

The Effects of Institutional Distance and Headquarters' Financial Performance on the Generation of Environmental Standards in Multinational Companies

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Abstract This article combines institutional and resources' arguments to show that the institutional distance between the home and the host country, and the headquarters' financial performance have a relevant impact on the environmental standardization decision in multinational companies. Using a sample of 135 multinational companies in three different industries with headquarters and subsidiaries based in the USA, Canada, Mexico, France, and Spain, we find that a high environmental institutional distance between headquarters' and subsidiaries' countries deters the standardization of environmental practices. On the other hand, high-profit headquarters are willing to standardize their environmental practices, rather than taking advantage of countries with lax environmental protection to undertake more pollution-intensive activities. Finally, we show that headquarters' financial performance also imposes a moderating effect on the relationship between environmental institutional distance between countries and environmental standardization within the multinational company.

Keywords Natural environment · Multinational company · Environmental standardization · Environmental institutional distance between countries · Financial performance

Abbreviations

CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
EPER	European Pollutant Emission Register
ESI	Environmental Sustainability Index
EU	European Union
MNC	Multinational Company
NPRI	National Pollution Release Inventory
RETC	Registro de Emisiones y Transferencia de Contaminantes
RQ	Reportable Quantities
NAFTA	The North American Free Trade Agreement
TRI	Toxic Release Inventory
VIF	Variance inflation factors

Introduction

Globalization and information technology are contributing to reinforcing the expansion of multinational companies (MNCs) in the world (Dowell et al. 2000). This development uses a complex internal structure of units (headquarters and subsidiaries) based in countries with different institutional profiles (Kostova and Roth 2002). These differences generate managerial doubts about how MNCs deal with business issues.

The MNCs' approach to the natural environment is one of the most controversial (Kolk and Pinkse 2008). Due to most environmental regulations still being developed at the level of nation states (Kolk and Van Tulder 2010; Rugman and Verbeke 1998a), international environmental literature

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has mainly focused on analyzing whether headquarters' or subsidiaries' countries' environmental regulations may influence the MNCs' corporate environmental practices (e.g., Christmann 2004; Scholtens and Dam 2007; Rugman and Verbeke 1998a, b). Results have not been definitive. When some studies have suggested that MNCs have competitive incentives to develop a standardized approach in the whole network using the headquarters' regulation which is usually more stringent (Christmann and Taylor 2001; Porter and van der Linde 1995; Rappaport and Flaherty 1992), others have suggested that MNCs find more advantages in locating dirty operations through subsidiaries in countries with lax environmental regulations (e.g., Leonard 1988; Stewart 1993; Vernon 1992).

However, countries' institutional profile is very complex and is not merely defined by the regulatory element. In fact, MNCs may confront a multitude of different and possible conflicting institutional pressures (e.g., Kostova 1999; Kostova et al. 2008). It has been shown that headquarters and subsidiaries have strong incentives and pressures to conform to countries' institutional profiles (e.g., Ang and Massingham 2007; Kostova and Roth 2002). For this reason, we expect that the environmental institutional distance between headquarters and subsidiaries' countries might be more relevant than the self-regulation of each country in deciding whether environmental standardization is finally implemented within the MNC.

However, even when institutional distance is high, managers of MNCs may also find a more homogeneous approach of environmental issues attractive to reinforce the firm's international legitimacy (Bansal 2005; Kostova et al. 2008), transparency, reputation (Christmann 2004), and internal coherence (e.g., Christmann and Taylor 2006). Further, these firms may transfer valuable knowledge at very low cost to the rest of the units (Bartlett and Ghoshal 1989). Consequently, we also highlight that high-profit headquarters may be more willing to create stringent environmental standards and moderate the negative influence of institutional distance between the home and the host country on the adoption of an environmentally standardized approach.

We use different sources of information to obtain environmental and financial data of a sample integrating 135 MNCs from three industries with headquarters and subsidiaries based in the USA, Canada, Mexico, France and Spain. Using a hierarchical moderated regression analysis we answer two research questions. Firstly, we analyze whether the environmental institutional distance between the headquarters' and subsidiaries' countries influences the environmental standardization decision within the MNC. Secondly, we study whether headquarters' financial performance positively contributes to adopting stringent environmental standards and reducing the institutional distance's

effect on the environmental standardization decision within MNCs.

