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Firm- and Country-Specific Advantages: Towards a Better Understanding of MNEs' Environmental Performance in the International Arena

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Abstract
International diversification is predominantly assumed to have a mixed (either positive or negative) linear relationship with environmental performance in multinational enterprises (MNEs). Departing from this assumption, we use firm-specific advantages (FSA) and institutional theory to hypothesise that international diversification, due to recombination barriers, has a curvilinear U-shaped relationship with MNEs' environmental performance. Because of their key roles as boosters of country-specific advantages (CSA), we also examine whether home country competitiveness and environmental levels moderate the proposed curvilinear relationship. Results from panel data of 298 MNEs between 2006 and 2017 from 21 different countries in 11 sectors provide support for the main curvilinear relationship and the moderating influence of home country competitiveness. Our study contributes to the international business literature by casting doubt on the widely held assumption that international diversification always carries either positive or negative effects on environmental records.

Keywords
environmental performance, international management, longitudinal analysis, regression analysis, competitive advantage and environmental strategy

Introduction

Despite several decades of research, there remains a lack of consensus within the international business literature regarding the influence of multinational enterprises' (MNEs') internationalisation on their environmental performance (Aragón-Correa et al., 2016; Chen et al., 2016; Gómez-Bolaños et al., 2020). While some prior investigations have considered the fact that

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MNEs face greater institutional pressures due to higher scrutiny, which can lead them to present advanced green results (e.g., Aguilera-Caracuel et al., 2012; Bansal, 2005; Forslid et al., 2018; Gómez-Bolaños et al., 2020; Symeou et al., 2018), other works have highlighted that the higher complexity generated by operating in a larger number of different international locations can sometimes cause firms to exhibit poorer environmental performance (Aragón-Correa et al., 2016; King & Shaver, 2001; Kostova & Roth, 2003; Levy, 1995). However, previous studies have neglected the notion that both phenomena may derive from one other, meaning that MNEs' better environmental results might actually originate from a deeper ability to overcome such initial complexity and worse green results at earlier stages of their international diversification, and that firms based in certain countries may do so with greater ease. This article therefore analyses the relationship between international diversification and environmental performance as a more complex process and considers how the firm's home country plays a relevant role.

A growing body of research has shown that higher international diversification leads to better environmental performance because international firms face a greater level of institutional pressure (e.g., Aguilera-Caracuel et al., 2012; Bansal, 2005; Forslid et al., 2018; Gómez-Bolaños et al., 2020; Symeou et al., 2018). As such, they succeed in satisfying such increased green demands due to their more global condition, which provides them with greater opportunities for the progressive acquisition of abilities and development of a more advanced environmental approach (Aguilera-Caracuel et al., 2012; Bansal, 2005), and allows them to achieve economies of scale to facilitate the adoption of cleaner technology (Forslid et al., 2018).

However, this perspective is called into question by other studies which have suggested that an international scope does not guarantee high environmental performance (Aragón-Correa et al., 2016; King & Shaver, 2001; Levy, 1995). For example, Aragón-Correa et al. (2016) found that the largest MNEs demonstrate weaker environmental performance, despite making a greater effort to disclose more detailed information about such environmental results. This can be explained by the difficulty in managing the increased complexity involved in having geographically dispersed operations (Kostova & Roth, 2003) and thus managing several different institutional environments (Doh & Guay, 2006; Fifka, 2013; Gallego-Álvarez et al., 2018; Lenz & Viola, 2017). In conditions of such increased international diversification, "MNEs may act irresponsibly not out of malice or ill-will, but because they have to stretch their resources and capabilities to coordinate and monitor subsidiaries" (Strike et al., 2006, p. A3). Indeed, analyses have shown that more international firms may generate higher levels of waste due to their relative lack of ability to deal with local conditions and difficulty in finding and negotiating with buyers for waste materials (e.g., King & Shaver, 2001; Levy, 1995). Thus, according to this view, some MNEs are not able to implement better green practices abroad due to lacking the integrated abilities to face the greater difficulties derived from operating in diverse international contexts.

Taken as a whole, there is as yet no clarity on the relationship between international diversification and firms' environmental performance or on how the orchestration of such a relationship actually develops. Whereas the first perspective neglects the potential costs and difficulties due to the complexity of international management, the second misses the clear advantages that more global firms use to improve their environmental results. As such, recent literature calls for an integrated understanding of the environmental impacts of international firms (Aray et al., 2021; Burritt et al., 2020), where both phenomena must be integrated with one other into a coherent whole, that would pay more attention to the particular stage of the internationalisation process, as well as the institutional background from which the firm starts its international expansion.

To fill this gap, we argue that firms face institutional pressures and difficulties in diffusing, deploying and exploiting their environmental strategies in production operations dispersed across several countries during their initial stage of internationalisation. However, accumulating a larger number of different international locations leads firms to use a greater variety of tools and abilities in managing more diverse environmental pressures in different institutional environments abroad. MNEs thus acquire a deeper ability to recombine their green firm-specific advantages (FSAs) with the institutional environments of the host country and reverse this situation to improve their environmental performance, and then present advanced environmental results. Hence, we propose that MNEs' environmental performance entails complexity that goes beyond a linear path and instead complement prior arguments and findings by suggesting a U-shaped curvilinear focus on the international diversification and environmental performance nexus. To that end, we rely on the institutional perspective (DiMaggio & Powell, 1983), and the FSA theory proposed by Rugman and Verbeke (1998a, 1998b).

We also investigate the moderating role of the firms' home country profile, because firms' behaviour and strategic decision-making vary depending on the country-specific advantages (CSAs) of their home nation (Narula & Verbeke, 2015; Noorderhaven & Harzing, 2003; Rugman et al., 2012; Verbeke & Lee, 2021; Wan & Hoskisson, 2003). Specifically, we draw on two key aspects of the home country profile: the home country's competitiveness and environmental performance. These two dimensions are relevant in determining a firm's strategy (Carney et al., 2017; Leyva-de la Hiz et al., 2019; Stavropoulos et al., 2018), because each dimension provides access to different features, factors and/or tools that enable firms to build strong green FSAs. Highly competitive countries are characterised by an efficient government, sophisticated market, educational system, and labour market, as well as financial and other types of resources (Delgado et al., 2012; Fainshmidt et al., 2016). Scholars have found that these competitive location advantages lead firms to build strong green FSAs, such as investment in green production processes (Berrone et al., 2013; Ortas et al., 2019) and environmental practices (Ioannou & Serafeim, 2012). Regarding the home country's green location advantages, we highlight the firm's exposure to higher environmental standards (Porter & Van der Linde, 1995) and strict environmental regulations (Rugman & Verbeke, 1998a)—in particular, the banning of toxic substances—as well as the requirement for cleaner production technologies and the establishment of bounds on pollution levels (R. Wang et al., 2018). Taken together, these green location advantages drive firms to opt for advanced green FSAs (Porter & Van der Linde, 1995).

Our result confirms that this relationship goes beyond a negative or positive effect, where starting international diversification at an early stage implies a lower environmental performance but later, following increased international diversification, becomes positive because firms reverse this situation using acquired abilities and their recombination. We also show that firms from a country characterised by high national competitiveness build their green FSAs on strong location advantages as well as access to strategic tools and advanced skills. Despite not finding a significant moderating effect for the environmental country profile, our results show that a firm's home country plays an important role in overcoming—at earlier or later stages of diversification—the disadvantages of operating abroad with respect to environmental strategy.

The contributions of our investigation are as follows. This paper contributes to institutional theory and the CSA/FSA framework to explain MNEs' environmental strategies in international contexts. From a global perspective, using a panel data set, we show that firms may not successfully meet institutional pressures if they lack enough tools to do so, providing new explanations to previous institutional management studies (e.g., Berrone et al., 2013; Delmas & Toffel, 2011). In particular, we show how international diversification increases the difficulty of successfully managing firms' environmental behaviour due to an increase in the complexity of the transfer, deployment and exploitation of green FSAs to new locations with institutional environments that differ to that of the home country. In this sense, this paper provides a recombination perspective using institutional theory by showing that environmental performance can be improved when firms acquire enough tools abroad to deal with different institutional environments in several host countries, resulting in a higher ability that enables them to recombine green FSAs with host CSAs. In addition, we clearly demonstrate that the institutional environment of the firm's home country plays a differential role in this process, where CSAs that are competitive in the home country enable firms to gain green leverage in international contexts. This article goes further than previous research by emphasising that the relationship between international diversification and environmental performance should not be understood as monolithic. Using an integrated approach to both arguments (positive or negative), we consider the dynamic nature of international diversification that results from the changing combination of the drawbacks to and benefits for a firm's environmental performance. This non-linear approach sheds new light by explaining the contradictory results of the previous literature that partially accounted for this phenomenon.

