

## RESEARCH ARTICLE

# The influence of state ownership on environmental proactivity: An institutional perspective of international firms

Manuel Bueno-García  | Gozal Ahmadova 

University of Granada, Granada, Spain

## Correspondence

Manuel Bueno-García, University of Granada, Granada, Spain.  
Email: [manuelbueno@ugr.es](mailto:manuelbueno@ugr.es)

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## Abstract

The influence of state ownership on a firm's environmental strategy is still unclear due to the varied relationships across different international institutional contexts in the firm's home and host country. Applying mixed effect regression models to a sample of 2997 observations of 298 firms from the MSCI World Index for the period 2007–2018, this paper analyzes the different effects of key institutional factors on this relationship. While a state-owned firm from a state with a high home country environmental profile will have a more positive effect on a firm's environmental proactivity, internationalization will weaken it, since the firm will encounter higher complexity when translating its green actions into a more global institutional context. In addition, when internationalization involves a very different host country environmental profile, the greater institutional distance seems to modify the influence of state ownership on environmental proactivity. Our results provide key theoretical and practical implications for managers in relation to state-owned firms' global environmental strategies.

## KEYWORDS

environmental institutional distance, environmental proactivity, firm's internationalization, home country, institutional theory, state ownership

## 1 | INTRODUCTION

In this global era, with climate change and pollution prevention at the forefront of shareholders' concerns (Alda, 2019; Argento et al., 2019; Yang et al., 2020), state-owned enterprises (SOEs),<sup>1</sup> as powerful owners of numerous global companies, have an important role to play (Cuervo-Cazurra et al., 2014; Kalotay, 2017). This role entails closer understanding of local institutional pressures due to their position as the main policy-makers of national institutional environments (Bruton et al., 2015; Li et al., 2014; Meyer et al., 2014; Zaid et al., 2020). In this sense, the literature assumes that state ownership leads to greater environmental commitment in such national contexts in order

to satisfy the demands of the local population (Bai & Xu, 2005; Borisova et al., 2015; Lazzarini & Musacchio, 2018), while at the same time neglecting the greater complexity of the international institutional environments faced by multinational firms (MNEs) (Aguilera et al., 2021; Aragón-Correa et al., 2020), thereby overlooking the question of whether SOEs' environmental management at the national level is equally influential in more global contexts. Hence, this paper studies how key institutional factors arising from global contexts modify SOEs' influence on environmental proactivity (EP) within MNEs.

Many studies have analyzed how being an SOE positively impacts on the firm's environmental strategy (Calza et al., 2016; Earnhart & Lizal, 2006; Hsu et al., 2017; Khlif et al., 2017) by prioritizing social objectives that are expected to benefit the local population in order to gain popularity (Bai & Xu, 2005; Borisova et al., 2015; Lazzarini & Musacchio, 2018) over and above financial goals (Aguilera et al., 2020). The reason for this is that SOEs are more sensitive to institutional pressures within a national institutional environment

<sup>1</sup>In line with some other management studies, we exclude from our analysis those companies with more than 50% of state ownership, due to this being a substantially different situation, which is not the purpose of this study. In addition, these companies represented just 56 observations, which does not allow for a complete analysis of the situation and would be likely to produce a different effect.



(Bruton et al., 2015; Li et al., 2014; Meyer et al., 2014; Zaid et al., 2020) and thus bear a different responsibility than other private investors. However, the environmental management literature has paid little attention to the issue that the influence of SOEs could be far weaker for multinational firms facing more complex institutional environments in global markets, operating under a variety of international scenarios, under different environmental pressures from different countries (Fifka, 2013; Lenz & Viola, 2017). Hence, greater institutional differences will exist between a firm's corporate agents in their home country and in other host countries (Beugelsdijk et al., 2018; Drogendijk & Holm, 2012). As a consequence, SOEs' actions could materialize differently within multinational companies (Cuervo-Cazurra et al., 2014; Cuervo-Cazurra & Li, 2021), given that *foreign governments as owners of MNEs operating* in host countries will be used to different practices from local agents (Cui & Jiang, 2012; Li et al., 2019; Wei & Nguyen, 2017; Zhang et al., 2011).

This paper addresses the question of whether, on the whole, being an SOE improves a firm's environmental proactivity in firms that operate in more international institutional contexts. First, we analyze the moderating effect of the home country environmental profile (HCEP) as a layer of environmental compliance pressure (Delmas & Toffel, 2011) that leads firms to feel obliged to increasingly engage in green practices (Aguilera et al., 2019; Bueno-García et al., 2021; Rejchrt & Higgs, 2015; Zhu et al., 2019), with particular relevance to SOEs (Bruton et al., 2015; Li et al., 2014; Meyer et al., 2014; Zaid et al., 2020), a key institutional factor not previously considered in shaping SOEs' EP abroad, specifically in global contexts. Second, we investigate the moderating role of the firm's internationalization, given that the SOEs' influence on the firm's strategies abroad may be modified within global firms (Huang, Shen, & Zhang, 2020; Kostova & Zaheer, 1999; Xu et al., 2021) due to the higher complexity of the standardization of environmental practices overseas (Aguilera-Caracuel et al., 2012; Aguilera-Caracuel et al., 2013). Moreover, given that the institutional differences between home and host country are more pronounced in international firms (Beugelsdijk et al., 2018; Drogendijk & Holm, 2012), and the influence of corporate agents is subject to local practices and different environmental standards (Bueno-García et al., 2021; Ortiz-de-Mandojana et al., 2016), we test the moderating effect of environmental institutional distance. Finally, we examine the three key institutional factors of an MNE context, that is, the institutional environment of its home country, its level of globalization, and environmental institutional distance with host countries.

Our work makes several theoretical and practical contributions. First, we extend institutional theory as well as the corporate governance literature by providing a global view of the impact of SOEs—as a key corporate agent in closer contact with the institutional context—on firms' EP. Second, we shed light on the relevance of national background in building the state's behavior as owner, highlighting the HCEP in shaping its approach to environmental strategy. Third, we study the unexplored effect that a firm's internationalization exerts on the influence of SOEs on the firm's EP. We encourage managers to facilitate the actions of the state as owners in global firms—thereby

aligning green goals—as firms' international expansion entails, in general, greater complexity when translating SOEs' efforts into effective action for green improvements. Finally, we provide further insights into institutional studies based on environmental institutional distance and consider how differences between home and host countries impact the EP of SOEs overseas, differences that should be taken into account for successful environmental management in international business. Given our findings, we conclude that managers should consider how to deal with the actions of SOEs in an international context to align firms' goals regarding EP.

## 2 | THEORETICAL BACKGROUND AND RESEARCH HYPOTHESES

### 2.1 | State ownership and environmental proactivity

Environmental Proactivity (EP) is understood as a firm's behavior oriented to improve its current environmental results (Aragón-Correa & Sharma, 2003; Sharma & Vredenburg, 1998). Environmentally proactive behavior serves as a strategy to beat competitors by distinguishing a firm's environmental commitment to improving green practices over and above standards (Aragón-Correa et al., 2016; Bansal & Roth, 2000; González-Benito & González-Benito, 2006; Kock et al., 2012). This strategy is materialized by increasing investment levels in developing innovative products, technologies, and processes aimed at improving environmental results (Chen et al., 2012; Cormier & Magnan, 2015; Leyva-de la Hiz et al., 2019; Radu & Francoeur, 2017). In this sense, EP is a concept that significantly differs from environmental performance due to its emphasis on performing actions to improve existing green practices. In contrast, environmental performance relates to the current levels of pollution (Hartmann & Vachon, 2018; Kock et al., 2012; Walls et al., 2012). In sum, EP implies a solid attitude by a firm toward changing its established green practices and results, thereby exhibiting better green behavior than its competitors. These established green practices are at the level of the requirements set by the institutional environment, where institutional pressures—competitive, regulatory, or normative—lead firms to exhibit similar behaviors (DiMaggio & Powell, 1983; Scott, 2001). According to North (1990), institutions set the rules of the game in a country, encompassing regulations and norms, establishing a system of organizations and structures within a country, and effectively guiding the behavior and actions of individuals, groups, and firms. In this respect, institutional theory suggests that these institutional pressures push firms to implement certain practices, not for rational or economic reasons, but rather due to adherence to the rules and norms of the institutional context (Glover et al., 2014). Based on institutional theory, firms and corporate agents are supposed to exhibit similar green practices to meet these institutional requirements (Tetteh et al., 2023).