From an institutional perspective, firms have to operate within a social and institutional framework of norms and values in order to reinforce their legitimacy (Kostova and Zaheer 1999; Kostova et al. 2008). On the other hand, a resource-based view of strategic management examines the internal resources and capabilities of firms that enable them to generate above-normal rates of return and a sustainable competitive advantage (Barney 1991; Oliver 1997). While previous literature has mostly used external (institutional) or internal (resource) arguments to explain the environmental approaches of MNCs in different locations (Darnall et al. 2008), we are using here an integrated view of the institutional and the resource-based view. This approach answers calls from literature for empirical works using an integrated approach of both perspectives (e.g., Aragón-Correa and Sharma 2003; Darnall et al. 2008).

This article proceeds in the following manner. The next section addresses the theoretical arguments that explain the environmental standardization decision in MNCs, combining both the institutional and the resource-based view. In the third section, we develop our hypotheses. The fourth and fifth sections include the methodology and results, respectively. The final section refers to the discussion, limitations, and future research.

MNCs Under the Institutional Theory and Resource-Based View

MNCs are based in different countries with their own institutional profiles and need to gain legitimacy in all the contexts in which they operate (Kostova and Zaheer 1999). Furthermore, these firms can generate a set of valuable resources and capabilities, which are sources of competitive advantage, that can be transferred within their internal network (Bartlett and Ghoshal 1989). Therefore, both the institutional and resource-based views can contribute to explaining the MNCs' existence.

Institutional theorists are especially interested in how organizational structures and processes become institutionalized over time (Oliver 1997). The basic premise of this theory is that firms' tendencies toward conformity with predominant norms and traditions in each social context lead to homogeneity among firms in their structures and activities, and that successful firms are those that gain support and legitimacy by conforming to social pressures (Meyer and Rowan 1977; Oliver 1997).

Within this research area, scholars have stressed the importance of external legitimization (e.g., Bansal and Hunter 2003; DiMaggio and Powell 1983; Oliver 1991)

and its relationship with creating opportunities for organizations to access resources that contribute to their long-term viability (Meyer and Rowan 1977). Since it is vital for the MNC to achieve legitimacy in all its environments, it will experience the pressure to adapt their practices to the local institutional context (Kostova and Roth 2002). However, due to the globalization process, these organizations also need to pursue an international institutional legitimacy, increase their transparency, and unify their management conduct (Kostova et al. 2008; Kostova and Zaheer 1999). In this context, legitimacy should be determined beyond the firm's boundaries, but within the broader community of which the firm is a part (Hoffman 1997, 1999).

We distinguish two types of institutional pressures that clearly condition the MNCs' activities. First, at the inter-organizational level, institutional pressures arise from external sources such as governments, markets and society (e.g., constituency groups and industry associations) (Hoffman 2001). Second, at the organizational level, institutional pressures arise from the culture, shared belief systems and political processes (DiMaggio and Powell 1983), and shareholders (e.g., Henriques and Sadorsky 1996, 1999). All these institutional actors can impose different coercive, mimetic and normative pressures on managers. Whereas coercive pressures are authoritative forces imposed primarily by government mandate or threat of mandate (Oliver 1991), mimetic pressures occur through organizational imitation or modelling of norms or practices in the organization's institutional field. Finally, normative pressures have their origins in the professionalization of industry or sector members who attempt to define the conditions and methods of their work to legitimate their professional autonomy (Oliver 1997).

The resource-based view requires analysis of the firm's internal resources and capabilities as sources of competitive advantage. According to this approach, it is the rational identification and use of resources that are valuable, rare, difficult to copy, and non-substitutable that lead to enduring firm variation and supernormal profits (Barney 1991), independent of the specific institutional context (Oliver 1997). Thus, MNCs can be cost-effective exploiting their resources and capabilities, and transferring them within the rest of their organizational units (Bartlett and Ghosal 1989). Under the natural resource-based view, firms need to generate a set of valuable green resources and capabilities in order to achieve sustainable competitive advantage and simultaneously develop a socially responsible attitude (e.g., Aragón-Correa 1998; Christmann 2000; Hart 1995; Majumdar and Marcus 2001; Russo and Fouts 1997; Sharma and Vredenburg 1998; Shrivastava 1995). It has been argued that an organization's complementary resources and capabilities may facilitate the adoption of

advanced environmental management practices. Consequently, a resource or capability can be considered complementary to adoption of proactive environmental strategies as it may assist the adoption process (Darnall and Edwards 2006) and reinforce the development of dynamic capabilities of the firm (Aragón-Correa and Sharma 2003).

