prior studies (e.g., Ioannou and Serafeim, 2012), the overall CSR index is computed as an equally weighted average of the component indexes, social and environmental CSR, but not corporate governance, which is its own issue. Unreported results show our findings remain robust regardless of whether the governance component is included in the CSR index.

## Independent Variables

We measure the time horizon, our focal variable, at all levels: country, firm, and controlling investors. To gauge time horizon at the national culture level, we use Hofstede's (2010) *Long-Term Orientation* (LTO) measure; a high score on LTO indicates an emphasis on future value and a willingness to delay gratification if needed to achieve a long-term

goal. To enhance reliability and robustness, we also use GLOBE's *Future Orientation* (FO) measure as advised by Shenkar (2001), among others.

We examine firms' R&D intensity and capital expenditure (Capex) intensity to operationalize time horizon at the firm level, consistent with scholarly and practitioner work indicating that R&D and/or Capex signify future/long-term-oriented behaviour (Liang et al., 2018; Mahoney et al., 1997). Additional support comes from a classic model proposing that short-term myopic behaviours in efficient capital market decrease long-term investment and R&D (Stein, 1989). *R&D intensity* is R&D spending scaled by total assets. Because R&D guarantees neither immediate nor certain outcomes, it is more likely for firms with a long-term horizon. *Capex intensity* is defined as Capex scaled by total assets.

At the investor level, we use the investment turnover rate of the firm's largest owner. To capture the temporal orientation of the controlling owners, we use the inverse of the largest controlling owner's investment portfolio turnover (Cremers and Pareek, 2016; Gaspar et al., 2005; Walls et al., 2012). The lower the turnover rate of the investor's investment portfolio, the longer is his/her investment time horizon, that is, the holding duration.

### Control Variables

We include various control variables at the firm and country levels. At the firm level, we expect CSR to increase in *firm size* (the natural log of total asset in millions of US dollars) and firm profitability (return on assets, *ROA*), because of their slack resources, and to decrease in *leverage*, which is total debt divided by total assets. CSR is likely to increase for mature and established firms than for younger firms with the liability of newness (Stinchcombe, 1965), given their stability, resources, and capabilities. Thus, we include *firm age*, defined as years since founding in natural log. The *dividend pay out ratio* indicates a distribution of profits to its shareholders. These variables appear as controls in most existing work on CSR (e.g., Di Giuli and Kostovetsky, 2014; Walls et al., 2012).

Country-level controls include *rule of law*, *GDP per capita growth*, and *market cap to GDP*. *Rule of law* (Worldwide Governance Indicator) reflects perceptions of the extent to which agents have confidence in and abide by social rules, especially quality of contract enforcement, property rights, the police, and the courts, and the likelihood of crime and violence. The source of other country-level variables is the World Bank. *Market cap to GDP* is included to mitigate any correlated omitted variable bias arising from financial market development. In all specifications, industry and year fixed effects are included.<sup>[4]</sup>

### Univariate Analysis

Panel A of Table I presents a univariate analysis of firms with and without CSR ratings for firm-specific and country variables for the entire sample. Compared to firms without CSR ratings, firms with ratings tend to be larger, older, more profitable, more leveraged, and have a higher dividend ratio. There is no difference in R&D intensity, but Capex intensity is greater for CSR than non-CSR firms. These results are informative, but being

Table I. Descriptive statistics and correlation matrix

Panel A: Descriptive statistics											
	with CSR entry				without CSR entry				Difference		
	N	Mean	S.D.	Med.	N	Mean	S.D.	Med.	in mean		
CSR											
CSR Index	10,705	0.51	0.30	0.50	55,585	0.00	0.00	0.00	0.51	***	
Social sub-index	10,705	0.51	0.31	0.50	55,585	0.00	0.00	0.00	0.51	***	
Environmental sub-index	10,705	0.51	0.32	0.50	55,585	0.00	0.00	0.00	0.51	***	
Firm											
R&D intensity	10,705	0.01	0.03	0.00	55,585	0.01	0.04	0.00	0.00		
Capex intensity	10,431	0.05	0.07	0.03	54,157	0.05	0.22	0.03	0.00	***	
Investment turnover	10,149	0.18	0.24	0.11	51,423	0.13	0.34	0.01	0.05	***	
Firm age	10,705	21.55	12.54	19.00	55,585	14.28	9.09	13.00	7.27	***	
Firm size	10,705	17,900	28,400	5806	55,585	986	4271	202	16914	***	
ROA	10,705	0.06	0.08	0.05	55,585	0.03	0.11	0.04	0.03	***	
Leverage	10,705	0.24	0.17	0.22	55,585	0.21	0.19	0.17	0.03	***	
Dividend pay out	10,705	0.25	0.26	0.19	55,585	0.15	0.23	0.00	0.10	***	
Largest owner portfolio D/E	10,705	0.78	1.12	0.72	55,585	0.55	3.99	0.13	0.23	***	
Largest owner portfolio ROA	9860	0.06	0.08	0.07	44,476	0.02	1.45	0.04	0.05	***	
Country											
Long term orientation (LTO)	10,705	0.49	0.25	0.41	55,585	0.60	0.26	0.60	-0.11	***	
Future orientation (FO) as-is	10,475	4.13	0.31	4.15	54,352	4.09	0.35	4.15	-0.03	***	
Future orientation (FO) should be	10,475	5.28	0.25	5.31	54,352	5.33	0.32	5.31	0.04	***	

Table I. (Continued)

Panel A: Descriptive statistics												
	N	with CSR entry			without CSR entry			Difference				
		Mean	S.D.	N	Med.	Mean	S.D.	Med.	in mean			
Rule of law	10,705	1.26	0.77	55,585	1.61	0.84	0.94	1.30	0.42***			
GDP per capita growth	10,705	2.08	2.59	55,585	1.66	3.42	3.43	2.23	-1.34***			
Market cap to GDP	10,705	1.09	0.71	55,585	1.01	1.06	0.78	0.95	0.03***			