The environmental management literature reports that the local pressures within an institutional context exert a powerful influence on corporate agents, including those that have a potential impact on a

firm's environmental strategy (Aguilera et al., 2021; Aragón-Correa et al., 2020; González-Benito & González-Benito, 2006, 2010; Huang, Liu, et al., 2020; Ng et al., 2022; Walls et al., 2012). However, firms' environmental behavior may vary due to the fact that such environmental pressures are perceived differently by CEOs and managers (Berrone & Gómez-Mejía, 2009; Francoeur et al., 2017), or shareholders (Berrone et al., 2010; Bueno-Garcia et al., 2021) of the firm. In sum, the influence of environmental pressures in a particular institutional context will determine the threshold for the design of a firm's environmental strategy—to either meet or exceed the established requirements—depending on how corporate agents perceive such pressures. As such, the theoretical framework provided by institutional theory presents a useful lens through which to analyze the institutional factors that shape a firm's environmental outcomes (Li, Gao-Zeller, Rizzuto, & Yang, 2019; Ng et al., 2022).

Our focus on SOEs makes our results especially relevant, as SOEs are particularly prevalent in environmentally sensitive sectors such as utilities, oil, and gas, and have a strong impact on global economies. To give an example, the Organization for Economic Co-operation and Development (2017) emphasized the significance of these companies by illustrating that governments in over 40 countries were the single or majority shareholders of over 53,000 commercially oriented SOEs, valued at approximately US\$32 trillion, and provided 30 million jobs. The recent findings of the IMF (2020) show that the share of SOEs among the world's 2000 largest firms doubled to 20% over the last two decades, driven by SOEs in emerging markets—their assets being worth US\$45 trillion, equivalent to half of the global GDP. As for the Fortune Global 500 list, the shares of SOEs in the group of the world's largest companies have increased from 64 SOEs in 2005 to 141 SOEs in 2020 (Kwiatkowski et al., 2023). In 19 out of 30 European countries during the period 2007 to 2016, SOEs held a minimum share of 20% in the majority of large enterprises (Szarzec et al., 2021). Taken together, these patterns highlight the importance of conducting in-depth research and analysis on SOEs.

SOEs face greater levels of institutional pressure in regard to complying with and exceeding environmental regulations compared to private firms (Long et al., 2020), as the state as an owner is the corporate agent that has more contact with such institutional pressures. Primarily, the state—as the main policy-maker of an institutional environment—is under pressure from firms and society to maintain or change regulations (Bruton et al., 2015; Li et al., 2014; Meyer et al., 2014; Zaid et al., 2020), and so SOEs are more fully apprised of the institutional requirements. That is, the state, as a key owner, has closer contact than private investors with the agents of an institutional environment because of its privileged position of having close links with the political sphere (Okhmatovskiy, 2010; Rudy et al., 2016), access to specific exclusive rights within industries or geographical areas (Lazzarini & Musacchio, 2018), government contracts (Goldman et al., 2009), or the ability to obtain financing via bank loans at a lower cost (Sun et al., 2018). All these factors mean that the state occupies a central position in an institutional environment, is in closer contact with the institutional pressures, and this provides SOEs with the relevant potential influence over a firm's EP.

For these reasons, there is a debate within the environmental management literature about SOEs' influence on environmental strategy. Recent studies suggest that SOEs produce better green results due to the greater scrutiny they face from society to be environmentally committed compared with non-SOEs, and thus take on more environmental responsibility for pollution reduction (Acar et al., 2021; Marquis et al., 2017). Other streams of literature have found contradictory evidence, arguing that SOEs may incur higher costs from environmental management due to their lack of expertise (Darnall & Edwards, 2006; Zhou et al., 2017), or pay higher pollution taxes than private firms in promoting emission abatement (Huang, Shen, & Zhang, 2020; Liangxiong et al., 2011), leading to the abandonment of environmental management in order not to jeopardize financial goals. Theoretically, this argument may be in line with insights from emerging markets, where governments tend to be less concerned about seeking extra legitimacy, since their environmental strategy may be just met with the regulations (Chu et al., 2013; Faisal et al., 2018; Wang & Jin, 2007) and therefore, an improvement in environmental performance is not a priority.

Certainly, the most insightful example of this contradictory evidence is found in firms based in China. Wang and Jin (2007) showed a negative link between Chinese SOEs and firms' environmental results; meanwhile, other works posit that Chinese SOEs demonstrate greater green improvements than private Chinese firms (Chang et al., 2015; Reimsbach et al., 2018; Yu et al., 2017) as they are more pressured to meet the environmental regulations in this country (Meng et al., 2013) and usually pay less green taxes (Maung et al., 2016). However, these studies are based on a comparison between different Chinese firms but not with firms in other countries; that is to say, a Chinese SOE may be less polluting than a peer private firm in China but, indeed, significantly more polluting than an SOE based in a highly environmental country.

In general, we find that SOEs—from every country—have closer contact with the institutional environment in their home country (Bruton et al., 2015; Li et al., 2014; Meyer et al., 2014; Zaid et al., 2020) and therefore must be at the forefront of the commitment to environmental changes by trying to improve their green results to seek legitimacy in the national context (Bai & Xu, 2005; Borisova et al., 2015; Lazzarini & Musacchio, 2018). From this perspective, SOEs from every country—as a controlling shareholder—have incentives to prioritize EP (Lopatta et al., 2017) in order to satisfy society and the electorate's expectations (Amran & Susela Devi, 2008). That is to say, while the actions of the state itself may lead to higher pollution levels in certain firms or countries—as the above example of certain Chinese firms shows (Wang & Jin, 2007)—or to a possible lack of expertise in environmental management, as other studies suggest (Darnall & Edwards, 2006; Zhou et al., 2017), the presence of the state as an owner will lead to attempts to improve existing pollution levels in many cases and for every country (Calza et al., 2016; Kaur & Bhaskaran, 2015) even China. This is because the state is strongly influenced by the institutional environment to take the lead with palpable improvements in environmental behavior. To a greater or a lesser extent, depending on the firm's

institutional context, the relationship between SOEs and EP will be, in general, a positive one.

Following on from our literature review and theoretical arguments, while we identify a positive influence of SOEs on firms' EP in local contexts, it is clear that the role of the international institutional context of home and host countries abroad plays a differential role in MNEs and this remains under-explored. Hence, we start by assuming a positive impact of SOEs on firms' EP to present our moderating hypotheses, which lead to different effects in this relationship depending on three key institutional factors, based on the extant literature: home country environmental profile, firm's internationalization, and environmental institutional distance.