The remainder of the article is organised as follows. The next section revises the theoretical background to develop our research hypotheses regarding the U-shaped relationship between international diversification and a firm's environmental performance, as well as the moderating role of competitiveness and the home country's environmental profile. In the "Data and Method" section, we present an explanation of the research methodology, including details from our sample, as well as the variable measurement and statistical technique. We then discuss the results obtained in the "Results" section. Finally, we conclude this article with a discussion of our findings, along with suggestions for future research.

Theoretical Background and Research Hypotheses

The Influence of International Diversification on MNEs' Environmental Performance

Institutional theory postulates that firms operating under the same institutional context face normative, regulatory and competitive pressures which lead them to present similar behaviour (DiMaggio & Powell, 1983) as a strategy to survive in that location by acquiring more legitimacy than their competitors (Scott, 2001). For this reason, these institutional pressures make firms improve their environmental performance based on reducing their impact on the natural environment (Walls et al., 2011), which works as a strategy to outperform competitors by acquiring extra legitimacy from being perceived as being more environmentally committed (Aragón-Correa, 1998; Bansal & Roth, 2000; Berrone & Gómez-Mejía, 2009).

At an international level, environmental strategy acquires a special relevance because the MNEs' behaviour faces even higher institutional pressures due to attracting special attention from multiple local agents (Aragón-Correa et al., 2016; Berrone et al., 2013; Delgado-Márquez et al., 2015), so the complexity in successfully managing all operations will be higher for internationally diversified firms (Doh & Guay, 2006; Fifka, 2013; Gallego-Álvarez et al., 2018; Lenz & Viola, 2017). In this sense, international diversification is understood as "a strategy through which a firm expands the sales of its goods or services across the borders of global regions and countries into different geographic locations or markets" (Hitt et al., 2009, p. 231). Given this, in the present research, we use the term "internationally diversified firms" to refer to firms that operate in multiple and diverse markets abroad.

For internationally diversified firms, the complexity of environmental management rests on the difficulty of meeting institutional pressures in the host country which differ from those in the home country—that is, in successfully transferring green FSAs abroad. It is relevant to note that such complexity will be even greater if firms operate in more institutional environments in host countries with higher green pressures (e.g., Aragón-Correa et al., 2020; Berrone et al., 2013; Delmas & Toffel, 2011) or/and with greater cultural differences in environmental practices (e.g., Ghemawat, 2001; Kang & Yang, 2010), so firms will need to reinforce the focus on the transfer of green FSAs abroad to succeed in handling increased institutional complexity and thus improve their environmental practices.

In particular, these green FSAs are defined as "FSAs that are developed in response to challenges posed by the natural environment to enhance both environmental and economic performance and capabilities in the environmental area that allow firms to outperform their competitors and enhance industrial performance" (Rugman & Verbeke, 1998a, p. 7) or as "a bundle of strategic assets that constitute green capabilities and resources, deployed to implement environmental management practices" (Singh et al., 2014, p. 7). In their home country, firms are familiar with the institutional pressures for national responsiveness exerted by governments, consumers and other local stakeholders, but this fact stimulates MNEs to develop location-bound green FSAs that are specific to individual countries and not necessarily transferable (Kolk & Pinkse, 2008; Rugman & Verbeke, 1998a). Then, in a new location, foreign firms try to adapt their green FSAs according to each country's institutional requirements (Aguilera-Caracuel et al., 2013), but the dissimilarity of environmental regulations and challenges (Gasbarro et al., 2017) makes the transfer to relatively "distant" countries possibly unsuccessful (Ghemawat, 2001). Hence, based on the extent to which international diversification increases, the higher complexity in managing new different institutional environments (Doh & Guay, 2006; Fifka, 2013; Gallego-Álvarez et al., 2018; Lenz & Viola, 2017) will entail that firms have to undertake more effort to transfer FSAs to more new locations and thus try to mitigate the complexity.

Specifically, at initial stages of international diversification, such difficulties in transferring FSAs acquire especial prominence and result in lower environmental performance, due to the lack of ability in international management that leads MNEs to incur in higher adaptation costs (King & Shaver, 2001; Kolk & Pinkse, 2008; Rugman & Verbeke, 2005) within the initial countries where the MNEs start to operate. As noted, firms possess location-specific assets (Collinson & Narula, 2014) and technologies (Kolk & Pinkse, 2008; Russo, 2003) that are potentially available in a specific location, but may, at first, be very costly to implement and deploy in another one due to a lack of adequate infrastructure (Kolk & Pinkse, 2008). The implementation of green FSAs throughout global operations thus implies greater effort (Patchell & Hayter, 2021) that is typically dependent on new investments in environmental improvements (Christmann, 2004; Christmann & Taylor, 2006; Marano & Kostova, 2016; Patchell & Hayter, 2021; Perkins & Neumayer, 2010; Vogel, 2010). However, these investments may be inefficient at first due to the relative lack of ability in negotiating with local buyers (e.g., King & Shaver, 2001; Levy, 1995) and insufficient tools to coordinate and monitor activities abroad (Strike et al., 2006), as well as initial high costs of applying the standardisation of environmental practices in a new different country (Christmann & Taylor, 2001), and thus the inability to create synergies or economies of scales from other locations (Forslid et al., 2018). Together, in the initial steps, these costs may lead internationalisation to harm firms' financial performance (Kumar, 1984) , causing firms to face difficulties in successfully managing their financial results and environmental performance at the same time (Strike et al., 2006), and thus leading them to prioritise financial goals at the expense of environmental management.

With an increased number of diverse tools from operating in more institutional environments, however, firms are able to overcome the challenges of environmental management faced in the initial stages of their international diversification. In parallel to the rise in complexity, the increase in the diversity of business in more regions allow firms to progressively acquire a greater amount of ability in better managing more diverse overseas operations (Hitt et al., 1997) and recombining their green FSAs and location-specific advantages in the host country (Coviello et al., 2017; Grøgaard et al., 2022; Verbeke, 2009). Recombination capability is the MNE's highest-order FSA (Bohnsack et al., 2020; Narula et al., 2019; Scott-Kennel & Giroud, 2015), by which a firm creates a new ability—in negotiating with more different local agents and more different tools to coordinate and monitor activities abroad, for the standardisation of environmental practices in a new different country, and to create synergies or economies of scales from other locations—and integrates it with its existing know-how base and exploits the resulting new ability bundles across geographic space (Grøgaard et al., 2022; Rugman et al., 2011; Verbeke, 2009). As highlight, "recombination cannot be easily planned beforehand, but requires the capability to adapt new circumstances"

(p. 47). The recombination process can be developed inside (intra-firm) or outside the firm (extra-firm) or both (network combination) through the capability to deal with more different circumstances (Lee et al., 2021). Thus, with increased international diversification, firms can recombine their green FSAs and diverse host CSAs, which consequently can lead to an improvement in their environmental performance.

In consequence, the recombination process allows MNEs to generate benefits from their increased international diversification to reduce the costs originating in the initial stages, and thus exhibit advanced environmental performance. A firm's international diversification in different external institutional environments promotes the generation of other organisational capabilities that are useful for the recombination process with green FSAs, such as flexibility or stakeholder management (Starik et al., 2000). Higher interaction and collaboration with international external partners that own or control key location-specific advantages (Collinson & Narula, 2014; Narula & Verbeke, 2015; Verbeke & Kano, 2016) thus enable MNEs to gain more economically advantageous relationships and develop advanced environmental initiatives. Thus, firms create a value network of suppliers and partners (Zott & Amit, 2010) in a host location, which forms the basis for FSA recombination (Bohnsack et al., 2020). It is also important to note that with a greater level of internationalisation, the costs of implementing environmental standards diminish because MNEs can take advantage of global standards to reduce their air emissions, solid waste and energy usage (Aguilera-Caracuel et al., 2012), thus enabling firms to achieve economic of scales in the adoption of cleaner technology (Forslid et al., 2018).