Panel B: The correlation matrix																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 CSR performance	1.00																
2 LTO	-0.10	1.00															
3 FO as is	0.03	-0.07	1.00														
4 FO should be	-0.05	-0.21	0.04	1.00													
5 R&D intensity	0.01	-0.05	0.04	-0.08	1.00												
6 Capex intensity	0.00	-0.03	0.00	0.00	-0.02	1.00											
7 Investment turnover	0.04	-0.12	0.04	-0.02	0.07	0.00	1.00										
8 Firm age	0.23	-0.02	0.13	0.03	-0.03	-0.05	-0.03	1.00									
9 Firm size	0.59	-0.01	-0.06	-0.11	-0.12	-0.02	0.03	0.25	1.00								
10 ROA	0.10	0.07	-0.07	0.06	-0.27	-0.01	-0.07	0.02	0.19	1.00							
11 Leverage	0.06	0.04	-0.08	0.05	-0.16	0.02	-0.01	0.04	0.22	0.00	1.00						
12 Dividend payout	0.16	0.05	0.03	0.05	-0.06	-0.03	-0.05	0.12	0.20	0.25	-0.07	1.00					

(Continues)



Table I. (Continued)

*Panel B: The correlation matrix*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
13 GDP per capita growth	-0.14	0.33	-0.12	-0.05	-0.07	0.01	-0.10	-0.17	-0.08	0.14	0.04	-0.03	1.00				
14 Market cap to GDP	-0.02	-0.07	0.19	0.16	0.00	-0.01	0.02	-0.04	-0.03	0.00	-0.10	0.02	0.05	1.00			
15 Rule of law	0.14	-0.36	0.45	-0.08	0.09	-0.01	0.15	0.16	0.09	-0.16	-0.09	-0.02	-0.57	0.18	1.00		
16 Largest owner portfolio D/E	0.02	-0.05	0.01	0.00	-0.01	0.00	0.02	0.02	0.06	-0.01	0.11	0.00	-0.03	-0.01	0.03	1.00	
17 Largest owner portfolio ROA	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.03	0.03	0.01	0.02	0.00	0.00	0.00	0.00	1.00

*Note for Panel A:* This table presents descriptive statistics for all firm and owner variables for all 44 countries in the sample. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .  
*Note for Panel B:* The table presents the correlation matrix of all firm and country variables.

univariate, their implications are preliminary. Panel B reports Pearson correlations. Results do not reveal any excessively large correlations between pairs. The highest correlation is between the two country-level variables, rule of law and GDP per capita growth (0.57). The variance inflation factors (less than 10) show no multicollinearity issue in the correlation matrix.

## RESULTS

We test our hypotheses using various empirical models and methods. We first employ regressions with industry and year effects with robust clustered standard errors at the firm level. We also assess the hypotheses using the hierarchical linear model (HLM), which accounts for shared variance in hierarchically structured data. HLM simultaneously estimates relations within and between hierarchical levels of nested group data using the maximum likelihood method (Hofmann, 1997). To mitigate concerns regarding endogenous selection bias arising from non-random CSR reporting, we use Heckman selection models. Finally, we conduct several robustness checks with other informal and formal institutional traits. Together we obtain robust and consistent results regarding our hypotheses.<sup>[5]</sup>

Table II presents our basic multivariate results with industry and year fixed effects with robust cluster standard errors. In addition to national LTO and firm-level LTH variables and their interactions, we include five firm-level controls and three country control variables indicated previously in all models. In Panel A, we conduct panel regressions, and in Panel B, we conduct multilevel analysis via HLM to adjust for bias stemming from hierarchical data. Table II presents both sets of estimations for comparison.

### Panel Regressions

In Panel A of Table II, we note that the coefficients of LTO are positive and significant at the 1 per cent level in model (1). This confirms Hypothesis 1, that firms based in a high-LTO home country tend to engage in more CSR. Regarding the effect of firm LTH proxied by R&D intensity and Capex intensity, we find that R&D intensity is positive and statistically significant at the 0.1 per cent level in model (2), and Capex intensity is positive and significant in model (3). These results support Hypothesis 2, that CSR increases with the time horizon of the firm.

We estimate models (4) and (5) using the interaction term between national- and firm-level time orientation. The interaction terms between LTO and R&D intensity, and LTO and Capex intensity are positive and significant at the 0.1 per cent level in models (4) and (5). These results confirm Hypothesis 3, that a firm-level temporal effect is heightened by LTO at the national level. To sum up, CSR is positively associated with LTO at the national level, with LTH at the firm level, and with the interaction effect between the two. This result is graphically portrayed in Figures 1 and 2, which show the effect of LTO on the relation between firm LTH and CSR. The graphs indicate that the difference between LTO countries and non-LTO countries is significant, and the difference increases as the value of firm-level LTH increases.