## 2.2 | Home country environmental profile: A key distinction

The management literature highlights that home country environmental profile (HCEP) is a key factor in shaping the firm's behavior and corporate agents' perceptions of the firm's environmental strategy (Leyva-de la Hiz et al., 2019; Ortiz-de-Mandojana et al., 2016). Indeed, some works highlight that proactive environmental behavior differs between firms from different countries due to the variation in institutional pressures across different institutional contexts (Chatterji et al., 2009; Damert & Baumgartner, 2018; Dögl & Behnam, 2015), as the specific environmental regulations and requirements will be significantly different depending on the national structures of the location (Aragón-Correa et al., 2020; Fifka, 2013; Lenz & Viola, 2017). Consequently, the particular pressures within different institutional environments may influence firms differently to improve their environmental behavior (Aguilera et al., 2021; Berrone et al., 2010; González-Benito & González-Benito, 2006; González-Benito & González-Benito, 2010). That is to say, the institutional pressures within a home country produce specific cultural responses to the demands for environmental improvements which are embedded into the firm's culture and behavior. Our goal is to analyze the impact of home country environmental profile (HCEP) in shaping SOEs' environmental management abroad within an MNE global context, which is not currently considered within the management literature.

Specifically, the dimension of home country shapes the environmental behavior of the firm's corporate agents (Aguilera et al., 2019; Bueno-García et al., 2021; Rejchrt & Higgs, 2015) and may have special relevance for SOEs (Bruton et al., 2015; Li et al., 2014; Meyer et al., 2014; Zaid et al., 2020). The firm's HCEP embeds perceptions of environmental strategy in the firm's corporate agents (Aguilera et al., 2019; Bueno-García et al., 2021; Ortiz-de-Mandojana et al., 2016; Rejchrt & Higgs, 2015; Zhu et al., 2019). The home country's environmental profile reflects how well environmental issues, such as resource conservation, pollution abatement, and eco-efficiency (Siche et al., 2008), as well as differences in environmental priorities (Christmann & Taylor, 2006), are addressed in a country. So, the specific national structures of the HCEP will shape shareholders' perception of the institutional pressures for advanced green practices,

particularly for SOEs, due to their close contact with the institutional demands, as previously discussed. Thus, SOEs play an influential role in improving firms' green practices, depending on the specific national background of the country in the environmental arena.

Indeed, past literature has stated that SOEs will impact differently on firms' environmental behavior and gain legitimacy in a local context according to whether the country in question is, in general, a developed or emerging market (Calza et al., 2016; Khlif et al., 2017; Lagasio & Cucari, 2019), but this literature overlooks the fact that the HCEP of SOEs will have a differential impact within MNEs, since the HCEP may or may not improve environmental management abroad in MNEs (Ahmadova et al., 2023). On the one hand, some studies have highlighted that the state increases its awareness of environmental strategy in developed markets (Calza et al., 2016; Khlif et al., 2017; Lagasio & Cucari, 2019) where legitimacy is particularly relevant. Indeed, in countries with a higher environmental profile, green standards are higher, leading to greater institutional pressures to improve firms' environmental behavior (Leyva-de la Hiz et al., 2019; Ortiz-de-Mandojana et al., 2016), thereby putting pressure on SOEs to improve their EP (Amran & Susela Devi, 2008; Lopatta et al., 2017). Consequently, SOEs from high HCEP countries will be more familiar with advanced green practices within their local institutional environment, and thus may be more able to translate them into better environmental proactivity abroad due to their stronger background in environmental management.

On the other hand, there are differences between developed countries and emerging markets (Li et al., 2014). While firms from emerging countries may undertake environmental initiatives to gain legitimacy when operating globally (Fiaschi et al., 2017; Kolk & Curran, 2017; Li, 2023; Marano et al., 2017), firms based in low HCEP countries tend to take longer to improve their green practices (Kang & Zhang, 2010; Leyva-de la Hiz et al., 2019), due to the fact that there are lower environmental standards in those particular countries. In these cases, although the SOEs will indeed drive green improvements, as previously discussed, these firms' commitments and actions will be considerably less intense due to a lack of prioritization and ability, given that the environmental practices in countries with a low environmental home country profile are weaker (Chu et al., 2013; Faisal et al., 2018; Wang & Jin, 2007). Hence, SOEs from low HCEP countries will be less aware and less familiar with advanced green practices within their local institutional environment, and thus may be less able to translate them into better environmental proactivity abroad due to their lower familiarity with environmental management.

In sum, HCEP constitutes a key factor of national institutional background, which provides SOEs with a higher awareness and background in environmental improvements in MNEs abroad. Thus, we hypothesize as follows:

**Hypothesis 1.** A higher level of home country environmental profile will strengthen the positive effect of SOEs on environmental proactivity.

### 2.3 | Firm's internationalization: State ownership influence within more global companies

In general, corporate agents' perceptions and reactions to advanced green practices vary across international contexts, since the institutional pressures derive from different influences in global markets. Firms operating in more international scenarios are subject to environmental pressures from many different countries (Fifka, 2013; Lenz & Viola, 2017), but the global visibility of a firm's environmental behavior due to operating in an international sphere is more acute (Aragón-Correa et al., 2016; González-Benito & González-Benito, 2006, 2010), thereby entailing a different perception of their environmental management. Hence, as corporate agents are significantly influenced by the institutional pressures to which the firm is subjected (Aguilera et al., 2021; Aragón-Correa et al., 2020; Walls et al., 2012), the influence of these pressures on a firm's environmental strategy will be further modified in a more global setting. In this wider context, institutional pressures to improve environmental results acquire different meanings. This is because international firms operating in different countries will navigate the greater complexities of multiple institutional environments in accordance with diverse rules, norms, and expectations. Some studies argue that, in more international firms, the efforts of corporate agents of local firms to change environmental practices abroad may clash with the different environmental requirements of a wider range of different institutional agents overseas (Aguilera et al., 2021; Aragón-Correa et al., 2020; Darnall et al., 2010; Kock et al., 2012). That is to say, the complexity of institutional pressures faced by more global firms may complicate environmental management in their international business.

Consequently, shareholders' influence on environmental strategy will vary depending on the institutional pressures (Aguilera et al., 2021; Berrone et al., 2010; Bueno-García et al., 2021), and the extent to which the complexity of more international contexts will affect MNEs' shareholders regarding their view of the firm's environmental strategy. Naturally, private shareholders may be more familiar with international institutional pressures and thus be more aware of their complexity, in comparison with SOEs who are more familiar with local institutional pressures that do not entail the same complexity. On the one hand, strategic shareholders may positively influence environmental improvements due to their greater familiarity with the supply chain operations of the firm, a fact which is intensified in more international firms (Bueno-García et al., 2022). Foreign shareholders may also drive new environmental strategies as they have a better understanding of the different environmental requirements of more international spheres (Bueno-García et al., 2021; Ellimäki et al., 2023). In sum, the literature supports the finding that a more international context strengthens the impact of (some) private shareholders on a firm's environmental proactivity.

However, on the other hand, SOEs' influence on the environmental strategy will be weakened in more internationalized firms, due to an increase in the complexity of the institutional pressures for SOEs in international scenarios; international pressures with which they are less familiar, thereby dampening SOEs influence on environmental

strategy. Even though all foreign companies are subject to higher scrutiny while operating abroad, SOEs are subject to more complex institutional pressures than private firms (Meyer et al., 2018), because the perceptions of and attitudes toward the home country shape SOEs' nature and the extent of institutional pressures. In most cases, the higher complexity deriving from more global scenarios is not successfully met by SOEs, due to their perceived illegitimacy in host countries (Cuervo-Cazurra et al., 2023), which means that international SOEs are required to make additional efforts in overseas markets to gain the extra necessary legitimacy. Hence, while the actions of foreign shareholders or/and directors to improve green practices can be mitigated by local agents within the firm, given that their environmental standards are different (Bueno-García et al., 2021; Ortiz-de-Mandojana et al., 2016), this barrier may be higher for foreign SOEs. Moreover, SOEs will face greater obstacles to their agility and responsiveness to international market expectations due to their dependence on international strategic resources, having less access to them than private owners (Estrin et al., 2016).