Thus, we can argue that both institutional pressures, and resources and capabilities definitely contribute to explaining how MNCs can develop environmental resources and capabilities that can be transferred within their internal network. Consequently, we can provide evidence about the extent to which these organizations are driven to adopt advanced and standardized environmental management practices worldwide, mainly because of external institutional pressures or their internal set of resources and capabilities, or a combination of both.

Environmental Standardization Decision Within MNCs

Standardization can be associated with the generic term 'unification', allowing a reduction of organizational complexity (Köhl et al. 2000; Manrodt and Vitasek 2004). The decision whether to standardize operations in international business is very relevant because it influences the firm's fundamental approach to business and how it competes (Ang and Massingham 2007). Previous research suggests that the decision hinges on whether there are pressures for cost reduction (standardization) versus pressures for market responsiveness (adaptation) (e.g., Bartlett and Ghosal 1989).

Most previous international literature analyzing whether standardization or adaptation is useful has used a marketing or human resource approach (Ang and Massingham 2007; Szulanski and Jensen 2006). It has been shown that both human resource and marketing practices have been found to vary widely within firms across national boundaries (Robert et al. 2000). However, corporate environmental practices have a set of their own peculiarities that cannot be extended to other practices. In fact, environmental policies and practices have a strong influence on the international reputation (Dowell et al. 2000) and legitimacy (Bansal 2005) of the firm, are highly regulated (Rugman and Verbeke 1998a, b), and are not necessarily visible to consumers (Christmann 2004).

Increasingly, firms implement social and environmental standards as instruments towards corporate social responsibility in supply chains (Mueller et al. 2009). Environmental standardization strategy implies that the MNC self-regulates its environmental conduct, which means that there is a firm's commitment to control its own conduct beyond what is required by the law through voluntary environmental initiatives (Christmann and Taylor 2002,

2006). Hence, through the generation of environmental standards, the MNC will be able to transfer their environmental business model within their internal network, independent of the countries where it operates (e.g., Christmann 2004). As a consequence, the firm will be more willing to develop a socially (environmentally) responsible attitude, protect the natural environment and contribute to sustainable development. Furthermore, the MNC will be able to integrate the society's concerns towards the natural environment in its corporate strategy and improve simultaneously the quality of life in the different areas where it operates.

The environmental standardization decision within MNCs is initially costly since it requires a considerable investment in environmental technologies and processes in order to apply them in the different countries where they operate (Christmann and Taylor 2001; Rondinelli and Vastag 1996). Porter and van der Linde (1995) argue that MNCs benefit from higher environmental standards in their home market because such standards induce them to develop superior environmental management capabilities, which improve an MNC's international competitiveness once environmental regulations are raised in other countries. However, this situation only happens when the home government has sufficient foresight to anticipate the environmental regulations of all other countries and the home country is a very large, triad-based economy whose influence on the world economy is immense (Rugman and Verbeke 1998a).

Globalization proponents state that lower barriers to trade encourage firms to transfer environmental technologies from countries with stricter environmental standards to developing countries, which lack access to environmental technologies and capabilities (Drezner 2000). Other studies have revealed that there are a variety of benefits resulting from implementing homogeneous environmental management systems within the organizational structure, such as ISO 14001 or EMAS (e.g., Bansal and Hunter 2003). In fact, firms can increase recycling activity as well as reductions in air emissions, solid waste and energy usage. In addition, some valuable but less easily quantifiable benefits such as risk reduction and company image can be obtained (e.g., Alberti et al. 2000; Beschorner and Müller 2007; Darnall 2006; Florida and Davison 2001; Potoski and Prakash 2005). Nevertheless, Mohr (2006) shows that environmental performance standards may offer a relative disincentive for the adoption of cleaner technologies if regulators cannot credibly commit to a stringent environmental standard.

The creation of environmental standards can help firms to gain legitimacy among critical stakeholders along the supply chain (e.g., Cordano et al. 2010; Eiadat et al. 2008). Indeed, involving stakeholders in the management process

is critical in order to minimize their eventual concerns and enhance the strategic perspective of corporate social responsibility (Miles et al. 2006; Plaza-Úbeda et al. 2010). In the context of MNCs, Christmann (2004) shows that perceived government pressures about the international harmonization of environmental regulations contribute to adoption of stringent global environmental standards; perceived customer pressures contribute to standardization of environmental communication; and perceived industry pressures relate to standardization of operational environmental policies. Thus, adopting environmental standards would be consistent with pursuit of global competitive strategies.