To test the impact of institutional investors' time horizon on CSR, we look at cases where the largest shareholder is an institutional investor. We use the turnover rate of

Table II. Temporal orientation and CSR

*Panel A: Panel OLS*

	(1)	(2)	(3)	(4)	(5)	(6)
LTO	0.06*** (0.02)			0.04* (0.02)	0.02 (0.02)	
R&D intensity		0.63*** (0.12)		-0.28 (0.22)		
Capex intensity			0.12*** (0.05)		-0.22*** (0.08)	
LTO × R&D intensity				1.69*** (0.46)		
LTO × Capex intensity					0.84*** (0.20)	
Investment turnover						-0.04*** (0.02)
Firm age	0.04*** (0.01)	0.04*** (0.00)	0.04*** (0.01)	0.04*** (0.01)	0.04*** (0.01)	0.04*** (0.01)
Firm size	0.09*** (0.00)	0.10*** (0.00)	0.10*** (0.00)	0.09*** (0.00)	0.09*** (0.00)	0.10*** (0.00)
ROA	0.15*** (0.04)	0.11*** (0.03)	0.10*** (0.03)	0.16*** (0.04)	0.15*** (0.04)	0.03 (0.04)
Leverage	-0.04* (0.02)	-0.04** (0.02)	-0.06*** (0.02)	-0.03 (0.02)	-0.05* (0.02)	-0.07*** (0.03)
Dividend payout	0.10*** (0.01)	0.06*** (0.01)	0.05*** (0.01)	0.10*** (0.01)	0.10*** (0.01)	0.06*** (0.02)

Table II. (Continued)

<i>Panel A: Panel OLS</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
GDP per capita growth	-0.02*** (0.00)	-	-	-0.02*** (0.00)	-0.02*** (0.00)	-
Market cap to GDP	-0.04*** (0.01)	-	-	-0.04*** (0.01)	-0.04*** (0.01)	-
Rule of law	0.01 (0.01)	-	-	0.01 (0.01)	0.01* (0.01)	-
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	Yes	Yes	No	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.98*** (0.04)	-1.29*** (0.04)	-1.26*** (0.04)	-0.99*** (0.04)	-0.98*** (0.04)	-1.24*** (0.05)
N	10,705	10,705	10,431	10,705	10,431	5446
Adjusted R <sup>2</sup>	0.358	0.465	0.462	0.362	0.359	0.502
<i>Panel B: HLM</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
LTO	0.00 (0.08)			0.01 (0.08)	0.01 (0.08)	
R&D intensity		0.62*** (0.07)		0.74*** (0.08)		

(Continues)

Table II. (Continued)

*Panel B: HLM*

	(1)	(2)	(3)	(4)	(5)	(6)
Capex intensity			0.12*** (0.03)		0.23*** (0.04)	
LTO × R&D intensity				1.88*** (0.28)		
LTO × Capex intensity					0.92*** (0.14)	
Investment turnover						-0.03** (0.01)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-1.04*** (0.05)	-1.06*** (0.05)	-1.05*** (0.05)	-1.06*** (0.05)	-1.05*** (0.05)	-1.09*** (0.10)
Firm N	10,705	10,705	10,431	10,705	10,431	5446
Country N	44	44	44	44	44	40
<i>Log likelihood</i>	987.669	1023.441	969.913	1046.038	990.965	764.414
<i>Wald Chi<sup>2</sup></i>	5945.0***	6056.6***	5728.6***	6127.5***	5794.0***	3984.5***

*Note for Panel A:* Model (6) estimates impacts of investor's time horizon on CSR, using the sub-sample of firms with an institutional investor as the largest shareholder. The dependent variable is CSR index; robust clustered standard errors in parentheses; \*p < 0.10; \*\*p < 0.05; \*\*\*p < 0.01.

*Note for Panel B:* Model (6) estimates impacts of investor's time horizon on CSR, using the sub-sample of firms with an institutional investor as the largest shareholder. The dependent variable is CSR index; All firm controls and country controls included as indicated in Panel A; standard errors in parentheses; \*p < 0.10; \*\*p < 0.05; \*\*\*p < 0.01.

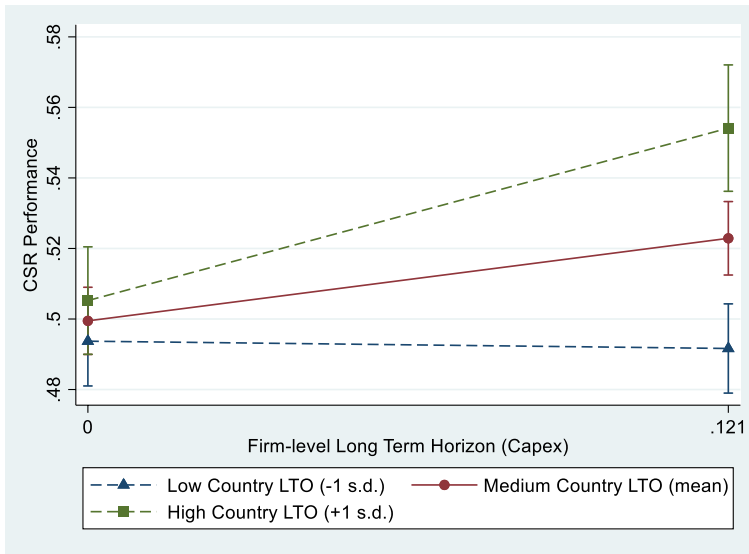


Figure 1. Effect of LTO on the relationship between firm level LTH (Capex) and CSR with three trend lines: one representing countries with high LTO (above one standard deviation of LTO mean), the second representing countries with low LTO (below one standard deviation of LTO mean), and the last representing countries with mean LTO [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