Consequently, the actions of SOEs in multinational companies may be less effective (Cuervo-Cazurra et al., 2014; Cuervo-Cazurra & Li, 2021), given that an international scenario entails an extra legitimacy for SOEs. The local government and firms' corporate actors in host countries will have different interests to SOEs, as they operate according to different standards (Li et al., 2019; Wei & Nguyen, 2017; Zhang et al., 2011) and so perceive the presence of a foreign state as potential conflicting agent (Cui & Jiang, 2012). In contrast, in less internationalized firms, the state might be particularly influential and may even coerce firms to align their goals with government interests (Hong et al., 2015), leading the firms operating in more local contexts to be subject to stricter governmental mandates and environmental and social responsibilities (Wang & Jiang, 2021). That is, SOEs will be more powerful in a local context where institutional pressures are more familiar and do not entail extra complexity.

In sum, the power of SOEs will be weakened in more international firms due to the greater institutional complexity of environmental management abroad and because they are less familiar with international pressures than private shareholders. Thus, we hypothesize as follows:

**Hypothesis 2.** Higher levels of a firm's internationalization will weaken the positive effect of SOEs on environmental proactivity.

### 2.4 | Environmental institutional distance: The role of host country

Finally, a firm's expansion into new international markets often entails environmental institutional distances due to the cultural differences in green practices that exist between the firm's home and host country (Aguilera-Caracuel et al., 2013; Ko et al., 2021; Ye et al., 2022). Indeed, the management literature supports the finding that a larger dissimilarity between institutional standards in the home and host





market implies further pronounced differences between the legitimacy of local practices and institutional requirements abroad (Beugelsdijk et al., 2018; Dau et al., 2022; Reus & Lamont, 2009; Wei et al., 2020), leading to potential conflicts in a firm's strategic choices and practices derived from such cultural distance (Drogendijk & Holm, 2012; Lee et al., 2021; Schwens et al., 2011; Siegel et al., 2013).

These studies have largely focused on institutional distance in relation to regulatory dimensions, such as formal laws, rules, and regulations (Kostova et al., 2020). In this stream of research, CSR scholars have predominately analyzed the influence of government effectiveness, regulatory quality, rule of law, and control of corruption on a firm's environmental and social actions (Li et al., 2022). However, relatively few studies have specifically addressed environmental regulations (Aguilera-Caracuel et al., 2012). While green regulations can serve as an important indicator of a host country's expectations and requirements, they do not capture a complete picture of the context of environmental practice implementations. Hence, it becomes necessary to examine the environmental distance to assess the degree to which the green practices, performance, regulations, and/or standards differ between home and host countries (Aguilera-Caracuel et al., 2013; De Beule et al., 2022), entailing potential conflicts in a firm's environmental strategy due to a different level of legitimacy of green practices abroad. Hence, international management of such potentially pronounced differences is a key issue for firms in order to acquire the required legitimacy abroad and thus successfully operate overseas.

This is crucial because, besides environmental regulations, corporate agents have to deal with existing differences in environmental management practices between their own views and the green standards of the firm's host country, which are deeply intensified for SOEs. As corporate agents are significantly influenced by the institutional pressures that a firm is subject to (Aguilera et al., 2021; Aragón-Correa et al., 2020; Walls et al., 2012), their influence on a firm's environmental strategy will be modified in a more global context but also varies according to where such international expansion is directed. Again, shareholders' interests in environmental issues will vary depending on the context and the institutional pressures (Aguilera et al., 2021; Berrone et al., 2010; Bueno-García et al., 2022), and their potential influence on green strategy will also vary according to the level of existing differences in green standards between home and host country (Bueno-García et al., 2021). That is to say, environmental institutional distance will modify shareholders' influence on a firm's EP depending on how they perceive the differences between their view of environmental management and green standards in the host country.

Specifically, a higher environmental institutional distance between green standards in home and host country may complicate the actions of the state in improving a firm's environmental behavior. As previously discussed, a more global context may increase the complexity of environmental management for corporate agents (Aguilera et al., 2021; Aragón-Correa et al., 2020; Darnall et al., 2010; Kock et al., 2012), which is even greater for SOEs (Cuervo-Cazurra et al., 2014; Cuervo-Cazurra & Li, 2021). The complexity will be even

more pronounced if the institutional differences between home and host countries are higher (Aguilera-Caracuel et al., 2013; Beugelsdijk et al., 2018; Drogendijk & Holm, 2012). Conversely, given more similar institutional environments within home and host country, despite the fact that pressures for improving green strategy from foreign shareholders or/and directors may be mitigated by local institutional structures in host countries (Bueno-García et al., 2021; Ortiz-de-Mandojana et al., 2016), SOEs might easily have an impact on the firm's strategy (Huang, Shen, & Zhang, 2020; Kostova & Zaheer, 1999; Xu et al., 2021) for meeting institutional standards abroad. Therefore, acquiring the necessary legitimacy will be easier, given that the standardization of environmental practices will be easier if such institutional differences are lower (Aguilera-Caracuel et al., 2012; Aguilera-Caracuel et al., 2013), allowing the support that governments provide to be more easily implemented.

In sum, a higher institutional difference between green standards at home and host locations will dampen the effectiveness of SOEs' influence on the firm's EP. This is due to an increase in the complexity of the adaptation required by SOEs to more different green requirements from local agents, who offer higher resistance to SOEs than to private shareholders. Thus, we hypothesize as follows:

**Hypothesis 3.** Higher levels of environmental institutional distance between a firm's home and host country will weaken the positive effect of SOEs on environmental proactivity.

## 3 | DATA AND METHODS

### 3.1 | Sampled firms

The selected sample is built from the companies identified in the MSCI World Index, a global index that includes 1626 international firms from 23 different countries and from 11 different economic sectors, for the period from 2007 to 2018 (i.e., 12 years). The sample analyzed ends in 2018 because internationalization data was not available for later years in the Thomson Reuters Eikon database. There is a high proportion of missing data for more recent years, possibly due to the COVID-19 crisis. We believe that this has also skewed the environmental data, as we found a lot of missing data and a large amount of values that did not match with companies' earlier records. The data collected from the Thomson Reuters Eikon database was extracted from the Environmental, Social, and Governance (ESG) sections and the international segments of foreign revenue.

Specifically, we used the data from the international segments to build our firm's internationalization variable, a measure that entails extra complexity due to missing or incomplete data, which we explain further in the section on the variable measurement. Hence, we built this variable in our analysis for companies that reported at least 95% of their total sales in disagreeable foreign regions, that is, firms which reported information of foreign sales that we could aggregate in the four big regions studied (Americas, Europe, Asia and Pacific, and

**TABLE 1** Home country of sampled MNEs.

Home country	Number of companies	Percentage of the sample	Mean of home country environmental profile (2006–2017)
United States	85	28.52	66.215
Japan	50	16.78	71.623
Canada	35	11.74	68.785
United Kingdom	18	6.04	75.736
Australia	17	5.70	70.239
Germany	17	5.70	74.608
France	15	5.03	75.123
Sweden	9	3.02	78.081
Switzerland	7	2.35	83.935
China	6	2.01	49.209
Netherlands	6	2.01	72.196
Norway	6	2.01	77.244
Singapore	6	2.01	68.904
Finland	5	1.68	73.886
Belgium	3	1.01	66.914
Denmark	3	1.01	72.887
Ireland	2	0.67	69.74
New Zealand	2	0.67	76.405
Italy	2	0.67	74.591
Portugal	2	0.67	69.285
Spain	2	0.67	70.973
Total	298	100%	

Africa; see the measure of firm's internationalization in Section 3.2). This is the key reason for the missing data presented in our final sampled companies from the MSCI World Index, providing a final sample of 2997 observations from 298 different companies. This restriction was crucial in accurately studying the complex effect of firms' internationalization, as those firms with a large amount of missing data or non-disagreeable information do not provide a clear picture of their activities abroad.