As such, after passing through an adaptation period through recombination with host CSAs (Bohnsack et al., 2020) and beginning to take advantage of internationalisation, firms can revert their poor environmental behaviour to positive environmental performance based on the increased ability to deal with institutional pressures deriving from further international diversification. Hence, "cross-border activities enable firms to further strengthen their position and to expand the assets available" (Freiling & Laudien, 2012, p. 6) at later stages of international diversification. Firms will thus be able to successfully meet the increased complexity of institutional pressures from a more international position and exhibit higher environmental performance (Aguilera-Caracuel et al., 2012; Bansal, 2005) once they recombine their green FSAs in accordance with the host country's institutional environment, thanks to a wider variety of diverse tools from more internationally diversified operations.

In sum, at the early stages of international diversification, MNEs face difficulties in transferring and exploiting their green FSAs due to lacking enough different tools to face the complexity of the new institutional environments; however, with increased international diversification, MNEs can recombine their green FSAs with a higher ability to do so derived from having a greater variety of diverse tools abroad, and thus present a better environmental performance. We, therefore, hypothesise the following:

> **Hypothesis 1 (H1):** The relationship between international diversification and environmental performance is a U-shaped curvilinear one, with environmental performance decreasing up to a certain point but later increasing with higher levels of international diversification.

The Moderating Role of an MNE's Home Country Profile

International business research has highlighted the special relevance of the firm's home country institutional environment in environmental management abroad (Berrone et al., 2013; Buchanan & Marques, 2018; Delmas & Montes-Sancho, 2010; Hitt et al., 2006; Scott, 2001). Hence, despite host country institutional environments playing a relevant role, as firms will face more complexity based on the extent to which they internationally diversify to a greater number of host countries with institutional environments involving high environmental standards, due to the higher green pressures (e.g., Aragón-Correa et al., 2020; Berrone et al., 2013; Delmas & Toffel, 2011), or/and to more distant institutional environments where greater cultural differences do exist (e.g., Ghemawat, 2001; Kang & Yang, 2010), we focus on different home country dimensions for boosting environmental management to overcome host country institutional environments abroad, in both developed and developing host countries.

In this sense, along with FSAs, CSAs as a country dimension influence a firm's behaviour during its internationalisation process (e.g., Bhaumik et al., 2016; Rugman, 1981; Yaprak et al., 2018). CSAs refer to location advantages specific to the country in which the unit of the MNE is located (Rugman & Nguyen, 2014). In particular, home CSAs play a critical role in the development of strong FSAs (Dunning & Lundan, 2008; Rugman et al., 2011) because different CSAs provide firms with specific previous tools and knowledge to manage their potential behaviour and outcomes on an international scope in terms of their environmental performance.

For this reason, scholars used to study which dimensions of home CSAs are indeed differential with respect to shaping firm's environmental behaviour in international contexts (e.g., Berrone et al., 2013; Buchanan & Marques, 2018; Delmas & Montes-Sancho, 2010). These dimensions arise from the different national institutions within the same context, which differently influence firms (Berrone et al., 2013; Delmas & Montes-Sancho, 2010; Hitt et al., 2006; Scott, 2001) and which differently determine their environmental results. Through the pressures of these institutions, in other words, each dimension will embed a specific response and thus provide firms with a specific range of tools and knowledge different from the others. Consequently, we argue that strong home CSAs (Rugman et al., 2011) derived from different home country dimensions will lead firms to develop best green FSAs that will not suffer from challenges in their international expansion.

In particular, we contend that two home CSAs provide differential influences on a firm's environmental performance in their internationalisation process (Carney et al., 2017; Leyva-de la Hiz et al., 2019; Stavropoulos et al., 2018): home country competitiveness and home country environmental profile. These two dimensions of the home country have a special relevance to determine firms' environmental behaviour in global markets due to a great complementary influence of the whole home country location advantages (Kolk & Fortanier, 2013; Leyva-de la Hiz et al., 2019) since they include both kinds of normative and regulatory institutions and pressures (e.g., Aragón-Correa et al., 2020; Ortiz-de-Mandojana et al., 2016) and so they represent the entire dimensions of a firm's home country.

Home Country Competitiveness Profile. The home country competitiveness level has a relevant and particular impact on the relationship between MNEs' international diversification and environmental performance. Competitiveness refers to the home country's institutional profile based on the "ability of a nation to achieve long-term value for its enterprises and more prosperity for its people" (IMD World Competitiveness Center, 2020). The importance of country competitiveness to firms is described in Porter's (1990) diamond model, suggesting that country-specific conditions derived from competitiveness, such as factor endowments, demanding consumers, and clusters of supporting industries, interact with firm strategies and structure to determine a firm's competitive advantage and therefore its strategy formulation (Carney et al., 2017; Rugman et al., 2012). Hence, this fact arises as an essential factor in shaping the firm's internationalisation process for its environmental performance.

In particular, a country's high competitiveness entails important advantages for firms, such as access to financial markets, the educational system, and labour market as well as other resources (Delgado et al., 2012). For instance, firms within developed credit and equity markets will face fewer capital constraints (Hall & Soskice, 2001), which enhances their ability to invest in green production process (Berrone et al., 2013; Ortas et al., 2019). In addition to this, highly efficient and less corrupt counties provide incentives, such as tax exemptions for responsible firms, leading firms to engage in environmental practices (Ioannou & Serafeim, 2012). Firms will be considered as having a higher degree of these tools and advantages to better translate their FSAs if they come from countries with a higher level of competitiveness.

On one hand, MNEs from highly competitive countries build their green FSAs on strong home country location advantages, which are not difficult to transfer internationally. These greater location advantages are due to abundant home country institutions allowing firms to acquire advanced skills and transaction efficiency that benefit their geographic diversification (Wan & Hoskisson, 2003). Thus, institutions related to home CSAs have a strong impact in terms of how FSAs are managed, developed, transferred across borders and recombined with new resources in host countries (Ferraris, 2014; Rugman et al., 2011). Indeed, high home country competitiveness predicts the creation of non-location-bound FSAs (easily transferable internationally) (Ferraris, 2014; Porter, 1990). For this reason, MNEs from competitive countries may get over the barriers derived from international diversification earlier since the learning and acquiring tools process is less dilated as they already enjoy a previously competitive background (Ellimäki et al., 2019).

On the other hand, firms from lowly competitive countries face difficulties in transferring and deploying their green FSAs when going global. In this sense, MNEs from lowly competitive countries have to make an extra effort to adopt environmental management practices in their host-country subsidiaries (Tatoglu et al., 2014) to mitigate the drawback of their origin (Amankwah-Amoah & Debrah, 2017; Asmussen, 2009; Ellimäki et al., 2019). Hence, these firms will later recombine their green capabilities and resources with the home country environment due having less previous knowledge and tools provided by their home country's competitive profile. Even, with strong corporate sustainable background in their home country, emerging MNEs are "susceptible to decoupling or misfit in the transfer of corporate sustainability from parent companies to foreign subsidiaries" (Park, 2018, p. 1517).

In sum, the U-shaped relationship between international diversification and environmental performance is conditioned by the home country competitiveness level. MNEs from highly competitive countries will earlier make this relationship positive, whereas MNEs from the lowly competitive countries will do so later because the former are more prepared to transfer their green FSAs due to the great range of tools previously derived from their higher competitiveness level, such as access to fewer capital constraints (Hall & Soskice, 2001), advanced financial markets, the educational system, labour market (Delgado et al., 2012) and even incentives, such as tax exemptions for socially responsible firms, leading firms to opt for green practices (Ioannou & Serafeim, 2012).

Therefore, we posit the following hypothesis:

Hypothesis 2a (H2a): The greater the home country competitiveness level, the earlier the international diversification impact on environmental performance becomes positive.

Home Country Environmental Profile. Furthermore, the home country's environmental level has a special influence on the relationship between MNEs' international diversification and environmental performance (Leyva-de la Hiz et al., 2019; Zeng & Eastin, 2012). The home country's environmental level reflects how well environmental issues, such as resource conservation, pollution abatement and eco-efficiency, are addressed in a country (Siche et al., 2008; Xiao et al., 2018), as well as differences in economic and environmental priorities (Christmann & Taylor, 2006). The literature demonstrates that if an MNE perceives environmental challenges such as climate change as a global issue, decision-making power on this issue will be at the level of its headquarters (Kolk & Pinkse, 2008). Thus, the environmental profile is an essential aspect of home CSAs that can shape a firm's environmental performance in their international diversification process.