Environmental Institutional Distance Between Countries and Environmental Standardization in MNCs

Arguments about the influence that the headquarters' or subsidiaries' environmental regulatory dimension may have on the environmental standardization strategy within the MNC have been widely debated, the results being varied. While some studies have suggested that MNCs have competitive incentives to develop a standard approach in the whole network using the headquarters' regulation which is usually more stringent (e.g., Porter and van der Linde 1995; Rappaport and Flaherty 1992), others have suggested that MNCs find more advantages by locating dirty operations through subsidiaries in countries with lax environmental regulations (Stewart 1993). Nevertheless, the home and host countries' environmental regulations by themselves are not the only factor that affects the environmental standardization strategy within MNCs. Indeed, evidence suggests that even if formal environmental regulations are identical across countries, de facto regulations may differ as a result of differences in countries' capacities to implement, monitor, and enforce regulations (Dasgupta and Hettige 2000). Moreover, there are differences in countries' capacities to tolerate, dilute, absorb or ignore pollution, as well as differences in economic and environmental priorities (Christmann and Taylor 2001). Consequently, we propose that the institutional distance in terms of environmental issues, and not the specific environmental regulations in each country, will be more relevant in deciding whether environmental standardization strategy is finally implemented.

The literature distinguishes two different considerations regarding the relationship between institutional distance between countries and the MNC's standardization strategy. On the one hand, it is shown that standardization of managerial practices is easier between countries with similar institutional structures. Indeed, a low institutional distance may contribute to adjusting the legitimacy requirements of a country that is institutionally similar to its home country

(Kostova and Zaheer 1999; Xu and Shenkar 2002). Ang and Massingham (2007) show that when the pressures for economies of scope are high and pressures for cultural responsiveness are low, the standardization decision is the most appropriate. Therefore, if the foreign markets are institutionally very distant, transferring strategic resources to and from those foreign subsidiaries becomes an arduous task (Kostova 1999; Chao and Kumar 2010). In this case, the MNC may decide to invest significant resources in overcoming the challenges of transfer, or it may decide not to integrate the particular foreign subsidiary located in the very distant host country with the rest of the organization. Finally, MNCs may be faced with agency costs attributable to opportunistic behavior on the part of managers and other local partners who are based in locations distant from the home country of the MNC (e.g., Buckley and Casson 1998). These costs are likely to magnify when MNCs enter and commence operations in host countries with very different regulative and normative institutional contexts (Eden and Miller 2004; Xu and Shenkar 2002). In sum, a high institutional distance between countries would create a liability of foreignness for firms doing business abroad (Orr and Scott 2008; Zaheer and Masakowski 1997).

On the other hand, another view suggests that countries' differences might drive creation of international standards within MNCs in order to unify their management rules (Christmann and Taylor 2006; Kostova et al. 2008). Thus, the MNC would tend to create its own internal institutional structure through homogeneous management models that justify the MNC's conduct worldwide, gaining transparency, reputation (e.g., Christmann 2004; Dowell et al. 2000) and reinforcing their international legitimacy in all the locations where they operate (Kostova et al. 2008).

Considering the scarce attention that has been paid to the influence of national environmental institutional profile beyond the cross-country analysis of headquarters' or subsidiaries' countries' environmental regulations, we expect that MNCs take advantage of the small environmental institutional distance effect between headquarters' and subsidiaries' countries in order to gain a good level of legitimacy easily (Kostova and Zaheer 1999) and to standardize their environmental practices at a low cost.

Hypothesis 1 The lower the environmental institutional distance between the headquarters' and subsidiaries' countries, the greater the environmental standardization within the MNC.

Headquarters' Financial Performance
and Environmental Standardization in MNCs

MNCs that decide to implement environmental standards within their internal network need to develop a set of green

resources and capabilities that can be easily transferred within the MNC's internal network and that go beyond the compliance with national or international environmental regulations (Rugman and Verbeke 1998a, b). As has been mentioned previously, this strategy initially requires a substantial investment in order to create and transfer environmental practices within the firm (Christmann and Taylor 2001). Therefore, headquarters' profitability may play an important role in the creation of environmental standards within MNCs.