Our final sample comprises 298 firms from 21 different home countries as shown in Table 1, with international firms from the United States (28.52%), Japan (16.78%), and Canada (11.74%). We also found a relevant presence of firms from Australia (5.70%), Singapore (2.01%), and China (2.01%), as well as several European countries such as the United Kingdom (6.04%), Germany (5.70%), France (5.03%), Sweden (3.02%), Switzerland (2.35%), Netherlands (2.01%), Norway (2.01%) Finland (1.68%), Belgium (1.01%), and Denmark (1.01%).

## 3.2 | Measuring variables

### 3.2.1 | Environmental proactivity

EP is a construct that entails recording a firm's engagement in improving its green practices over and above established norms (Aragón-Correa &

Sharma, 2003; Sharma & Vredenburg, 1998). Hence, scholars have commonly used indices based on disclosure or performance to account for a firm's proactive attitude toward environmental behavior (Aragón-Correa et al., 2016; Calza et al., 2016), thereby capturing such improvements. In this sense, recent literature has highlighted that the best way of measuring a firm's environmental proactive attitude is to capture its level of financial commitment and actions in green innovation (Berrone et al., 2013; Bueno-Garcia et al., 2021; Cormier & Magnan, 2015; Radu & Francoeur, 2017) as this expenditure is clearly oriented to obtaining and implementing innovative practices to improve the firm's green behavior. Hence, we have opted for the “environmental innovation category score” from the Thomson Reuters Eikon database as previous studies have done (Bueno-Garcia et al., 2021), which “reflects a company's capacity to reduce the environmental costs and burdens for its customers, and thereby creating new market opportunities through new environmental technologies and processes or eco-designed products” (Thomson Reuters ESG Scores, 2019, p. 22). This index ranges between 0 and 100, where higher values mean greater levels of EP.

### 3.2.2 | State ownership

In line with previous SOE studies which study state ownership as a whole as a specific kind of powerful owner with similar characteristics

and thus with essentially a unique nature worldwide (Calza et al., 2016; Earnhart & Lizal, 2006; Pan et al., 2020), we measure this variable as the percentage of the total shares of the firm's share portfolio owned by the national government. First, we downloaded from Thomson Reuters Eikon database the ownership report for each firm, as this database reports on the whole ownership portfolio. Second, we separated national owners from foreign owners, since we needed to record the presence of the national government for our analysis. Finally, we were able to capture all national public entities with a presence in the firm's ownership portfolio, adding the percentage of shares owned by "state agency" and "sovereign wealth" (labeled in this way by Eikon database) since these are the main public agents of the national government (Aguilera et al., 2021).

### 3.2.3 | Environmental home country profile

In line with previous studies in the management literature which have analyzed the firm's environmental home country profile (Bueno-García et al., 2021; Leyva-de la Hiz et al., 2019), we selected the Environmental Performance Index (EPI), a score elaborated by Yale University (Wendling et al., 2018). This index records several environmental items, such as waste of water, energy, and so on, taking into account countries' features, such as their Gross Domestic Product, and where values are in the range of 0–100, with higher values representing a better environmental home country profile in which the firm is based.

### 3.2.4 | Firms' internationalization

The measurement of a firm's internationalization involved recording the extent to which a firm is operating abroad, based on its degree of sales coming from foreign markets but also on the number or variety of such foreign regions (D'Angelo et al., 2016; Rugman & Verbeke, 2008). Previous literature measured a firm's internationalization using only the percentage of foreign sales (Chiarvesio et al., 2015) or the number of foreign areas in which the firm operates (Gallego-Álvarez et al., 2018; Pucheta-Martínez & Gallego-Álvarez, 2018), whereas it is clear that both of these methods together will provide a more accurate measure of the firm's internationalization variable.

Therefore, we follow recent literature which uses the entropy index to account for both dimensions (D'Angelo et al., 2016; Gómez-Mejía et al., 2010; Qian et al., 2010), using the Hitt entropy index (Hitt et al., 1997) to account for the percentage of foreign sales in each of the four biggest geographical markets in the world: the Americas, Asia and Pacific, Europe, and Africa. This index is defined as:

$$\text{Entropy Index} = \sum_i^4 \left[ X_i * \ln \left( \frac{1}{X_i} \right) \right]$$

where  $X_i$  is the percentage of foreign sales from the region "i." To build this variable, we downloaded the percentage of foreign sales

disaggregated by region per firm from the Eikon database, then manually calculated the entropy index for each firm. Again, note that we restricted our analysis to companies which report at least 95% of their total sales in disagreeable foreign regions to build an accurate and solid variable, a restriction which accounts for the missing and/or incomplete data in our final analysis. This variable takes into account the degree and diversity of a firm's operation abroad, where low values imply a lower level of internationalization, from 0 for non-internationalized firms to the maximum value of 1.386 for totally internationalized and diversified firms with 25% of foreign sales in each of the four regions.

### 3.2.5 | Environmental institutional distance

We follow the most popular measure in management studies to account for the cultural distance between different dimensions (Beugelsdijk et al., 2018; Drogendijk & Holm, 2012; Reus & Lamont, 2009; Schwens et al., 2011; Siegel et al., 2013) using the Kogut and Singh Index (Kogut & Singh, 1988), due to the fact that this index successfully corrects possible deviations in the variance for the analyzed dimensions which are arithmetically averaged, and we also employed the Euclidean correction of this index (Konara & Mohr, 2019) to get:

$$\text{Environmental institutional distance} = \sqrt{\sum_{k=1}^n \frac{(I_{ki} - I_{kj})^2}{n} / V_k}$$

where  $I_{ki}$  and  $I_{kj}$  are the values of the cultural dimension "k" for the countries "i" and "j";  $V_k$  is the variance of the cultural dimension "k," and "n" is the number of different cultural dimensions analyzed. In our case, we calculated the cultural distance between (1) the value of the EPI for the firm's home country, and (2) the value of the EPI for the main host country where the firm is more internationalized, as a proxy of the environmental host country profile. Therefore, the variable account for one cultural dimension is the environmental profile ( $n = 1$ ). Values of this variable close to 0 means lower cultural distance between the environmental profiles of home and host countries, that is, the firm is mainly internationalized to a host country with similar EPI, whereas higher values imply greater cultural distance between the environmental profiles of a firm's home and host country.

### 3.2.6 | Controls

We included the most typical effects in international and environmental literature to account for different firm features. Previous studies (Aragón-Correa et al., 2016; Gómez-Bolaños et al., 2020) have pointed out that *firm size* affects the firm's environmental activity, so we include firm size, measured as the natural logarithm of total assets. We controlled for the financial situation of the firm by using the firm's return on asset (*firm ROA*) (Dam & Scholtens, 2013), and the firm



value using *firm leverage* as firm performance measured by the natural logarithm of the ratio of total debt to total equity, in line with previous studies (Cormier & Magnan, 2015; Walls et al., 2012). We used *firm age* to represent the total number of years since foundation in line with previous studies (Calza et al., 2016; Doluca et al., 2018). Finally, we controlled for *firm industry* with sectoral dummy variables, using GICS sectors to categorize the different economic sectors (Pucheta-Martínez & Gallego-Álvarez, 2018), which are industrials, communication services, consumer discretion, consumer staples, financials, energy, health care, information technology, materials, real estate, and utilities.