In particular, the country's high environmental profile adds a layer of environmental compliance pressure, leading firms to feel pressed to increasingly engage in green practices (Delmas & Toffel, 2011). The firms usually behave in accordance with laws and regulations that are promulgated by the government (Liao, 2018). Governments from countries with a strong environmental profile often impose regulative pressures by banning toxic substances, requiring cleaner production technologies and establishing limits on pollution levels (R. Wang et al., 2018). Such pressures create strong green location advantages, as, for instance, firms from countries that support global climate policy may be able to profit from easier access to supranational stakeholders and global norms (Kolk & Ciulli, 2021). Thus, the level of the home country environmental profile will provide these specific tools for firms to translate their FSAs.

In this sense, MNEs from countries with strict environmental regulations (Stavropoulos et al., 2018) will develop green best practices and deal better with environmental challenges at their first stage of internationalisation. Indeed, MNEs benefit from higher environmental standards in their home market because such standards induce them to develop superior green FSAs (Kolk & Pinkse, 2008; Porter & Van der Linde, 1995). Thus, MNEs from countries with a strong environmental profile can easily transfer technology, knowledge and management practices developed at home to host country subsidiaries (Blomstrom & Kokko, 1998; Branstetter, 2006) since their green FSAs comply with strict global environmental standards.

In contrast, MNEs from countries with a weak environmental profile will have to face greater difficulties, since the "country-of-origin" effect suggests that if MNEs arise from poorly regulated environments, they will on average convey poor environmental practices in their international operations (Zeng & Eastin, 2012). Hence, MNEs from countries with low environmental profiles will have to suffer a greater process in adopting better green practices (Gardberg & Schepers, 2008; Kang & Yang, 2010; Leyva-de la Hiz et al., 2019), and thus they will later overcome the challenges related to international environmental management.

In conclusion, on one hand, MNEs from countries with a high environmental profile present an ability to transfer technology, knowledge, and management practices developed at home to host country subsidiaries. On the other hand, MNEs from countries with a low environmental profile may have a poor environmental process in their early international diversification process due to having fewer previous tools to implement in this international diversification and thus enhance their environmental performance. Thus, MNEs benefit from a home country's strong environmental profile, such as high environmental standards (Porter & Van der Linde, 1995), strict regulations (Rugman & Verbeke, 1998a; R. Wang et al., 2018), and easier access to supranational stakeholders and global norms (Kolk & Ciulli, 2021). These green location advantages drive MNEs to develop superior green FSAs (Porter & Van der Linde, 1995) and maintain their competitiveness once environmental regulations are raised in foreign countries (Aguilera-Caracuel et al., 2011).

We thus post that the effect of our U-shaped relationship is moderated as follows:

> **Hypothesis 2b (H2b):** The greater the home country's environmental level, the earlier the international diversification impact on environmental performance becomes positive.

Data and Method

Sample

Our sample comprises companies in the MSCI World Index, an index which contains 1,626 MNEs from 21 different countries and encompasses a reliable data source for this study. These MNEs operate in 11 different industries, and we have information for the period from 2006 to 2017 (i.e., 12 years). From this data set, the highest percentages of MNEs come from the United

States, Japan, Canada and Australia, but there are also MNEs from other Asian and European countries (see Appendix A).

To build our international diversification data, we restricted our analysis to MNEs that report at least 95% of their total sales disaggregated by foreign regions: this is the key reason for missing data in our MNEs listed in the MSCI World Index, providing a final sample of 2,875 observations from 298 different MNEs. We consider that this restriction is essential to robustly examine the real effect of our international diversification variable, since firms with poor reports on their regional sales abroad may not provide an accurate idea of their international diversification in global markets.

Finally, it is important to highlight that each observation includes information about environmental results, international sales and financial results of an MNE for each year. We collected the information from the Thompson Reuters Eikon database, from the *Environmental*, *Social* and *Governance section* (*ESG*) and the international segments for each MNE.

Variables

Environmental Performance. Measuring environmental performance has a multidimensional character (Johnstone & Hallberg, 2020), where some scholars use the reduction of emission (Hartmann & Vachon, 2018) or levels of resource efficiency and/or consumption (Kock et al., 2012) as proxies for MNEs' environmental performance. However, further measures which record all of these aspects were demanded, so past management literature offers different indices and scores for better proxies of this category (e.g., Aragón-Correa et al., 2016; Berrone et al., 2010; Walls et al., 2012). Therefore, like previous environmental studies (e.g., Gómez-Bolaños et al., 2020), we selected the environmental score from Thompson Reuters Environmental, Social and Governance Eikon (TRESG) (Thomson Reuters, 2019). The TRESG emission score measures "a company's commitment and effectiveness towards reducing environmental emissions in the production and operational processes." This index includes measures such as NO_x, CO_2, and SO_x emissions or green expenditures, among others, so we find that this measure is in line with recent metrics as a proxy for environmental performance. The index values range between 0 and 100, with higher values meaning greater environmental performance.

International Diversification. A full measurement of firm's international diversification implies recording the amount or percentage of business that the firm is earning from operating abroad, but also the number or variety of locations whence such business comes (D'Angelo et al., 2016; Rugman & Verbeke, 2008). Prior research has tended to focus on only one of these measures of a firm's internationalisation, just using the percentage of foreign sales (e.g., Attig et al., 2016; Tihanyi et al., 2005) or the number of foreign subsidiaries where the firm is operating (e.g., Gallego-Álvarez et al., 2018; Pucheta-Martínez & Gallego-Álvarez, 2018), whereas it is clear that combining both ways will provide a more accurate measure of the firm's internationalisation.

Measuring the degree of a firm's operation abroad using just the number of different areas or subsidiaries neglects the amount of business that the firm engages in abroad. That is, two firms may have the same number of subsidiaries abroad, but one of them may obtain more sales from those subsidiaries, showing that their operations abroad are clearly bigger and the firm as a whole is thus more internationalised than the other. For this reason, other studies have used the ratio of foreign sales to total sales revenue (Attig et al., 2016; Tihanyi et al., 2005). However "one simple measure of the scale of internationalisation does not provide a fine-grained measure of its scope" because "two firms may show similar export intensities, but one could export to a single neighbouring country, while a second had sales to many countries over three continents" (D'Angelo et al., 2016, p. 539). The measurement of international diversification thus needs both a geographical distribution of sales as well as accounting for the number of different areas, beyond simply considering the level of internationalisation or just the number of regions (Rugman & Verbeke, 2008), as an MNE operating in more international areas and engaging in a greater percentage of business abroad will be more internationally diversified in a global computation.

Hence, we first downloaded the MNEs' revenue from sales in each of the four big areas, considering the four global markets (Hitt et al., 1997): the Americas, Europe, Asia and the Pacific and Africa. Then, following previous empirical researches which tested the effects of international diversification (D'Angelo et al., 2016; Gomez-Mejía et al., 2010; Qian et al., 2010), we used the entropy index defined by Hitt et al. (1997):

$$\text{Entropy} = \sum_{i}^{4} X_i Ln\left(\frac{1}{X_i}\right), \tag{1}$$

where X_i represents the percentage of revenue from sales in the region i. This index thus accounts for the number of international regions in which the MNE operates and the sales dimension in each region, so this measurement presents the advantage of including a level of MNEs' internationalisation as well as the variety of international areas. Lower values for this index imply a low level of MNEs' international diversification, from 0 for a non-internationalised and non-diversified company to higher values for more internationally diversified MNEs, the maximum possible value being 1.386 for a company with 25% foreign revenue in each region.

Home Country. We delved into the home country literature to extract an accurate measure of both our moderating variables and thus get a score for each MNE's home country for our sample period 2006–2017. On one hand, following previous studies which measure home country competitiveness (Andreeva et al., 2018; Hervas-Oliver et al., 2011; Stahle & Bounfour, 2008; Stoian & Mohr, 2016), we used the IMD Competitiveness Online database. According to IMD methodology, a country's global competitiveness is based on economic performance, business efficiency, government efficiency and infrastructure. A country's competitiveness takes a value on a continuous scale from 0 (*low*) to 100 (*high*).

On the other hand, we used the Environmental Performance Index (EPI) to measure home country environmental performance in a similar way to other studies (e.g., Leyva-de la Hiz et al., 2019). EPI is elaborated by Yale University (Wendling et al., 2018), and it comprises a variety of items from environmental results in the country, such as waste of water and energy, but also including macro-economic indicators, such as the gross domestic product. This index also ranges between 0 and 100, where higher values represent the better environmental performance of the specific country.