Environmental management literature has paid special attention to the interactions between firms' financial and environmental performance (e.g., Hart and Ahuja 1996; Nehrt 1996; Smith 2003; Stanwick and Stanwick 1998). From an empirical point of view, a growing body of quantitative studies has tested the linkage between environmental proactivity and firm performance, the results being varied (Molina-Azorín et al. 2009). On the one hand, certain relevant studies show a direct and a positive relationship between corporate environmental and financial performance (e.g., Hart 1995; Russo and Fouts 1997; Ruf et al. 2001). For instance, Hamilton (1995), White (1995), and Klassen and McLaughlin (1996) use event study methodology to demonstrate interesting findings. First, news of high levels of toxic emissions results in significant negative abnormal returns. Second, firms with strong environmental management practices have better stock price returns than firms with poor practices after a major environmental disaster. Third, environmental performance awards result in significant positive abnormal returns.

On the other hand, others do not identify a positive impact of environmental proactivity on financial performance (e.g., Cordeiro and Sarkis 1997; Gilley et al. 2000). Using a group of firms included in the Dow Jones Sustainability Index and Dow Jones Global Index, López et al. (2007) found that the effect of sustainability practices on performance indicators is negative during the first years in which they are applied. Finally, other studies reveal that the relationship between environmental and financial performance tends to be bidirectional and nearly simultaneous (Orlitzky et al. 2003).

In terms of this bidirectional relationship, prior corporate financial performance may provide the slack resources necessary to engage in corporate social responsibility (Etzion 2007). Slack refers to the stock of excess resources available to an organization during a given planning cycle (Nohria and Gulati 1996). It can accrue as a result of organizational performance in prior periods, as a planned buffer, or as a result of poor planning (Voss et al. 2008). Environmental literature has shown that managers who have more discretionary financial slack at their disposal can better view environmental issues as opportunities, rather than as threats (Sharma 2000; Bansal 2005). In contrast,

when financial slack is low, other issues may dominate the mind-set of management, relegating environmental issues to lower priority (Henriques and Sadosky 1996).

Thus, considering the relationship between financial and environmental performance and the scarce attention that has been paid to the effect that a high corporate financial performance may produce on the creation of environmental standards, it is highly relevant to determine whether high-profit headquarters may contribute to generating slack resources that allow MNCs to standardize the environmental practices within their internal network. Consequently, we propose the following hypothesis:

Hypothesis 2 The headquarters' financial performance has a positive influence on the environmental standardization decision within the MNC.

The Moderating Effect of Headquarters' Financial Performance on the Relationship Between Environmental Institutional Distance and Environmental Standardization Within MNCs

Although environmental standardization strategy is costly at the initial stage (Christmann and Taylor 2001), it has strong positive effects as well. Therefore, MNCs need to decide whether they should destine efforts to adopt an environmental standardization strategy, independent of the countries where their units are based.

On the one hand, since each country's institutional profile is very complex the implementation of standardized environmental practices worldwide may be difficult (Kostova and Roth 2002). Other studies show that firms that decide to introduce their operations in foreign countries encounter more environmental difficulties than local firms (e.g., King and Shaver 2001). Further, it has been argued that high-distance countries may deter the implementation and internalization of managerial standards by employees (e.g., Kostova and Roth 2002). Hence, these firms would obtain great benefits in the short term from generating and applying specific environmental management practices only in certain countries with a particular institutional profile.

On the other hand, the standardization strategy is a cost-reducing strategy since the knowledge can be transferred easily and at low cost within the firm (Bartlett and Ghoshal 1989). It is also argued that by specifying a single and stringent environmental standard within the MNC, performance monitoring and evaluation costs would be reduced (Christmann 2000). This reason would be supported by the fact that a single set of values, specifications and procedures can be deployed throughout the world, without the need to consider local deviations from the norm (Dowell et al. 2000). Adopting an internal corporate environmental

standard ahead of legal requirements also contributes to reducing special interest group pressures, and may result in positive reputation effects for the MNC. In fact, firms with a strong corporate social responsibility reputation may have an advantage over competitors trying to sell the same kind of products without such a reputation (Castaldo et al. 2009). Finally, through creation of environmental standards, MNCs will be able to improve their transparency (Christmann 2004; Dowell et al. 2000) and international institutional legitimacy (Bansal 2005; Kostova et al. 2008). This latter type of legitimacy goes beyond that obtained at the national level, the purpose of which is based on obtaining only a license to operate.