Because of the existence of other variables related to the governance situation, we included *ownership concentration*, measured using the Herfindahl–Hirschman Index (HHI), since it includes information about all the shareholders of a firm (Dam & Scholtens, 2013). Additionally, we included proxies of good governance from the Thomson Reuters Eikon database, including the Corporate Governance Pillar Score (*firm Governance score*), defined as a “measurement of company's system and processes, which ensure that its board members and executive act in the best interest of its long term shareholders”; and the *firm shareholders score*, defined as a “shareholders category which measures a company's effectiveness towards equal treatment of shareholders and the use of anti-takeover devices” (Thomson Reuters ESG Scores, 2019, p. 22). We included these indices as excellent proxies of good governance practices in line with previous studies in the management literature (Baraibar-Diez et al., 2019; Bueno-García et al., 2021; Bueno-García et al., 2022; Duque-Grisales & Aguilera-Caracuel, 2021; Zampone et al., 2023). Finally, we included regional dummies to control whether the firm is operating in greater or fewer numbers of international regions abroad, as well as adding year dummies to control for temporal effects in our panel data.

### 3.3 | Method

We used STATA 16 software to build our statistical model using a Mixed Effect model to test our research hypotheses. We selected this option since we have data nested in two hierarchical levels (Goldstein, 2003; Luke, 2004): a high level for home country, introducing the EPI variable in our model where the same home country appears for several firms meaning that these firms share the same value; and a lower level for firm-level variables. Hence, a Mixed Effect model is useful to account for unobserved heterogeneity in panel data and the non-independence of nested data in two hierarchical levels, reducing biases in large samples with high levels of missing data (Raudenbush, 2004; Raudenbush & Bryk, 2002), as in our case. We also performed the analysis using a random effect model as a robustness check, where the same results were found, which can be obtained from the authors upon request. Moreover, we introduced robust standard errors clustered at firm level to fix potential heteroscedasticity and serial correlation biases, and we introduced year dummy variables to manage the temporal effect. Finally, we recorded one-year lagged variables, since the effect of independent variables

does not have an immediate effect on our dependent variable, and so we have independent variables for the period 2006–2017 and our dependent variable EP has been downloaded for the period 2007–2018.

## 4 | RESULTS

The descriptive statistics and Pearson correlations for the variables included in this study are presented in Table 2. We found that the Variance Inflation Factors (VIFs) of them are within acceptable values from 1.03 to 1.34, providing an average of 1.17. These values suggest that there are no potential multicollinearity biases in the present study.

Table 3 presents the results obtained from our regression models. Model 1 is used to test the effect of the control variables selected in this study on our dependent variable EP. We see statistically significant coefficients for most of them, suggesting that indeed these variables act as good predictors of the firm's EP, and so fit with their mission of performing a statistical control of the dependent variable. The results shed a positive and significant effect on firm size, firm leverage, and firm governance on the firm's EP, whereas we see a negative and significant effect on the shareholders' score and firm age. Model 2 introduces the main independent variables used in this study, that is, the SOEs, the firm's environmental home country, the firm's internationalization, and the cultural distance of environmental host country profile. This model is used to introduce the direct effects of our independent variables, showing a significant and positive coefficient of 0.283 ( $p$ -value < 0.05) regarding the direct effect of the SOEs on the firm's EP, which is in line with our arguments for our baseline assumption based on previous management literature, where we postulated a positive influence of SOEs on improving existing environmental practices.

Model 3 is used to test Hypothesis 1 regarding the moderating effect of the environmental home country profile on the relationship between SOEs and the firm's EP. This hypothesis predicted that higher values of environmental home country profile will strengthen the positive effect of SOEs on the firm's EP. We find a significant coefficient for the interaction of both independent variables (0.007,  $p$ -value = 0.030), showing that a moderating effect indeed exists. Figure 1 graphically shows this effect, where we see that the firm's EP produces more positive results as the percentage of SOEs increases for high values of environmental home country profile, so we find support for Hypothesis 1 since this behavior is as predicted.

In Model 4, we test Hypothesis 2, which predicted that higher values of firm internationalization will weaken the positive effect of SOEs on the firm's EP. In this case, we find a significant coefficient for the interaction of SOEs and firm internationalization (−0.461,  $p$ -value = 0.021). Figure 2 depicts this relationship, where we see that the firm's EP produces more positive results as the percentage of SOEs increases for lower values of firm internationalization, whereas we see that this relationship is weaker for highly international firms. Altogether, we find support for Hypothesis 2, which predicted that higher



TABLE 2 Statistics and Pearson correlations.

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
(1) Environmental proactivity	60.521	26.104	1000										
(2) State-owned enterprises	2.028	8.223	0.108***	1000									
(3) Home country environmental profile	71.162	10.477	0.135***	0.058***	1000								
(4) Firm's internationalization	0.593	0.285	0.072***	0.021	0.116***	1000							
(5) Cultural distance	0.206	0.107	-0.049***	-0.038**	-0.022	-0.679***	1000						
(6) Firm size	24.197	2.03	0.181***	0.038**	0.103***	0.035*	0.087***	1000					
(7) Firm ROA	5.579	6.92	-0.107***	-0.008	-0.062***	0.070***	-0.130***	-0.216***	1000				
(8) Firm leverage	3.659	2.268	0.154***	0.046**	0.068***	-0.055***	0.121***	0.016	-0.349***	1000			
(9) Firm age	2.891	1.497	-0.091***	-0.037**	-0.068***	-0.081***	0.144***	0.184***	0.006	-0.070***	1000		
(10) Firm's ownership concentration	667.072	1159.151	-0.020	0.295***	-0.083***	-0.032*	-0.163***	0.032*	0.091***	-0.030*	-0.074***	1000	
(11) Firm's governance score	56.73	20.39	0.175***	0.052***	0.107***	0.042*	0.032*	0.072***	-0.077***	0.084***	0.034*	-0.252***	1000
(12) Firm's shareholders score	50.211	29.194	-0.007	0.028	-0.037**	-0.029	-0.002	-0.016	-0.023	-0.013	-0.003	-0.106***	0.421***

\* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ .

**TABLE 3** Mixed effect statistical models.

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Controls</i>					
Firm size	3.026*** (0.296)	3.093*** (0.306)	3.103*** (0.306)	3.186*** (0.310)	3.226*** (0.309)
Firm ROA	-0.102 (0.065)	-0.111* (0.065)	-0.113* (0.065)	-0.114* (0.065)	-0.122* (0.065)
Firm leverage	1.220*** (0.230)	1.204*** (0.230)	1.211*** (0.230)	1.192*** (0.230)	1.186*** (0.230)
Firm age	-0.979*** (0.311)	-1.102*** (0.313)	-1.133*** (0.313)	-1.085*** (0.312)	-1.126*** (0.312)
Firm's ownership concentration	-0.000 (0.000)	-0.001** (0.000)	-0.001* (0.000)	-0.001** (0.000)	-0.001** (0.000)
Firm's governance score	0.246*** (0.024)	0.239*** (0.025)	0.242*** (0.025)	0.236*** (0.025)	0.243*** (0.024)
Firm's shareholders score	-0.074*** (0.017)	-0.077*** (0.017)	-0.077*** (0.017)	-0.076*** (0.017)	-0.078*** (0.017)
Sector dummies	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes	Yes	Yes
<i>Direct effects</i>					
(SOEs) state-owned enterprises		0.283*** (0.054)	-0.266 (0.264)	0.559*** (0.132)	0.014 (0.096)
(HCEC) home country environmental profile		-0.249** (0.109)	-0.285** (0.112)	-0.255** (0.110)	-0.308*** (0.112)
(FI) firm's internationalization		1.266 (2.357)	0.954 (2.357)	2.143 (2.359)	1.175 (2.351)
(EID) environmental institutional distance		5.068 (6.311)	4.065 (6.335)	4.712 (6.326)	1.325 (6.472)
<i>Moderating effects</i>					
SOEs × HCEC			0.007** (0.003)		
SOEs × FI				-0.461** (0.201)	
SOEs × EID					1.435*** (0.363)
<i>n</i>	298	298	298	298	298
<i>N</i>	2997	2997	2997	2997	2997
chi <sup>2</sup>	745.417***	797.444***	813.916***	806.708***	847.125***