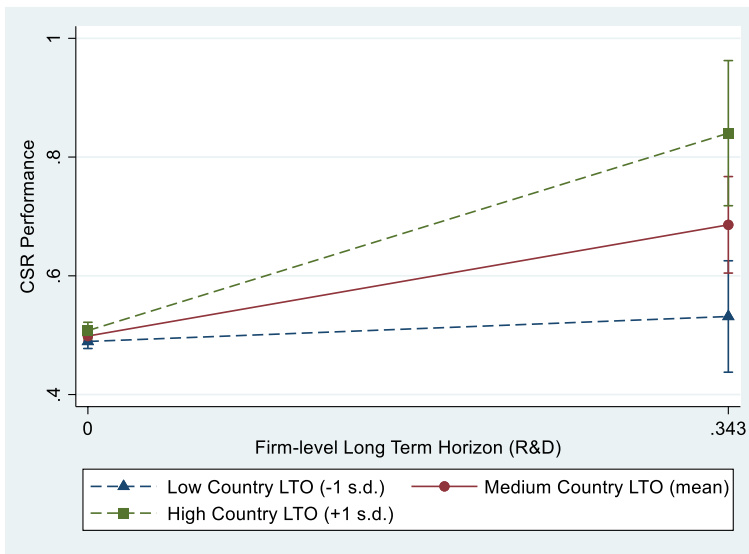


Figure 2. Effect of LTO on the relationship between firm level LTH (R&D) and CSR with three trend lines: one representing countries with high LTO (above one standard deviation of LTO mean), the second representing countries with low LTO (below one standard deviation of LTO mean), and the last representing countries with mean LTO [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

the owner’s portfolio as an inverse measure of the largest shareholder’s investment time horizon. Results are statistically significant and support Hypothesis 4, that CSR increases with the controlling shareholder’s duration of its investment portfolio.



Regarding the effects of the firm-level control variables, the CSR index is positively associated with firm age, firm size, ROA, and dividend pay out ratio, and negatively associated with financial leverage. The positive results on firm size, ROA, and dividend pay out (negative on financial leverage) may reflect the effects of slack resources per resource-based theory on CSR (Campbell, 2007). The positive effect of firm age may be due to higher institutional pressure for social responsibility on older and established firms (McWilliams and Siegel, 2001).<sup>[6]</sup> Concerning country controls, the advanced market shows higher CSR on average. CSR is negatively linked to GDP per capita growth and financial market development as measured by stock market cap relative to GDP. Rule of law is positively but weakly linked with CSR.

### Multilevel Analysis

Traditional linear models assume that observations are a random sample from the population and that scores on the dependent variables are independent of each other. When this assumption of independence is violated, as when data are nested or hierarchical, a multilevel analysis such as HLM is more appropriate (Bryk and Raudenbush, 1992) than traditional regressions. As a preliminary check before multilevel analysis, we compute the intraclass correlation (ICC), which indicates the proportion of total variation due to country differences. For organization research, ICCs of 0.05 are considered small and 0.15 large (e.g., Hox et al., 2010). The ICC in our sample is 0.17, indicating that the differences across countries account for about 17 per cent of the variability of firms' CSR engagement.

In contrast to the panel regressions, the results of HLM estimation do not confirm Hypothesis 1, that country-level LTO has a significant direct effect on firm-level CSR. This may be related to the relatively small country-level sample ( $N = 44$ ), as country-level sample size is most relevant for determining the statistical power to detect level 2 country effects in HLM (Raudenbush and Liu, 2000). Our finding implies that most of the significant relation is driven by an indirect positive effect of LTO on CSR, suggesting the importance of country–/firm-level interactive effect. This result contrasts with the significant LTO coefficients found in the aforementioned panel regressions. As noted by Peterson et al. (2012), the multilevel model can reduce the bias stemming from hierarchical data but potentially at the cost of sacrificing possible informational variability over time. Nevertheless, we find that the firm-level LTH, proxied by R&D intensity and Capex intensity, has a direct impact on CSR. Both are positive and statistically significant at the 1 per cent level in models (2) and (3), supporting Hypothesis 2, that CSR increases with an increasing time horizon (LTH) of the firm.

It is remarkable that the interaction effects are statistically significant and economically meaningful in both models (4) and (5). To illustrate, in model (4), as firm-level LTH measured by R&D intensity increases by one unit, its CSR index increases by 0.74 for a firm with an average LTH. However, a one-unit increase in firm-level LTH increases CSR by 1.88 when the country's LTO cultural index increases by one unit. The effects of the interactive terms are larger in magnitude in HLM than in panel regressions. Similarly, model (5) shows the amplification of firm-level LTH measured by Capex intensity on

CSR as it interacts with country-level LTO. That is, the positive and significant coefficient of the interaction term indicates that a firm's LTH is more strongly associated with CSR when the firm is based in a country with LTO culture. This provides additional evidence in support of Hypothesis 3.

In sum, the HLM analysis provides evidence of a relatively weaker direct effect of LTO compared to panel regression, but it does show an amplified interactive effect of national LTO culture on CSR than the effect of country LTO or firm-level LTH on its own. We conclude that although the evidence on the direct effect of country LTO on CSR is mixed between panel regressions and HLM, the greater interaction effect of country-/firm-level temporal orientation is newly uncovered by HLM. Finally, Hypothesis 4 is confirmed with HLM as in panel regressions: a firm's CSR engagement is greater if the controlling investor has a longer investment time horizon.

### Heckman Selection Model

The preceding analysis may be subject to selection bias if there is a non-random chance that a given firm has a CSR entry. The CSR index is computed by Thomson Reuters based on data submitted by firms and reported in the ASSET4 database. Since many firms in the database do not have a CSR entry, an analysis of only the sample of firms with reported CSR entry would be subject to sample selection bias. Additionally, a firm's CSR engagement may be endogenous in the presence of unobservable or omitted variables, which may influence the firm's decision about CSR. We address problems of sample selection and endogeneity by estimating Heckman's two-step selection model with instrumental variables (IVs) (Heckman, 1979). We combine the treatment sample of firms with CSR entries and the control sample of firms without CSR entries described in Appendix 1. In the first stage, we estimate a probit function of the likelihood of a firm's decision on the binary variable on CSR entry. In the second stage, we use the predicted value of the likelihood of firm CSR entry along with the inverse Mills ratio for selection bias correction and other variables to determine the level of CSR performance.