Under these circumstances, we expect that MNCs with high-profit headquarters are willing to take advantage of all the benefits derived from an environmental standardization strategy and destine efforts to create green resources and capabilities in order to transfer them within their internal network, even if the units are based in high-distance countries. Therefore, not only would headquarters' profitability contribute to adopting more stringent environmental standards, but also to reducing the effect of the environmental institutional distance between headquarters' and subsidiaries' countries. Consequently, we propose the following hypothesis:

Hypothesis 3 The better headquarters' financial performance is, the lower will be the negative effect that the environmental institutional distance between headquarters' and subsidiaries' countries has on the environmental standardization within the MNC.

Methodology

Sample

We focus on MNCs from three industries: chemical (SIC Code 28), energy and petroleum (SIC Code 29), and industrial machinery (SIC Code 37). We chose these industries because they are greatly affected by environmental issues (King and Shaver 2001). Countries that have been considered are the USA, Canada, Mexico, France, and Spain. We have chosen these five countries because they offer a good balance between availability of data, economic connections and environmental institutional differences. First, in relation to their national environmental registries, they include detailed information about their facilities' releases and their belonging to a company's corporate tree. Second, in terms of economic connections, the USA and Canada, along with Mexico, are part of the North American Free Trade Agreement (NAFTA) that created the Commission for Environmental Cooperation

Table 1 National environmental institutional profiles

Environmental institutional dimensions	USA	Canada	France	Spain	Mexico	Mean (146 countries)	Maximum value (146 countries)	Minimum value (146 countries)
Global	53	64.4	55.2	48.8	46.2	49.9	75.1	29.2
Regulatory	51.17	47.65	52.65	44.11	37.56	37.72	59.74	15.3
Cognitive	1.70	1.79	1.33	1.15	-0.22	0	2.03	-2.05
Normative	40	28	32	24	68.59	50.96	100	0.64

(CEC) of North America. France and Spain belong to the European Union (EU) and are members of the European Environmental Agency (EEA). Both NAFTA and the EU have established some common environmental guidelines and regulations. Finally, although these countries develop commercial collaborations, their national environmental institutional profile is very different. In fact, while we observed similar values in some dimensions—such as per capita income, health investment, or education and research and development investment for the period 2000–2006 (World Bank 2006)—we found significant differences in terms of the environmental institutional profile in general, and the environmental regulatory, cognitive and normative dimensions in particular, for each of the five countries included in our analysis.

To illustrate our description and establish environmental distinctions among all of the countries included in the analysis, we offer a new table where we show the values of the global environmental institutional profile and the environmental regulatory, cognitive and normative dimensions for each country, incorporating the mean, maximum and minimum values of the 146 countries included in the environmental sustainability index (ESI) 2005 (Esty et al. 2005; Table 1).

According to the data, Spain and Mexico are the countries with the least stringent global environmental institutional profile. Canada is the country with the most stringent environmental institutional profile. However, in terms of the regulatory, cognitive and normative dimensions, we observe that the ranking is substantially modified. For instance, Mexico is the country with the most stringent normative environmental institutional profile. In sum, we can state that the five countries incorporated in the analysis are institutionally different and diverse in terms of environmental issues.

In order to select our sample we used Standard & Poor's database (Capital IQ 2008). We began by selecting 309 MNCs working in one of the three selected industries and with headquarters based in the USA, Canada, Mexico, France, or Spain. Each MNC included in our sample was required to have at least one subsidiary based in one of the five countries, but different from the headquarters' country. We only considered those subsidiaries that belonged to the

same headquarters' industry. Once we selected the 309 MNCs, the next step consisted of searching facilities' environmental information in the national environmental registries.¹ We excluded local sales and distribution centre facilities. Our final sample consists of 135 MNCs and 210 cases (headquarters–subsidiary) to give a total of 1,872 facilities. The majority of headquarters are based in the USA and France (96 from the USA, 31 from France, five from Canada, and three from Mexico). In contrast, subsidiaries are more scattered (18 from the USA, 73 from Canada, 66 from France, 17 from Spain and 36 from Mexico). In relation to the industries' distribution, there are 97 cases from the chemical industry, 39 cases from the energy and petroleum industry, and 74 cases from the industrial machinery industry.