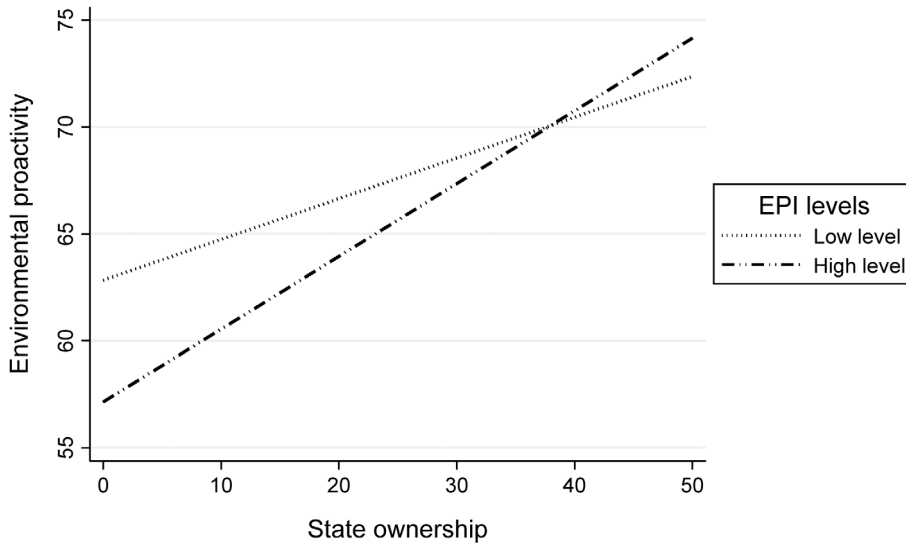
Note: Robust standard errors clustered at firm level in brackets.

\*Significance level at  $p < 0.1$ . \*\*Significance level at  $p < 0.05$ . \*\*\*Significance level at  $p < 0.01$ .

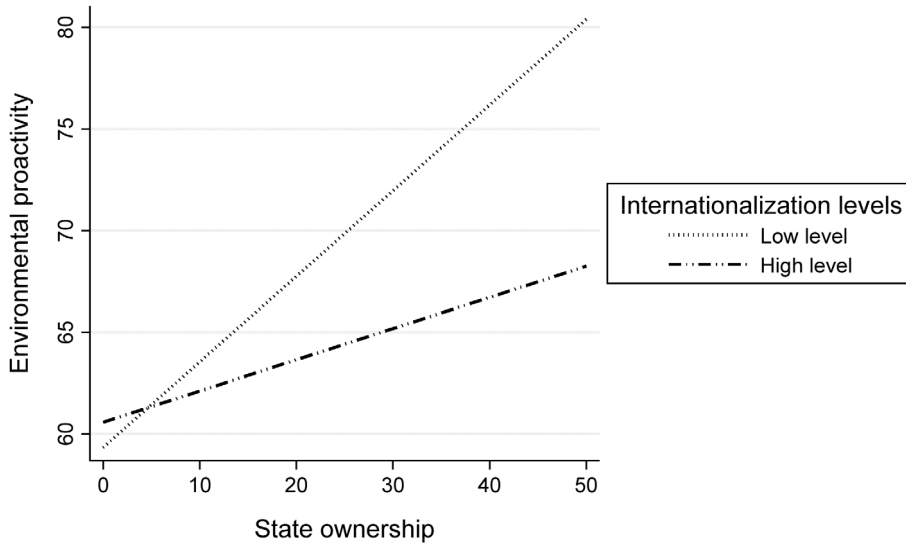
values of firm internationalization will weaken the influence of SOEs on a firm's EP.

Finally, Model 5 is used to test Hypothesis 3 regarding the moderating effect of cultural distance on the relationship between SOEs and a firm's EP. This hypothesis predicted that higher values of environmental institutional distance between the environmental profile of home and host country will weaken the positive effect of SOEs on the

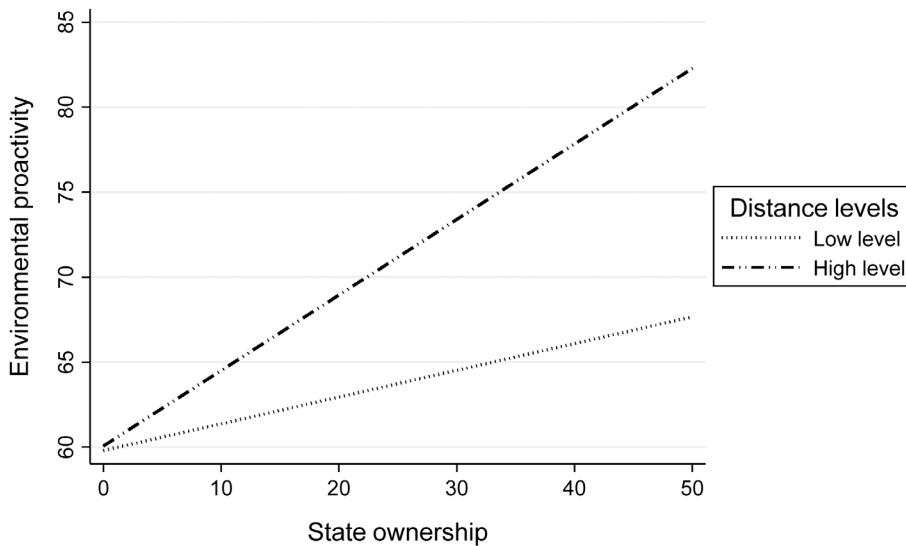
firm's EP. We find a significant coefficient for the interaction of these independent variables (1.435,  $p$ -value = 0.001). Figure 3 shows this effect, where we see that the firm's EP generates more positive values as the percentage of SOEs increases for high values of cultural distance between the environmental profile of home and host country, a result which is contrary to the one predicted by Hypothesis 3. Hence, despite statistical significance, this figure suggests that the efforts of



**FIGURE 1** Firm's environmental home country profile influence on the relationship between national state ownership and firm's environmental proactivity.



**FIGURE 2** Firm's internationalization influence on the relationship between national state ownership and firm's environmental proactivity.



**FIGURE 3** Environmental institutional distance influence on the relationship between national state ownership and firm's environmental proactivity.

SOEs to increase a firm's environmental strategies are more pronounced when the firm is internationalized to countries with greater differences in environmental background. This result thus suggests that such differences further activate institutional processes to be legitimated through advanced green practices.

## 5 | DISCUSSION

This paper makes several theoretical contributions to the management literature relating to the influence of corporate governance on the firm's environmental strategy (Aguilera et al., 2021; Bueno-Garcia et al., 2021; Berrone & Gómez-Mejía, 2009; Berrone et al., 2010; Kock et al., 2012; Ortiz-de-Mandojana et al., 2016; Walls et al., 2012) by providing a global view of the influence of SOEs on firms' EP within an international context. Specifically, we contribute to the notion that SOEs emerge as a key corporate agent because of their familiarity with the institutional context (Bruton et al., 2015; Li et al., 2014; Meyer et al., 2014; Zaid et al., 2020) by highlighting their impact on the corporate governance of international firms, with an influence on firms' strategy, such as the firm's EP. Accordingly, we provide additional insights, showing how key institutional factors influence SOEs to significantly boost green improvements.