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 a firm's size affects its environmental activity, so we included firm size, measured as the natural logarithm of total assets. To control for the financial situation, we used firm leverage as firm performance measured by the ratio of total debt to total equity, in line with previous studies (Cormier & Magnan, 2015; Walls et al., 2012). We also controlled for the firm's value, using the natural logarithm of the market capitalisation for the firms per year (e.g., Calza et al., 2016). Moreover, since environmental performance may differ in firms with different levels of investment in green improvements (e.g., Radu & Francoeur, 2017; Walls et al., 2012), we control for firms' green innovation through an Environmental Innovation Index from the Thomson Reuters Eikon database, defined as 'a company's capacity to reduce the environmental costs and burdens for its customers, thereby creating new market opportunities through new environmental technologies and processes or eco-designed products' (Thomson Reuters, 2019). This index also ranges from 0 to 100, and higher values also represent better green innovation for a firm. Finally, we control for firm industry with economic sectors from Thomson Reuters Eikon used in previous environmental studies (e.g., Pucheta-Martínez & Gallego-Álvarez, 2018) categorising different industries: industrial, communication services, consumer discretionary, consumer staples, financial, energy, health care, information technology, materials, real estate and utilities.

Methods

A multilevel generalised linear model was run to estimate the environmental performance based on the reports from firms pooled together in the MSCI World Index. This data set covers approximately 85% of the free float-adjusted market capitalisation in each country in the period 2006–2017. Each year observed in the sample was selected as a stratified sample of firms by industry, country and size. The panel element in a sample was treated using a multilevel estimation approach.

In a multilevel analysis—sometimes also called a hierarchical, random coefficient, or mixed-effects model—the data structure in the population is hierarchical and data are viewed as a multistage sample from this hierarchical population (Goldstein, 2003). Consequently, firms are hierarchically nested in a four-level model that relates the dependent variable to predictor variables at more than one level (Luke, 2004). First, the macro level contains the 12 available years of the MSCI data set; there are 21 different countries and 11 different economic sectors at the meso-level. Finally, there are 1,637 firms assumed to be randomly sampled (micro level).

Formally, a generalised linear four-level model was estimated with the environmental performance dependent variable y_{ijkt} and the independent variable x_{ijkt} such that:

$$g\left[E\left(y_{ijkt}\right)\right] = \beta_0 + \beta_1 x_{ijkt} + v_{ijkt}, \tag{2}$$

where i is the firm (Level 1), j is the economic sector (Level 2), k is the country (Level 3) and t serves to index the year (Level 4). The dependent variable y_{ijkt} gathers environmental performance. The explanatory variables, which were previously described, are presented by x_{ijkt}. Finally, ε_{ijkt} is an error term that, in the hierarchical model, consists of four components:

$$\varepsilon_{ijkt} = \gamma_{i\cdots} + \mu_{ij\cdot\cdot} + \upsilon_{ijk\cdot} + \nu_{ijkt}, \tag{3}$$

where $\gamma_{i\cdots}$ represents the omitted variables that vary across firms but not over sector, country and year; $\mu_{ij\cdot\cdot}$ denotes the omitted variables that vary over firms and sectors; $\upsilon_{ijk\cdot}$ denotes the omitted variables that vary over year and country but are constant across sector and firms; and ν_{ijkt} is the usual error term. As noted by Srholec (2010), the presence of more than one residual term makes a standard multivariate model such as fixed-effects specification inapplicable; therefore, a generalised linear mixed-effects model procedure should be used to estimate equation.

In addition, a multilevel model specification controls for the assumption of independence of the observations in grouped data; the context may not be independent for firms because of such influences as peer effects and country characteristics. The covariation between firms' environmental performance sharing the same country externalities can be expressed by intra-class correlation (Hox, 2010). With this, between-countries variance contributes to firms' environmental performance in addition to the variance between firms.

Furthermore, when estimating equation (2), it was necessary to control for sample selection bias by carrying out a two-stage Heckman approach similar to that described by Delgado-Márquez et al. (2018). In the first stage of the analysis (selection equation), a mixed-effect probit selection model was run. This selection step consisted of identifying, through a probit regression on the total number of observations, those firms that implement an international diversification strategy, understood as the increase of sales across the borders of global regions and countries into different geographic markets.

Thus, observations on environmental performance can be affected by those observations that, independent of the adoption of diversification strategies, have higher environmental performance:

$$\text{Selection step:} Pr(D = 1|z_{ijkt}) = \Phi\left(\alpha' z\right), \quad (4)$$

where D indicates that the firm adopts international diversification strategies ($D = 1$ if y_{ijkt} if $y_{ijkt} > 0$ and $D = 0$ otherwise), α is a vector of unknown parameters, and Φ is the cumulative distribution function of the standard normal distribution. Finally, z is a vector containing the explanatory variables that affect the decision to carry out an international diversification strategy. In the second stage (outcome equation), from selection equation (4), we followed the generalised Heckman approach as developed by Greene (2002) to compute the inverse Mill's ratio (λ_{ijk}); the selection bias was corrected by including this Mill's ratio when equation (2) was estimated. Finally, to allow the regression to have a U shape, the standard approach (Lind & Mehlum, 2010) is to include a quadratic term in the regression model. Thus, the conditional expectations of environmental performance, which consider international diversification strategies, can be written as follows:

$$g\left[E\left(y_{ijkt}\right) | x_{ijkt}, D = 1\right] = \beta_0 + \beta_1 x_{ijkt} + \beta_2 f\left(x_{ijkt}\right) + \rho\sigma_\varepsilon\lambda_{ijkt} + \left(\gamma_{i\ldots} + \mu_{ij..} + \upsilon_{ijk\cdot} + \nu_{ijkt}\right), \quad (5)$$

where ρ is the correlation between the unobserved determinants of a propensity to apply an international diversification strategy and the observed error term ε_{ijkt}, and σ_ε is the standard deviation of ε_{ijkt}. The presence and direction of a selection bias was inferred from the statistical significance and sign of the Mill's ratio coefficient in equation (5). Here, the known function f gives a curvature and, depending on the estimated parameters β_1 and β_2, equation (5) may be U-shaped or not. We assume that f is chosen so that the relationship has at most one extreme point. In that case, the relationship is U-shaped curvilinear, or monotone.

Finally, before proceeding with the regression results, we contrast the possible endogeneity between international diversification and environmental performance. Endogeneity problems can arise as a result of measurement error, simultaneous causality, and omitted variables (Bascle, 2008; Wooldridge, 2010). Not accounting for endogeneity problems in the model could introduce biases in the estimated coefficients (Rutz & Watson, 2019).

To address this issue, we perform a Durbin–Wu–Hausman (DWH) endogeneity test, which includes a two-stage procedure (Durbin, 1954; Hausman, 1977; D. M. Wu, 1973). In this sense, we add the instrumental variables in our regression model which are required to test endogeneity. Initially, we run the first-stage regression of instrumental variables on our endogenous variable (international diversification), from which we calculate a global variable (DWH variable). We next estimate the effect of the endogenous variable on our dependent variable (environmental performance) by including the DWH variable in the two-stage generalised structural equation modelling (GSEM) models.

By doing so, we choose the instrumental variables selected in the Hausman approach. These variables meet the two conditions required for a valid instrument: relevance and exogeneity (Kennedy, 2008). Relevance identifies whether the instrument significantly correlates with endogenous regressors in the first-stage regression (see Table B1), whereas exogeneity refers to the degree to which an instrument is not statistically significant with the dependent variable in the second-stage regressions (Semadeni et al., 2014).

Results

Table 1 reports the summary statistics and a correlation matrix. The correlations are within the standard levels obtained in other studies analysing internationalisation and environmental categories (e.g., Leyva-de la Hiz et al., 2019). In addition, we observe that variance inflation factors are adequately ranged between 1.02 and 4.37 with a mean of 1.98, which suggests that the variables' correlation does not imply relevant multicollinearity biases in this study (Hair et al., 1998).

Table 2 presents the results of the multilevel generalised linear mixed-effects model and the second stage of the Heckman procedure after adjusting for the endogeneity of the international diversification strategy,[1] with the results of the Durbin–Wu–Hausman test. In this table, we see that DWH variable does not have a statistically significant relationship with our dependent variable in any model of these second-stage regressions, and thus endogeneity is controlled and not causing biases in our models with the selected instruments for the Heckman procedure. Model 1 reports the baseline results, which include firm size, firm performance, firm value and firm's green innovation variables. The coefficients and the *p* values are fairly stable across specifications in both magnitude and significance. Model 2 serves to test our Hypothesis 1 regarding the curvilinear U-shaped influence of international diversification on environmental performance, and Models 3 and 4 contrast Hypotheses 2a and 2b, respectively, about the moderating effect of MNEs' home country profiles on this relationship.