Hence, our sample offers a good availability of data (measured in a similar way to allow comparisons), economic connections (including a good range of international firms with headquarters and subsidiaries in the five countries) and national environmental institutional differences, providing the opportunity to analyze how the headquarters' and subsidiaries' countries' environmental similarities and differences influence the MNEs' managers' environmental decisions.

Measures

Environmental Standardization Within the MNC

In order to measure the environmental standardization within the MNC, we have considered the air releases in 2005 for each facility in our sample. The consideration of the air pollutants as an indicator of the firms' environmental performance has been widely reported in previous literature (e.g., King and Lennox 2000; King and Shaver 2001), and well recognized in the public media as a key dimension and proxy of global pollution. Moreover, this measure avoids subjective perceptions derived from the use

¹ USA: Toxic Release Inventory (TRI); Canada: National Pollution Release Inventory (NPRI); France and Spain: European Pollutant Emission Register (EPER); Mexico: Registro de Emisiones y Transferencia de Contaminantes (RETC).

of questionnaires with different CEOs and managers in the different countries where they operate. Consequently, we are able to reflect the real environmental impact that each MNC's unit (headquarters and subsidiaries) has on the natural environment. Specifically, we took into account the 50 most polluting substances included in the list of pollutants to be reported and whether the threshold value is exceeded and published in the European Pollutant Emission Register (EPER). Since, each pollutant has a different impact on the natural environment, we weighted each pollutant by its degree of toxicity (King and Shaver 2001). To do this we turned to the reportable quantities (RQ) measure from the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) statute.

Once we calculated the air releases in kilograms at the facility level, we aggregated this data to obtain the headquarters' and subsidiaries' air releases. Finally, with the purpose of obtaining a value that shows the environmental impact that each unit (headquarters and subsidiaries) has on the natural environment, we calculated a ratio that expresses the coefficient between the air releases of each unit and its total revenues in 2005. In order to calculate the degree of environmental standardization between headquarters and subsidiaries we subtracted the headquarters' environmental ratio from the subsidiary's environmental ratio. We took into consideration the difference in terms of absolute value. A high value shows that headquarters' and subsidiaries' environmental performances are different. A low value indicates that both the headquarters and the subsidiaries standardize their environmental practices. We normalized this variable in order to avoid detrimental effects of dispersed values (Hair et al. 2008).

Environmental Institutional Distance Between Countries

We measured the countries' environmental institutional profile through the environmental sustainability index (ESI) in 2005, published by the Yale Center for Environmental Law and Policy and the Center for International Earth Science Information Network (Esty et al. 2005). ESI benchmarks the ability of nations to protect the natural environment. It does so by integrating 76 data sets—tracking natural resource endowments, past and present pollution levels, environmental management efforts and a society's capacity to improve its environmental performance—into 21 indicators and five different dimensions of environmental sustainability. The environmental institutional distance between countries was calculated considering the differences in absolute value between the global ESI value of the headquarters' and subsidiaries' countries. This variable was normalized to avoid problems related to the dispersal of the information (Hair et al. 2008). Values that

are close to zero show that headquarters' and subsidiaries' countries have similar environmental institutional profile. High values reveal that countries have different environmental institutional profiles, and consequently protect the natural environment differently.

Headquarters' Financial Performance

Environmental management and corporate social responsibility are related to financial performance (Hart and Ahuja 1996; Sharma and Vredenburg 1998; Smith 2003). Headquarters' return on equity in 2005 was used as a proxy of financial performance (Bansal 2005).

Control Variables These include headquarters' and subsidiary size, industry, headquarters' and subsidiaries' countries' environmental regulations, and headquarters' financial performance.

Headquarters' and subsidiary size: firm size is an important determinant of environmental conduct (Aragón-Correa 1998; Martín-Tapia et al. 2010) as well as of MNC strategy standardization (Yip et al. 1997). Headquarters' and subsidiaries' sizes were measured as the natural logarithm of their number of employees in 2005 (King and Shaver 2001).

Industry: There might be incentives for firms to sign up to environmental industry codes. These codes can influence environmental management practices because they can produce a form of peer pressure from other firms within the industry (Lennox and Nash 2003). We controlled for type of industry by the inclusion of two dummy variables (chemical industry and energy and petroleum industry) in order to consider the effects of our three different industries (chemical industry, energy and petroleum industry, and industrial machinery industry).