First, we show how HCEP makes a difference in shaping the positive effect of SOEs in improving MNEs' environmental strategy in more global contexts: SOEs with a high HCEP are in closer contact with institutional environments with higher environmental exigencies, so SOEs will make additional efforts and employ more tools to improve the environmental strategy abroad. Our results extend existing arguments and findings regarding the influence of SOEs on firms' green behavior in developed (Calza et al., 2016; Earnhart & Lizal, 2006; Hsu et al., 2017; Khlif et al., 2017) and emerging countries (Chu et al., 2013; Darnall & Edwards, 2006; Faisal et al., 2018; Hope, 2013; Wang & Jin, 2007) depending on the institutions in its national context. Indeed, this literature supports the key influence of the national institutional environment on shaping SOEs' influence on green strategy, but only in a local context. We extend this argument by showing how HCEP also boosts SOEs' impact on EP within MNEs, that is, in an international institutional environment too, since HCEP is a key institutional factor that may increase environmental management abroad in MNEs (Ahmadova et al., 2023), thereby enabling SOEs to improve green practices in MNEs over and above existing environmental standards in more global markets too.

Second, we disseminate the unexplored effect that the firm's internationalization exerts on the influence of SOEs on the firm's environmental strategy. In particular, we show that a higher level of firm internationalization will weaken the positive influence of SOEs on the firm's EP, that is to say, SOEs have a positive influence on firms' EP, but this relationship will be even more positive in less global companies, at a more national level. This result suggests that the power of the state to increase a firm's environmental strategies is more restricted in international firms, due to SOEs being less familiar with international pressures (Cuervo-Cazurra et al., 2014; Cuervo-

Cazurra & Li, 2021; Estrin et al., 2016). This can lead to a lower ability to deal with the increased institutional complexity (Aguilera et al., 2021; Aragón-Correa et al., 2020; Bueno-Garcia et al., 2021; Darnall et al., 2010; Kock et al., 2012; Ortiz-de-Mandojana et al., 2016) since a foreign state may be perceived by local agents as an unfamiliar agent (Cui & Jiang, 2012; Li et al., 2019; Wei & Nguyen, 2017; Zhang et al., 2011), thereby lessening its influence on environmental improvements. These findings demonstrate a clear difference between SOEs and private shareholders, the latter increasing their influence on green strategy in a more global context because they are more able to deal with the complexity of more international scenarios (Bueno-Garcia et al., 2021; Bueno-García et al., 2022; Ellimäki et al., 2023).

Finally, we find that a firm's EP exhibits more positive values as the percentage of SOEs increase when the environmental institutional distance between home and host country is higher. This finding is contrary to some studies, which state the opposite effect: SOEs might face less complexity if institutional differences between home and host country are lower—as we explain—to meet green standards abroad (Huang, Shen, & Zhang, 2020; Kostova & Zaheer, 1999; Xu et al., 2021), due to the fact that standardization of environmental practices is easier in these situations (Aguilera-Caracuel et al., 2012; Aguilera-Caracuel et al., 2013). Our results, however, provide a different understanding, suggesting that international expansion entails, in general, a higher complexity in transforming SOEs' efforts into effective actions for green improvements. However, if such an expansion was carried out in more environmentally distant countries, SOEs might identify the green improvements as a priority due to the increased cultural distance, having a more different background from those distant host countries, and thus intensify their actions precisely because of a greater increase in the complexity of environmental management in international business. This phenomenon is explained by institutional theory, which states that by implementing the required environmental actions, firms attenuate their legitimacy deficit in foreign markets (Chen et al., 2023), and reduce the adverse effects of liability of origin in other institutionally differentiated markets (Marano et al., 2017). Moreover, our findings are in line with some arguments in the literature which suggest that efforts to change existing institutional practices may be further activated when differences between firms and corporate agents are higher (Drogendijk & Holm, 2012; Lee et al., 2021; Park & Xiao, 2021; Schwens et al., 2011; Siegel et al., 2013); that is to say, corporate agents abroad will intensify their efforts when they identify institutionalized practices as very different from their own. As such, substantial differences in legitimacy pressures might lead firms to be motivated or obliged to comply with institutional demands by adopting certain environmental practices in distant host markets (Ko et al., 2021; Ye et al., 2022). Thus, when institutional differences are further pronounced due to the international expansion taking place in countries with more different environmental profiles, such pronounced differences may activate SOEs to further increase their actions and influence on improving green practices abroad.





While we consider our results to be important for academia and practitioners alike, this work is not free of limitations. First, we tested the SOEs using a sample in which the situation of the state was as minority shareholders, excluding those cases in which the state owned more than 50% of the shareholding portfolio. It is important to highlight this limitation since the state as an owner has different implications depending on its minority or majority shareholding in the firm. Hence, future research could examine SOEs' influence on firms' environmental strategy by making this distinction. Second, we have used only the EPI of the SOEs of each company in order to calculate the HCEP of this moderating variable, as well as for environmental institutional distance. Future researchers may find it interesting to test different home and host country dimensions relating to environmental background or another cultural index in general. For instance, previous studies show the political ideology of the ruling party in a country plays a key role in shaping a firm's EP (Ioannou & Serafeim, 2012; Xu et al., 2022). Hence, we propose that future studies examine the differences in EP between SOEs operating under left-wing and right-wing governments. Finally, our analysis focuses on MNEs and therefore the effect in small or medium-sized companies could differ due to different institutional scenarios. In terms of future avenues of research, one way of reducing some of the limitations of this paper could be by testing other indices, for example. A study of other stakeholders and their varying impacts in different countries of origin could be interesting, allowing for the dissemination of different views of a firm's strategy depending on national background. In sum, we hope that this study has clarified the relevance of the state as owner in terms of EP and will further help to motivate and trigger future research in this direction.

## 6 | CONCLUSION

The implications of our results will be useful for various societal actors, including managers, policymakers, stakeholders, and the governments of the countries involved. From a managerial perspective, this study offers several practical implications for how to deal with the presence of the state as owner within the firm, given that it is a relevant owner of many large companies in the world (Cuervo-Cazurra et al., 2014; Kalotay, 2017). As managers play a crucial mediating role between the influence of different shareholders on firm strategy (Chithambo et al., 2020), they should be aware that the influence of the state as a relevant shareholder carries a special status due to it being an owner with greater familiarity with the institutional environment in its home country. As such, it is important to be aware that SOEs' influence on green strategy is determined by institutional structures from the environmental background of its home country, leading to the enactment of deeper or softer actions to improve firms' environmental behavior. In this sense, managers should facilitate the action of the state as owner in global firms to mitigate the complexity of environmental management in international markets, collaborating with the state to achieve a competitive green strategy.

Moreover, this study provides new insights into the importance of considering the home country's environmental performance. To

improve the environmental performance of state-owned companies in an international context, governments must consider the introduction of environmental policies and regulations that provide strong advantages to firms when operating abroad. As for the state as an owner, our study contains relevant and interesting results, suggesting governments should consider the possibility of encountering challenges in environmental management in the international arena. The state should enhance internal regulations and mechanisms to ensure that international SOEs comply with global environmental standards and engage in green practices. This study does not aim to discourage states from advancing their internationalization efforts; rather, it emphasizes the potential benefits of international expansion in addressing the institutional complexity of environmental management. Through international diversification across different institutional contexts, SOEs can acquire a wider range of diverse abilities and tools that can ultimately help overcome the challenges associated with environmental proactivity.

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## ORCID

Manuel Bueno-García  <https://orcid.org/0000-0003-1239-8194>

Gozal Ahmadova  <https://orcid.org/0000-0002-4056-9520>

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