We select two controlling owner investment characteristics as IVs: (1) ROA on the overall personal investment portfolio of the largest shareholder and (2) debt-to-equity (D/E) ratio for the personal investment portfolio of the largest shareholder. It is plausible that the personal investment portfolio of the controlling shareholder reflects an individual investor decision, which is exogenous to the firm's CSR performance index, while having a significant influence on CSR entry, satisfying both exogeneity and relevance conditions of an IV. For instance, the profitability of the overall personal investment portfolio of a controlling shareholder may affect a firm's decision to disclose CSR information (and whether it is thus a CSR firm); however, the overall general investment policy of the controlling owner would not be related to the level of a firm's CSR performance in which he/she has an investment stake.<sup>[7]</sup>

Table III reports the first- and second-stage estimations of Heckman's selection model, based on the same models as in Table II. In the first stage, we find that the two IVs – ROA and D/E ratio for the largest owner's investment portfolio – are highly significant statistically. In terms of signs, the profitability of the controlling owner's investment has a

Table III. Temporal orientation and CSR: Heckman selection

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>First Stages, DV: CSR disclosure</i>				<i>Second Stages, DV: CSR index</i>			
Long term orientation (LTO)	-1.19*** (0.04)	-1.31*** (0.04)	-1.21*** (0.05)		0.03* (0.01)	0.00 (0.01)	-0.01 (0.01)	
R&D intensity		-0.19 (0.53)				-0.28* (0.15)		
Capex intensity			1.25*** (0.25)				-0.20*** (0.07)	
LTO × R&D		10.18*** (1.02)				1.99*** (0.32)		
LTO × Capex			1.33* (0.53)				0.95*** (0.16)	
Investment turnover				-0.23** (0.07)				-0.04** (0.02)
Largest owner portfolio D/E	-0.06*** (0.01)	-0.06*** (0.01)	-0.07*** (0.01)					
Largest owner portfolio ROA	0.60*** (0.12)	0.55*** (0.12)	0.63*** (0.12)					
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	Yes	No	No	No	Yes
Country Controls	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table III. (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>First Stage; DV: CSR disclosure</i>				<i>Second Stage; DV: CSR index</i>			
Constant	-11.96*** (0.16)	-12.10*** (0.16)	-16.00*** (0.45)	-12.34*** (0.17)	-1.43*** (0.09)	-1.39*** (0.09)	-1.40*** (0.09)	-1.53*** (0.12)
Mill's Lambda	-	-	-	-	0.08***	0.07***	0.07***	0.05***
N	54,336	54,336	53,041	15,290	54,336	54,336	53,041	15,290
Pseudo R <sup>2</sup>	0.5570	0.5626	0.5623	0.5909	-	-	-	-
Wald Chi <sup>2</sup>	-	-	-	-	2720.28	2702.20	2671.17	3433.76

*Note:* This table presents results from Heckman's two-stage sample selection models. The first stage is a probit estimation of CSR disclosure as a function of two instrumental variables in addition to all firm/country variables. In the second stage, the CSR index is estimated as a function of LTO, other variables of interest and firm, industry, year, and country controls, along with the Mill's lambda, which corrects for sample selection bias, obtained from the first stage. Model (4) and (8) estimate impacts of investor's time horizon on CSR, using the sub-sample of firms with an institutional investor as the largest shareholder; standard errors in parentheses.

\* $p < 0.10$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ .

positive effect on the probability of being a CSR firm, whereas the D/E ratio has a negative effect. The predicted values of firm CSR from the first-stage estimation are used to generate a Hackman's lambda (inverse Mills ratio), included as an additional regressor to correct for selection bias in the second stage. All basic results survive after selection bias correction in the second stage.

Specifically, LTO is positive and significant in model (5), supporting Hypothesis 1 as in Table II. R&D intensity and Capex intensity, used to proxy time orientation at the firm level, are both positive and significant at the 0.1 per cent level, supporting Hypothesis 2.<sup>[8]</sup> The interaction terms are positive and statistically significant at the 0.1 per cent level in models (6) and (7), consistent with Hypothesis 3 as before. The effect of owner portfolio turnover rate is statistically significant, consistent with Hypothesis 4 as before; the short-term investor has a negative influence on a firm's CSR.

### FO from GLOBE

Now, we further consider the GLOBE cultural dimension of FO. Table IV reports both OLS and HLM results with the FO culture. Cultural traits from GLOBE consist of two parts: current practices ('as is') and values that reflect strongly held beliefs ('should be'). In Table IV, we find that FO as-is practices are largely insignificant across models, whereas LTO is generally significant.<sup>[9]</sup> However, we find a negative and statistically significant effect for FO should-be values. The result is consistent with House et al. (2004); two values of FO are negatively related as respondents in societies lacking FO may have stronger aspirations for FO. This finding provides a new insight that a firm's CSR is a function of a society's values (should-be) rather than its ongoing practice (as-is). Our results suggest that thrift-focused temporal orientation (Hofstede LTO) increases CSR, whereas planning-focused (GLOBE FO) has no direct effect. Yet the strong societal aspirations reflecting concurrent low levels of FO are associated with low CSR. We also find evidence that a country-level time horizon interacts with firm-level LTH, validating the similar effect of LTO from Hofstede.

### Social versus Environmental CSR

To explore further insights, we estimate the baseline model using two sub-indexes: social CSR and environmental CSR. Consistent with our theoretical expectation in Hypothesis 5, Table V reports that the LTH effects are more salient in environmental CSR, which serves future stakeholders and has a longer time frame connotation (Russo, 2003), than social CSR, which focuses on stakeholder management and contemporary social issues (Clarkson, 1995; Hillman and Keim, 2001). To elaborate, country LTO has a positive effect on environmental CSR but a negative effect on social CSR. This indicates that LTO culture strongly drives long-term-focused CSR, namely, environmental CSR rather than social CSR. It suggests the possibility of caring less about concurrent social issues when societies have a strong LTO culture. With limited resources, firms may choose to allocate more on CSR activities with greater externalities and a longer-term commitment.