As can be seen in Model 2 (Table 2), the U-shaped relationship between international diversification and environmental performance is measured by introducing the linear specifications for international diversification ($p = .022$) and its squared term ($p = .005$). These results provide clear strong support for Hypothesis 1, since its predicts a curvilinear relationship between international diversification and environmental performance, with environmental performance decreasing up to a certain point at which it becomes positive and continues to increase with a higher level of international diversification. As illustrated in Figure 1A, the relationship between international diversification and environmental performance shows the U-shaped effect. Hence, in the first steps of international diversification, MNEs display a worse level of environmental performance. However, at a certain level of international diversification, the worsening stops, and the relationship between international diversification and environmental performance becomes positive. This is the point from which MNEs continued to improve their environmental results in relation to the extent to which they increase their international diversification level.

Despite the statistical significance of the estimates related with international diversification summarised in Table 2 and the graphical representations shown in Figure 1A, to correctly verify the existence of hump-shaped relationships, the test for U-shaped relationships proposed by Lind and Mehlum (2010) was run (see Table 3). In this sense, results related to Model 2 indicate significant differences in sign in the slope at both ends. The slope of the lower bound is -0.514 ($p = .023$), while the slope of the upper bound is 0.924 ($p = .002$), resulting significant the presence of a U-shaped relationship between international diversification and environmental performance ($p = .005$). Furthermore, the results suggest a plausible interval range from 0.362 to 0.636, with an extreme point of 0.499, which is close to the turning point shown in Figure 1A.

Moreover, Model 3 (Table 2) tests Hypothesis 2a, which predicts that the home country competitiveness level moderates the U-shaped relationship between international diversification and environmental performance, where MNEs from more competitive countries will reach the point where the relationship becomes positive earlier. In this model, we included both iteration terms to test this moderating effect, so we added the linear diversification term multiplied by the home country competitiveness ($p = .008$) and the squared diversification term multiplied by the home country competitiveness ($p = .011$). The joint results ($p = .009$) provide statistical support for Hypothesis 2a. Similarly, Figure 1B helps checking the effect hypothesised. For MNEs based in countries with a low level of competitiveness (blue line), we observe how the inflexion point for the U-shaped relationship is shifted to the right, so firms achieve positive environmental results at a later level of

Table 1. Descriptive Statistics and Correlations.

Variables	*M*	*SD*	Minimum	Maximum	1	2	3	4	5	6	7	8
1. Environmental performance (log)	4.0556	0.6485	−0.4947	4.6035	1							
2. Diversification	0.5879	0.2845	0.0265	1.3478	.1271 (.000)	1						
3. Home country competitiveness (HCC)	0.4671	0.4990	0	1	−.0718 (.000)	−.0829 (.000)	1					
4. Home country environmental performance (HCEP)	0.4772	0.4996	0	1	.1631 (.000)	.0855 (.000)	−.1869 (.000)	1				
5. Firm size (log)	24.181	2.041	18.607	31.389	.2521 (.000)	.0370 (.000)	−.3584 (.000)	.1096 (.000)	1			
6. Performance (log)	3.6484	2.2947	−7.7063	9.8143	.1496 (.000)	−.0651 (.000)	.0227 (.000)	.0464 (.000)	.0327 (.000)	1		
7. Firm value (log)	23.905	1.805	19.209	29.336	.1951 (.000)	.1025 (.000)	−.3312 (.000)	.0884 (.000)	.8607 (.000)	−.1813 (.000)	1	
8. Green innovation (log)	3.9250	0.6683	−0.8416	4.6023	.2564 (.000)	.0514 (.000)	−.0652 (.000)	.1142 (.000)	.1352 (.000)	.1306 (.000)	.0675 (.000)	1

Note. Bivariate correlations and descriptive statistics, diversification active firms ($N = 298$) are shown.

Table 2. Multilevel Generalised Linear Mixed-Effects Model With Heckman's Two-Step Corrections.

						Interaction model			
		Base model		Full model		HCC		HCEP	
		Model 1		Model 2		Model 3		Model 4	
Variable	Hypothesis	Est.	*p*	Est.	*p*	Est.	*p*	Est.	*p*
Firm size (log)		0.138 (0.020)	.000	0.140 (0.020)	.000	0.140 (0.020)	.000	0.139 (0.020)	.000
Performance (log)		0.026 (0.006)	.000	0.026 (0.006)	.000	0.026 (0.006)	.000	0.026 (0.006)	.000
Firm value (log)		0.039 (0.018)	.028	0.034 (0.018)	.059	0.036 (0.018)	.045	0.033 (0.018)	.062
Green innovation (log)		0.076 (0.015)	.000	0.074 (0.015)	.000	0.076 (0.015)	.000	0.074 (0.015)	.000
Diversification				−0.543 (0.237)	.022	−0.883 (0.269)	.001	−0.522 (0.267)	.050
Diversification squared	H1			0.544 (0.194)	.005	0.780 (0.214)	.000	0.596 (0.219)	.007
HCC				0.060 (0.027)	.027	−0.161 (0.090)	.073	0.062 (0.027)	.022
HCC × Diversification						0.848 (0.319)	.008		
HCC × Diversification squared	H2a					−0.622 (0.244)	.011		
HCEP				0.009 (0.018)	.626	0.010	.596	0.099 (0.069)	.155
HCEP × Diversification								−0.143 (0.244)	.557
HCEP × Diversification squared	H2b							−0.012 (0.191)	.951
Mill's ratio: Diversification selection		−0.025 (0.011)	.026	−0.021 (0.011)	.066	−0.020 (0.011)	.075	−0.021 (0.011)	.061
Sample		2006–2017		2006–2017		2006–2017		2006–2017	
Observations		2,875		2,875		2,875		2,875	
Groups country		21		21		21		21	
Groups sectors		107		107		107		107	
Groups company		298		298		298		298	
Log likelihood		−1,721.1		−1,713.5		−1,709.9		−1,727.2	
Tests of endogeneity (instrumented: diversification)[a]		NA		1.5719	.210	1.1337	.287	0.918	.337
Interaction terms joint test (χ^2)[b]		NA		NA		6.91	.009	0.06	.804

HCC = Home Country Competitiveness; HCEP = Home Country Environmental Performance.
[a]Values shown are coefficient estimates and robust standard errors from maximum likelihood regressions using an *F*-test of H_0: variables are exogenous (Durbin–Wu–Hausman test). [b] Values shown are coefficient estimates and robust standard errors from maximum likelihood regressions using a χ^2 test of H_0: HCC, HCEP and their interaction are jointly insignificant.

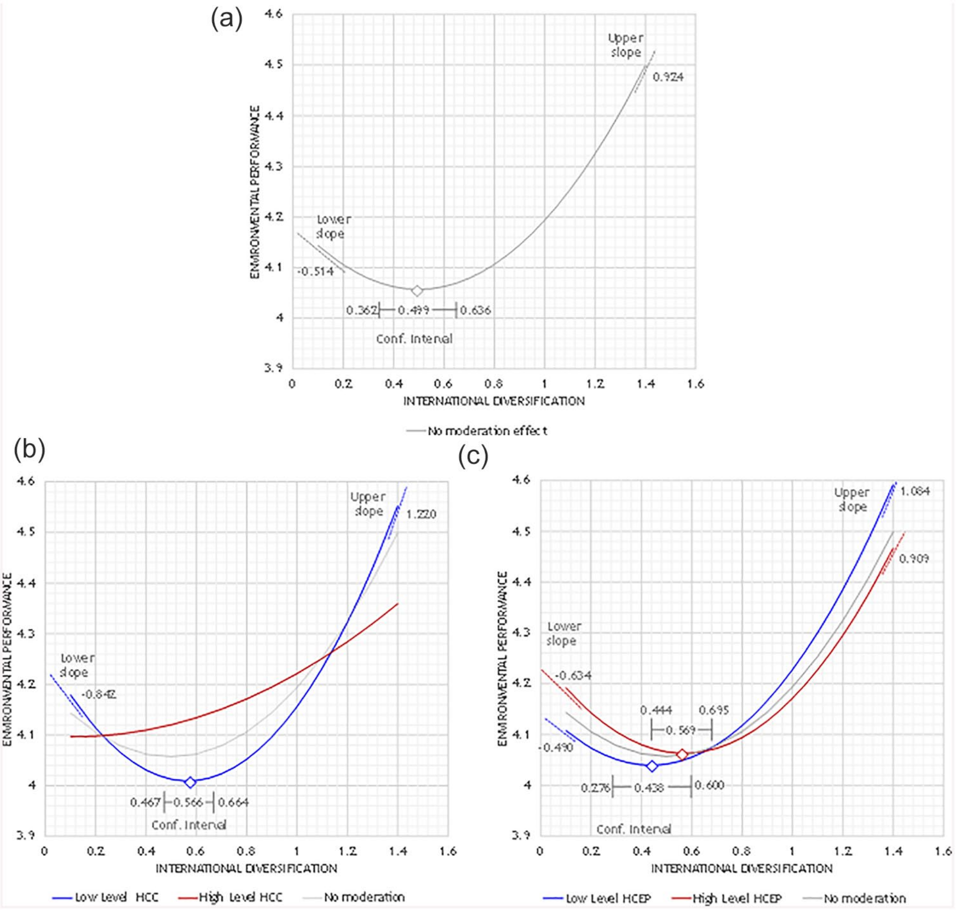

Figure 1. International Diversification and Moderation Effects. (A) Full Model. (B) HCC. (C) HCEP
Note. HCC = Home Country Competitiveness; HCEP = Home Country Environmental Performance.

international diversification. Interestingly, MNEs from lowly competitive countries achieve better environmental performance over time despite improving later. In contrast, MNEs from highly competitive countries (red line) do not face a fall in environmental performance when they diversify internationally. The results of the U-test shown in Figure 1B related to Model 3 corroborate these findings (see Table 3). On one hand, the results for MNEs from low competitive home countries indicate that the slope of the lower bound reaches -0.842 (p = .001), while the slope of the upper bound gets 1.220 (p = .000), resulting in a significant test (p = .021) and strong evidence of a U-shaped relationship. In addition, the test suggested a plausible interval range from 0.467 to 0.664, with an extreme point of 0.566, which is close to the turning point shown in Figure 1B. On the other hand, high p-values for the lower and upper bounds of the U-test for MNEs from highly competitive countries lead us to conclude that a U-shaped effect is not found (p = .523).

Finally, Model 4 tests Hypothesis 2b, which predicts that home country environmental performance level moderates the U-shaped relationship between international diversification and

Table 3. Test for Hump-Shaped Relationships.

	Dependent variable: Environmental performance									
	Full model		HCC				HCEP			
Model	Model 2		Model 3				Model 4			
			Low		High		Low		High	
Bounds	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Slope	−0.514	0.924	−0.842	1.220	−0.027	0.392	−0.490	1.084	−0.634	0.909
S.E.	0.227	0.305	0.258	0.329	0.292	0.383	0.256	0.343	0.255	0.332
p-value	.023	.002	.001	.000	.926	.307	.055	.002	.013	.006
Extremum point:	0.499		0.566		0.112		0.438		0.569	
95% confidence interval	[0.362, 0.636]		[0.467, 0.664]		[−1.440,1.665]		[0.276, 0.600]		[0.444, 0.695]	
Overall test of	U-shape		U-shape		U-shape		U-shape		U-shape	
χ^2	7.84		5.35		0.41		7.43		7.38	
p-value	.005		.021		.523		.006		.007	

Dependent variable: Environmental performance. The low *p*-values in the overall test reject the null hypothesis (monotone) in favour of a U-shape. HCC = Home Country Competitiveness; HCEP = Home Country Environmental Performance.

environmental performance, where MNEs from more environmentally sustainable countries will reach the point where the relationship becomes positive earlier. In this model, we also introduce both iteration terms, adding the linear diversification term multiplied by the home country environmental performance (p = .155) and the squared diversification term multiplied by the home country environmental performance (p = .951). Here, the p-values observed for both iteration terms are not significant, showing that MNEs' home country environmental performance does not have an effect on the U-shaped relationship between international diversification and environmental performance. The third graph in Figure 1 suggests that the moderating effect of the home country environmental profile and the main effect had similar behaviour. Moreover, the U-test results in Table 3 give us enough evidence to state that the home country environmental profile does not moderate the relationship between international diversification and environmental performance. The values of the slopes and the turning point are quite similar to those in the full model, suggesting that there is no moderating effect of the home country environmental profile. To sum up, these results yield the necessary and sufficient conditions to reject Hypothesis 2b.

Discussion, Conclusion, Limitations and Future Research Avenues

The research presented provides several theoretical and practical contributions to the literature. First, we provide key theoretical implications for the existing institutional works and the FSA/CSA framework (Rugman, 1981; Rugman & Verbeke, 1992, 1998a) by integrating FSAs and CSAs in the institutional perspective of the environmental management literature (e.g., Bansal & Roth, 2000; Berrone et al., 2010; Lenz & Viola, 2017; Leyva-de la Hiz et al., 2019). In particular, we extend the arguments of the research question about why some firms differ in their environmental behaviour under similar institutional pressures (e.g., Berrone et al., 2013; Delmas & Toffel, 2011), providing new explanations with the FSA/CSA approach. Specifically, firms develop FSAs in a particular institutional framework to successfully meet specific institutional pressures, but due to differences in institutional frameworks across countries, these FSAs are not necessarily transferable. We therefore argue that some firms may not succeed in meeting or anticipating institutional pressures due to difficulties in developing FSAs that are different from those of their home countries. However, other firms may succeed due to having a greater variety of tools to deal with more diverse institutional demands, because they enable firms to recombine their FSAs and exhibit more advanced green practices than others within the same institutional context.

Second, based on these theoretical insights, we join the existing literature on the relationship between international diversification and environmental performance which argued that it has positive (e.g., Aguilera-Caracuel et al., 2012; Bansal, 2005; Forslid et al., 2018; Gómez-Bolaños et al., 2020; Symeou et al., 2018) or negative effects (Aragón-Correa et al., 2016; King & Shaver, 2001; Kostova & Roth, 2003; Levy, 1995), and thus provide a new understanding of this complex phenomenon from a global perspective. In our paper, we enrich prior research by a novel attempt to examine this relationship in a more complex way. Our evidence suggests that at earlier stages in the international diversification process, environmental performance deteriorates due to an increase in the complexity of transfer, deployment and exploitation of green FSAs in new locations, which is translated into higher costs in the environmental management at these initial stages due to a lack of diverse tools for efficiently undertaking business abroad. However, by accumulating a greater variety of different abilities in international management with the expansion to new locations, MNEs can improve their environmental performance by recombining their green FSAs and location-specific advantages in the host country, a recombination which entails the reduction of those initial costs in environmental management and the opportunity to start enjoying the benefits from economies of scales and green standardisation across different countries. With that, we extend the triple recombination proposed by Lee et al. (2021).

Finally, we highlight the key relevance of the institutional framework of the MNEs' home country to boost better environmental performance abroad, as CSAs may enhance the .faster recombination of their FSAs in a different institutional environment. Our research points to the importance of distinguishing MNEs from countries with high and low levels of competitiveness as a key previous background for firms. In particular, we argue that firms from highly competitive countries build their green FSAs on strong home CSAs due to their access to strategic tools and advanced skills. Thus, these firms succeed in overcoming challenges related to environmental management at an earlier point in their international expansion. However, MNEs from less competitive countries have to overcome stronger environmental management challenges due to having fewer previous tools, so they have to make an extra effort. Despite a non-significant effect for the environmental dimension of the home country, we showed the clear differences between MNEs from developed and developing institutional environments as a differential factor in their international expansion process for improving their environmental results.

With these results, we demonstrate the differential explanatory power of the MNEs' home country, of which past analyses have highlighted the special relevance (Berrone et al., 2013; Buchanan & Marques, 2018; Delmas & Montes-Sancho, 2010; Hitt et al., 2006; Scott, 2001), while other previous studies have also highlighted the importance of the institutional pressures of the host country on shaping an MNE's environmental performance (e.g., Attig et al., 2016; Gómez-Bolaños et al., 2020; Lartey et al., 2021). In general, MNEs will face higher complexity in managing environmental behaviour abroad based on the extent to which they internationally diversify to a greater number of institutional environments in host countries with high environmental standards or/and more distant institutional environments, due to the respectively higher green pressures (e.g., Aragón-Correa et al., 2020; Berrone et al., 2013; Delmas & Toffel, 2011) or/and greater cultural differences (e.g., Ghemawat, 2001; Kang & Yang, 2010). Hence, we argue that high institutional pressures in the home country boost environmental management for more internationally diversified firms but, at this point, we highlight that these arguments are also consistent with the differences between developed and developing institutional environments in host countries.