Table IV. GLOBE future orientation (FO) and CSR

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>Panel OLS</i>				<i>HLM</i>			
FO as-is	0.01 (0.01)		0.00 (0.02)		-0.01 (0.044)		-0.01 (0.044)	
FO should be		-0.06*** (0.02)		-0.10*** (0.02)		0.01 (0.054)		0.01 (0.055)
R&D intensity	3.04 (1.93)	1.88 (2.80)			0.64*** (0.074)	0.73*** (0.078)		
Capex intensity			0.15 (0.96)	-4.04*** (1.16)			0.13*** (0.035)	0.13*** (0.035)
FO as-is × R&D intensity	-0.62 (0.46)				-0.62*** (0.291)			
FO should be × R&D intensity		-0.28 (0.54)				1.19*** (0.298)		
FO as-is × Capex intensity			-0.01 (0.23)				-0.04 (0.154)	
FO should be × Capex intensity				0.79*** (0.22)				0.39*** (0.156)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-1.03*** (0.07)	-0.67*** (0.11)	-1.01*** (0.09)	-0.45*** (0.12)	-1.06*** (0.053)	-1.05*** (0.052)	-1.05*** (0.054)	-1.04*** (0.053)

(Continues)



Table IV. (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>Panel OLS</i>				<i>HLM</i>			
Firm N	10,475	10,475	10,208	10,208	10,475	10,475	10,208	10,208
Country N	–	–	–	–	44	44	44	44
Adjusted R <sup>2</sup>	0.360	0.362	0.358	0.362	–	–	–	–
Log likelihood	–	–	–	–	1023.503	1029.204	968.645	971.697
Wald Chi <sup>2</sup>	–	–	–	–	5970.4***	5988.3***	5652.1***	5661.6***

Note: The dependent variable is CSR index; robust clustered standard errors in parentheses.

\*p < 0.10; \*\*p < 0.05; \*\*\*p < 0.01.

Table V. The effect of LTO on social vs. environmental CSR

		Panel A: Heckman second stage							
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		DI: Environmental CSR			DI: Social CSR				
LTO		0.09*** (0.01)	0.06*** (0.01)	0.05*** (0.02)	0.05*** (0.02)	-0.03** (0.01)	-0.05*** (0.01)	-0.08*** (0.02)	
R&D intensity			-0.47*** (0.16)				-0.09 (0.17)		
Capex intensity				-0.16** (0.08)				-0.24*** (0.08)	
LTO × R&D intensity			2.44*** (0.33)				1.53*** (0.34)		
LTO × Capex intensity				0.96*** (0.17)				0.94*** (0.17)	
Investment turnover					-0.05** (0.02)				-0.03* (0.02)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Country Controls	Yes	No	No	No	No	Yes	No	No	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant		-1.67*** (0.10)	-1.61*** (0.10)	-1.62*** (0.10)	-1.58*** (0.13)	-1.19*** (0.10)	-1.17*** (0.10)	-1.18*** (0.10)	-1.49*** (0.13)
N		54,336	54,336	53,041	15,290	54,336	54,336	53,041	15,290
Wald Chi <sup>2</sup>		3375.36	3357.15	3337.16	3396.07	1736.86	1729.83	1699.00	2681.77

(Continues)

Table V. (Continued)

<i>Panel B: HLM</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>DI: Environmental CSR</i>				<i>DI: Social CSR</i>			
LTO	0.03 (0.07)	0.03 (0.07)	0.03 (0.07)		-0.02 (0.09)	-0.02 (0.09)		
R&D intensity		0.69*** (0.08)				0.79*** (0.08)		
Capex intensity			0.26*** (0.04)				0.20*** (0.04)	
LTO × R&D intensity		1.82*** (0.30)				1.95*** (0.30)		
LTO × Capex intensity			0.96*** (0.15)				0.88*** (0.15)	
Investment turnover				-0.03** (0.02)				-0.03** (0.01)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-1.11*** (0.05)	-1.13*** (0.05)	-1.12*** (0.05)	-1.09*** (0.10)	-0.97*** (0.05)	-1.00*** (0.05)	-0.98*** (0.05)	-1.09*** (0.10)
Firm N	10,705	10,705	10,431	5446	10,705	10,705	10,431	5446
Country N	44	44	44	40	44	44	44	40

Table V. (Continued)

<i>Panel B: HLM</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>DI: Environmental CSR</i>				<i>DI: Social CSR</i>			
Log likelihood	150.027	194.071	176.597	190.478	202.720	259.306	218.974	410.393
Wald $\chi^2$	5654.1***	5789.0***	5533.3***	3587.2***	4747.1***	4911.4***	4603.8***	3220.2***

*Note for Panel A:* This table presents results from Heckman's two-stage sample selection models. The first stage is a probit estimation of CSR disclosure as a function of two instrumental variables in addition to all firm/country variables. In the second stage, the Social, and Environmental index is estimated as a function of LTO, other variables of interest, and firm, industry, year, and country controls, along with the Mill's lambda, which corrects for sample selection bias, obtained from the first stage. Model (4) and (8) estimate impacts of investor's time horizon on CSR, using the sub-sample of firms with an institutional investor as the largest shareholder; standard errors in parentheses; \* $p < 0.10$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ .  
*Note for Panel B:* Model (4) and (8) estimate impacts of investor's time horizon on CSR, using the sub sample of firms with an institutional investor as the largest shareholder. The dependent variable is CSR index; standard errors in parentheses; \* $p < 0.10$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ .

In addition, for all other effects of time horizon, results suggest that a magnitude is larger in environmental CSR than in social CSR. The moderating effects of LTO are stronger in environmental CSR. The effects of R&D and Capex intensities along with LTO are positive, more statistically significant, and larger in magnitude for environmental CSR than for social CSR. Similarly, the effect of the owner portfolio turnover rate is negative and significant but larger when environmental CSR is considered, suggesting that the longer investment horizon is associated with longer term focused CSR. These differences suggest that in CSR studies, as well as in other research, one size may not fit all and that a spectrum of heterogeneous CSR activities may need a separate study of their own. We further consider these results in the Discussion and Conclusion section.

## DISCUSSION AND CONCLUSION

The role of time has been a core issue in the strategic decisions of managers who need to balance short- and long-term goals (Ancona et al., 2001). How does the temporal orientation of a country, a firm, and investors shape variations in CSR? Using a global sample and various specifications, we find, as hypothesized, that CSR rises when the national culture endorses LTO, a firm has an LTH, and investors seek long-standing returns. Our results show that national culture reinforces the relationship between a firm's long-term horizon and its CSR practices. Societal long-term mindset does not lessen the need for firms to engage in CSR, rather leads firms to be responsive to general societal norms or pressure stemming from LTO culture, indicating that the temporality between institutions and organizations complements rather than substitutes. This interaction partly stems from the connection and interdependency between societal and organizational culture. The societal system impacts organizational practices; thus, organizations adopt practices consistent with their societal culture (House et al., 2004) and the cultural fit between society and firm is critical (Weber et al., 1996). Given the spillover from society to organizations, the two cannot be completely independent, and thus a greater match between the cultures with respect to temporal orientation, leads to greater CSR. Also, by linking Stein's (1988) and Bushee's (1998) concepts of transient and dedicated investors to investor's time horizon and CSR, we show that the largest external stakeholder's time horizon could affect a firm's CSR decision. Our main results remain robust to the inclusion of the governance CSR index in the dependent variable and to the exclusion of US firms from the global data.

We make several contributions, ranging from the broader to the specific, and from the conceptual and theoretical to the methodological. First, our study advances the literature at the intersection of CSR and institutional theory (Höllerer, 2013; Ioannou and Serafeim, 2012; Jackson and Apostolakou, 2010) and the broader literature on culture and CSR (Liang et al., 2018; Waldman et al., 2006; Young and Makhija, 2014) by simultaneously examining firm and societal levels, linking them to the temporal facet, and demonstrating that the LTO/FO affects CSR directly and indirectly by reinforcing the firm LTH and CSR link. Furthermore, we leverage the similarity and differences of as-is practices and should-be values in GLOBE's (2004) schema in theorizing the cultural effects. Hutzschenreuter and Kleindienst (2006, p. 705) suggest, '*Understanding the interrelationship between contextual factors and organizational culture may*

*enable us to further understand strategic choices made by organizations*'. Our study shows that organizational temporal orientation and its CSR decision complement each other and is codetermined by context.

Second, our work extends the scope of the extant literature on CSR (e.g., DesJardine et al., 2021; Doh et al., 2010; Hawn et al., 2018) by incorporating finance literature on controlling investors and investment time horizon (Bushee, 1998; Stein, 1988) as well as the patient capital literature in comparative and social economics (Cremers and Pareek, 2016; Deeg and Hardie, 2016; Ivashina and Lerner, 2019). We show that influential investors' time horizon, in addition to country and firm-level temporal orientation, is a driver of CSR.

Third, we contribute to understanding the boundary conditions of stakeholder theory by adding a temporal dimension and examining the largest shareholder's time horizon as a mechanism to explain CSR. Stakeholder theory suggests that firms pay attention to salient stakeholder relations that affect or are affected by corporate activities or outcomes (Freeman, 1984), making them more likely to consider CSR when the stakeholder has power, legitimacy, and urgency (Mitchell et al., 1997). We consider the time horizon of stakeholders along with their salience, implying that it may not be possible to simultaneously meet the interests of different stakeholders and that firms may prioritize their activities based on stakeholder salience and time orientation. This establishes a potential link to a topic researched in organization behaviour, namely, conflict resolution and its temporal aspects (e.g., Jehn and Mannix, 2001).

Finally, by studying the presence of heterogeneity in temporal CSR, our study contributes to the broader CSR literature. CSR is an umbrella term signifying organizational activities oriented toward society at large (McWilliams et al., 2006), and studies typically lump social and environmental dimensions together (e.g., Ioannou and Serafeim, 2012) or focus on specific dimensions such as carbon emission (Wright and Nyberg, 2017). Our results, which show that LTO is more important in environmental CSR than in social CSR, highlight the need to parse CSR into its component parts, inclusive of its drivers and mechanisms.

From a managerial perspective, this study shows that the time perspective of firms, investors, and societies matters in CSR decisions. The temporal preferences embedded in managers and investors at the firm level and in societal values at the country level can interact and amplify in the case of LTO to prompt a firm to engage more in CSR, especially increasing the firm's commitment to environmental improvement. Given the interdependency of these actors and their global presence, policy makers and managers need to understand and internalize environmental concerns and time preferences of their global stakeholders in their CSR decisions.

### **Limitations and Future Research**

We note several limitations of our study and identify paths for future work. First, the Thomson Reuters ASSET4 database uses only publicly available sources such as annual reports, CSR reports, non-governmental organizations' websites, etc. The use of public and independent sources confers credibility on the database as the only objective, audited, and comprehensive source of corporate CSR data globally. However, the database is a result of

two corporate decisions: the decision by a firm to engage in some form of CSR activity and the decision to disclose such activities to the public. We did not attempt to distinguish between the two, so the reported results on CSR may be biased if the disclosure decision is not random. In the future, research designs that permit a distinction between the two decisions should be considered. Surveys as well as field studies that permit a closer look at the CSR activities of firms, including those not publicly disclosed, would be a useful addition.

Second, we focus on national culture using the rule of law as a control. As part of institutional influence, more legal variables would be worth pursuing in future research. These include country-level governance factors such as the quality of institutions and governments, and corporate governance regimes and regulations concerning CSR accounting and practices. Particularly fruitful areas for future research include comparative or specialized studies on sub-categories of CSR and their interactions with culture and institutions.

Finally, an interesting topic is the role of the multinational corporation as an agent of convergence or transmission of CSR practices internationally. Given the scope of our study, which covers 44 countries, we leave the heterogeneity of CSR between headquarters and subsidiaries as our limitation. A related topic would be that of isomorphism, namely, the degree to which companies imitate the CSR behaviour of market leaders or other visible firms over time. These are ripe areas for focused studies in one industry or one country.

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## NOTES

- [1] Not included in Hofstede's original work (1980) but rooted in his later collaboration with Michael Bond (Hofstede and Bond, 1988), LTO was initially labeled 'Confucian dynamism' to reflect its roots in Chinese Confucian philosophy.
- [2] Alternatively, one might suggest that the relation between country- and firm-level temporal orientations could be a substitute rather than a complement. We argue that the complementarity is more likely if corporate management is responsive to general societal norms or pressures stemming from the LTO culture of the country in which the firm is located.
- [3] Untabulated analysis shows that of the 47 two-digit Standard Industrial Classifications (SIC) groups, those with more than 5% of total CSR observations include chemicals and allied products; depository institutions; electrical equipment; electric, gas, and sanitation services; and metal mining. However, in terms of the percentage of firms doing CSR in each industry, insurance is number one at 43%, followed by utilities and transportation.
- [4] The results are robust whether GDP per capita or GDP per capita growth is used.
- [5] We also performed cross-sectional estimations of firms for one year and used the yearly average of the sample period rather than the panel regressions. The results are virtually the same.



- [6] Additionally, a firm with a longer history, *ceteris paribus*, may enable managers to take a longer-term perspective, given its stability and experience or greater resources and capabilities, whereas younger firms may suffer from the liability of newness (Stinchcombe, 1965).
- [7] One may argue that the investor's investments might be related to the country culture where he/she resides (we thank a referee for suggesting this possibility). To examine this possibility, we estimated a regression of the largest investor's investment turnover on the constant and the Hofstede aggregate culture index. We generated the orthogonal investor's investment turnover by subtracting predicted investor turnover from actual investor turnover. Then, we included the orthogonal controlling investor investment turnover using the basic models in Table II: model (6) in Panel A and model (6) in Panel B, using panel and HLM, respectively. We found that the turnover rate of the owner's portfolio is negative and statistically significant. The basic results we obtained remain robust. In addition, it is arguable that investors choose their investment based on CSR reasons. To examine this case, we added investment of sovereign wealth fund because most of them have social and environmental orientation, and we found consistent results.
- [8] To address an endogeneity issue, we used predicted values of R&D intensity and Capex intensity in lieu of actual values. R&D and Capex intensities are estimated as a function of firm profitability, debt ratio, industry, and constant. The results confirm our basic results (Hypothesis 2) that predict values of R&D intensity and Capex intensity increase firms' CSR performance.
- [9] This finding is consistent with Venaik et al. (2013) who report varying influences of LTO versus FO.

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## APPENDIX 1

### Number of observations by country

Country	CSR firms		Non CSR firms		Total
	N	CSR Index	N	N	% CSR
Australia	814	0.351	1987	2801	29.06
Austria	44	0.629	119	163	26.99
Belgium	73	0.560	199	272	26.84
Brazil	203	0.624	264	467	43.47
Canada	753	0.381	2772	3525	21.36
Chile	56	0.437	383	439	12.76
China	214	0.325	5050	5264	4.07
Colombia	26	0.386	65	91	28.57
Czech Republic	12	0.510	14	26	46.15
Denmark	69	0.646	219	288	23.96
Egypt	23	0.221	236	259	8.88
Finland	74	0.770	220	294	25.17
France	257	0.822	945	1202	21.38
Germany	217	0.712	1028	1245	17.43



<i>Country</i>	<i>CSR firms</i>		<i>Non CSR firms</i>	<i>Total</i>	
	<i>N</i>	<i>CSR Index</i>	<i>N</i>	<i>N</i>	<i>% CSR</i>
Greece	43	0.483	278	321	13.40
Hong Kong	404	0.326	2598	3002	13.46
India	204	0.527	4672	4876	4.18
Indonesia	53	0.509	630	683	7.76
Ireland	38	0.358	66	104	36.54
Israel	39	0.451	853	892	4.37
Italy	131	0.651	463	594	22.05
Japan	1111	0.574	7288	8399	13.23
Luxembourg	12	0.643	48	60	20.00
Malaysia	111	0.422	2047	2158	5.14
Mexico	59	0.480	163	222	26.58
Netherlands	100	0.765	152	252	39.68
New Zealand	32	0.447	211	243	13.17
Norway	61	0.619	367	428	14.25
Philippines	50	0.396	173	223	22.42
Poland	69	0.405	713	782	8.82
Portugal	33	0.779	77	110	30.00
Russia	78	0.511	413	491	15.89
Saudi Arabia	16	0.294	222	238	6.72
Singapore	145	0.388	1583	1728	8.39
South Africa	181	0.646	441	622	29.10
South Korea	286	0.570	3628	3914	7.31
Spain	122	0.775	229	351	34.76
Sweden	131	0.724	515	646	20.28
Switzerland	182	0.572	391	573	31.76
Taiwan	328	0.397	3285	3613	9.08
Thailand	55	0.562	1176	1231	4.47
Turkey	61	0.567	293	354	17.23
United Kingdom	882	0.647	2047	2929	30.11
United States	2853	0.456	7062	9915	28.77
Total	10,705	0.506	55,585	66,290	16.15