On one hand, when MNEs from developed nations enter a host country with lower green standards than those of their home one, they show greater ease in overcoming potential institutional differences at first as these lower standards are not as challenging as those in their home country (e.g., Gómez-Bolaños et al., 2020; Lartey et al., 2021), and thus transfer their green FSAs to emerging host countries with low institutional pressures and expectations. Conversely, in a host country with higher green standards, these MNEs from developed countries may surpass local environmental standards by transferring advanced green FSAs, thus enabling them to overcome such strict regulations in these host countries (Chen et al., 2016; Christmann & Taylor, 2001; Lartey et al., 2021). This further explains the positive effect of MNEs on environmental performance found in some previous works (e.g., Aguilera-Caracuel et al., 2012; Bansal, 2005; Forslid et al., 2018; Gómez-Bolaños et al., 2020; Symeou et al., 2018), where we showed that the relationship is curvilinear rather than linear, but the negative leg is practically unobservable because the institutional environment of their developed home country enables an early mitigation of this effect.

On the other hand, emerging market MNEs lack the advanced green FSAs required to recombine the acquired abilities when operating in increasingly heterogeneous and distant environments. Firms from emerging economies entering into developed economies may encounter particular difficulties in meeting environmental credentials which are clearly higher than those in their home country (Gómez-Bolaños et al., 2022; W. Wang & Ma, 2018; J. Wu, 2013). However, in this case, host countries' higher institutional pressures lead them to improve such firms' legitimacy abroad in response to the host country's institutions (Deng & Zhang, 2018; Martínez-Ferrero et al., 2021; Rathert, 2016). Yet, we agree that MNEs from emerging countries can increase their perception as legitimate entities through the adoption of environmental reporting in response to host country institutions (Deng & Zhang, 2018; Rathert, 2016; Wood et al., 2021), but the explanation of MNEs' environmental performance cannot be solely based on the legitimating practices, as these are generally decoupled from the requisite abilities to achieve adequate levels of environmental performance (Tashman et al., 2019). Indeed, this legitimacy approach is consistent with our arguments, but we extend this notion, arguing that the institutional environments of host countries with high environmental standards create greater pressure, but at the same time provide deeper abilities to manage such advanced green standards: however, MNEs from emerging countries will need even more advanced abilities due to the lack of previous ones, and so will improve their environmental results, needing more international diversification. Consequently, we provide deeper explanations on the negative effect of MNEs on the environmental performance found in some previous works (e.g., Aragón-Correa et al., 2016; King & Shaver, 2001; Kostova & Roth, 2003; Levy, 1995), where we demonstrate that the relationship is curvilinear rather than linear, but the negative leg is considerably longer and more pronounced because the developing institutional environment of a home country led these MNEs to overcome such difficulties in host countries later with superior green exigencies. That is, they present a steeper learning curve because they have to acquire more tools during their internationalisation process, and thus they have a wider range of tools to further improve their environmental results at later stages of international diversification.

Overall, whereas it is clear that the developed or developing host country institutional environment matters in different ways, our arguments are in line with previous works: MNEs from developed countries are more effective in both cases—in both developed or developing host countries—than MNEs from less institutionally developed countries in coping with environmental complexities in the international arena, due to being better equipped to absorb and reconcile internationally dispersed and heterogeneous abilities.

This research has implications for managers and policymakers. Our research is relevant and interesting for the former because our results suggest that they should consider the possibility of encountering challenges in environmental management at an early stage of internationalisation. Although these results draw the attention of managers of firms from countries with low competitiveness levels who build weak green FSAs that do not conform to global environmental standards, our findings encourage managers to advance their international diversification processes because difficulties related to environmental management can eventually be overcome by acquiring more diverse abilities and tools from international expansion. For policymakers, this research provides new insights into the importance of considering a country's competitiveness level. To improve the environmental performance of their MNEs in an international context, governments must specifically take into consideration policies that bring strong location advantages to their country. The ones with a high competitiveness level can thus create value for their firms and help to build strong green FSAs.

This study has several limitations. The first is related to the measurement of international diversification, because we grouped countries into four global markets (Hitt et al., 1997): the Americas, Europe, Asia and Pacific and Africa. This approach can be open to debate because the countries in each region can be heterogeneous in terms of their cultures, consumer tastes, political systems, market environments and administrative mechanisms (Chang & Wang, 2007; Gomes & Ramaswamy, 1999). Hence, future research could improve diversification measures if more disaggregated geographical regions were used. It might also be interesting to measure international diversification as the number of MNE operations abroad (subsidiaries, joint ventures, alliances) to test the different effects that the international interlinkages could have on a firm's environmental behaviour. Second, Gómez-Bolaños et al. (2020) have pointed out that using the Thomson Reuters Emission Score as a proxy for environmental performance presents another limitation because it is not possible to customise its components. Hence, it would be useful for future research to propose additional proxies for environmental performance that might provide a different perspective. Third, for the moderating effect, we focused on the role of home CSAs in the relationship between international diversification and environmental performance. It would be highly significant for future research to explore whether the host geographical region's CSAs matter when firms decide to diversify their international business. Furthermore, for home CSAs, we only considered the national competitiveness level. Future studies could examine the moderating role of other home CSAs on the relationship between international diversification and environmental performance. It would be highly significant for future research to deeper explore whether the host country's institutional context matters when firms decide to diversify their international business. For instance, developed market MNEs may not transfer their green FSAs with the same regularity to emerging host countries with low institutional pressures and expectations (Gómez-Bolaños et al., 2020; Lartey et al., 2021). As Lartey et al. (2021) pointed out, in certain jurisdictions, MNEs may go beyond local environmental standards by transferring advanced green FSAs, thus enabling them to overcome strict regulations in the host countries where they operate (Chen et al., 2016; Christmann & Taylor, 2001). Unfortunately, at this point, we do not have the specific data on countries of operation, and additional investigations could account for this.

In conclusion, this study sheds light by joining two approaches regarding the relationship between a firm's international diversification and environmental performance—those which posited a negative effect and those which proposed a positive one. In particular, the green FSA perspective is crucial for integrating these approaches and thus confirming the existence of a U-shaped relationship. Firms start to encounter difficulties early in their internationalisation process, but they manage to reverse the situation, particularly if they can use the previous tools that their home CSAs provide. Understanding a firm's internationalisation process and home CSA background is essential to overcoming the challenges related to environmental actions in international contexts.

Appendix A

Table A1. Home Country of Sampled Multinational Enterprises.

Home country	Number of companies	Percentage of the sample	Mean of home country competitiveness (2006–2017)	Mean of home country environmental profile (2006–2017)
United States	85	28.52	99,481	66,215
Japan	50	16.78	74,443	71,623
Canada	35	11.74	87,924	68,785
United Kingdom	18	6.04	78,253	75,736
Australia	17	5.70	84,387	70,239
Germany	17	5.70	83,193	74,608
France	15	5.03	70,081	75,123
Sweden	9	3.02	87.85	78,081
Switzerland	7	2.35	92,858	83,935
China	6	2.01	76,856	49,209
Netherlands	6	2.01	84,937	72,196
Norway	6	2.01	85,812	77,244
Singapore	6	2.01	95.44	68,904
Finland	5	1.68	80,634	73,886
Belgium	3	1.01	73,329	66,914
Denmark	3	1.01	87,083	72,887
Ireland	2	0.67	81,168	69.74
New Zealand	2	0.67	79,597	76,405
Italy	2	0.67	54,685	74,591
Portugal	2	0.67	58,956	69,285
Spain	2	0.67	60,781	70,973

Source. Morgan Stanley Capital International (MSCI) World Index and own calculations.

Appendix B

Table B1. Random-Effects Probit Estimates.

	Diversification ($D = 1$)	
Two-step Heckman approach	Est.	*p*
Firm age (logs)	0.5049 (0.180)	.005
Age squared	−0.1836 (0.040)	.000
Firm size (logs)	0.2118 (0.041)	.000
Internationalisation (logs)	0.1258 (0.088)	.151
Constant	−12.7812 (1.118)	.000
Year dummies	Yes	
Sectoral dummies	Yes	
Sigma U	6.7741 (0.248)	
Rho	0.9787 (0.002)	
Sample	2006–2017	
Observations	13,024	
Groups	1,101	
Likelihood-ratio test		
Wald χ^2	5,709.56	
Prob > χ^2	0.000	

Note. Robust standard errors are in parentheses.

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Note

1. Table B1 reports the first stage of the two-step Heckman approach based on the estimation of the same sample of 13,024 observations (see Appendix B).

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