Headquarters' and subsidiaries' countries' environmental regulations: we considered the environmental regulations that each headquarters' and subsidiaries' country has. We used the environmental dimension "Social and Institutional Capacity", contained in ESI 2005 (Esty et al. 2005). Through this dimension, we assessed the level of stringency, innovation and consistency that the different environmental regulations have in each country. We normalized this variable to avoid detrimental effects of dispersed values (Hair et al. 2008).

Results

We used a moderated hierarchical regression analysis, introducing moderator effects as two-way interaction terms

Table 2 Descriptive statistics and correlations

	Mean	Standard deviation	1	2	3	4	5	6	7	8
1. Standardization of environmental practices	0.46	1.48								
2. Headquarters' size	10.48	1.19	-0.13*							
3. Subsidiary size	6.25	1.56	-0.15*	0.37***						
4. Chemical industry	0.46	0.50	0.15*	-0.46***	-0.25***					
5. Energy and petroleum industry	0.19	0.39	-0.08	0.15*	0.13*	-0.44***				
6. Headquarters' country's environmental regulation	-0.01	1.03	0.02	0.05	-0.11 [†]	-0.01	-0.03			
7. Subsidiary's country's environmental regulation	0.13	0.90	0.12*	-0.12*	0.05	0.01	-0.01	-0.07		
8. Environmental institutional distance	0.01	0.51	0.11 [†]	-0.12*	0.17**	-0.01	0.12*	-0.36***	-0.07	
9. Headquarters' financial performance	0.08	0.90	-0.41***	0.18**	0.15*	0.04	0.05	-0.01	-0.12*	0.01

[†] $p < 0.10$; * $p < 0.055$; ** $p < 0.01$; *** $p < 0.001$

in the final step (Cohen and Cohen 1984). Before testing our hypotheses, we assessed the likely extent of common method variance, the conformity of our data's distribution to the assumptions of our analytic tools (normality assumptions), and the extent of multicollinearity among the independent and moderator variables. Analysis of variance inflation factors (VIF) show that multicollinearity was not a problem, the VIF values ranging below 5 as recommended by the literature (Hair et al. 2008). The VIF values for the last step ranged from 1.06 to 1.65, and the mean VIF was 1.35. Table 2 shows the descriptive statistics and correlations. No high correlation between our variables was observed.

Table 3 shows the results of the regression analyses testing the hypotheses. In model 1 we included the control variables: headquarters' and subsidiaries' size, industry, and headquarters' and subsidiaries' countries' environmental regulations. In model 2, we added the variable of environmental institutional distance between countries. In model 3, we incorporated the variable of headquarters' financial performance. Finally, in model 4, we included a variable that assesses the moderating effect of headquarters' financial performance on the relationship between environmental institutional distance between countries and MNCs' environmental standardization strategy. We improve our original model introducing key significant variables, ranging the adjusted- R^2 from 0.02 to 0.23.

Firstly, we see that the variable chemical industry has a negative and significant effect on the MNCs' environmental standardization strategy. The other control variables are not significant.

Secondly, the environmental institutional distance between the home and the host country has a negative

and significant impact on the standardization of environmental practices. Stated differently, the higher the environmental institutional distance, the less will be the degree of environmental standardization within the MNC. This evidence reinforces the fact that the institutional distance between countries explains better the MNC's environmental standardization strategy than the analysis of the headquarters' or subsidiaries' countries' environmental regulations. Hence, hypothesis 1 is supported by the data.

Thirdly, we observe that headquarters' financial performance has a positive and significant effect on the standardization of those practices. This implies that the better headquarters' financial performance is, the greater the environmental standardization within the MNC will be. Thus, hypothesis 2 is also supported.

Finally, the headquarters' financial performance has a positive and significant interacting effect on the negative relationship between the environmental institutional distance between headquarters' and subsidiaries' countries and the environmental standardization within the MNC. We plotted this interaction effect using procedures outlined in Venkatraman (1989).

As we see in Fig. 1, the better headquarters' financial performance is, the less is the negative influence of environmental institutional distance between countries on the environmental standardization within MNCs (lower line). On the other hand, not only are low-profit headquarters not willing to standardize their environmental practices, but also do not reduce the negative effect of a big institutional distance between countries (upper line). Hence, hypothesis 3 is supported as well.

Table 3 Results of the moderated hierarchical regression analysis

	Model 1	Model 2	Model 3	Model 4
Intercept	1.38 (1.08)	1.14 (1.08)	-0.32 (1.02)	-0.36 (1.00)
Headquarters' size	-0.03 (0.10)	0.01 (0.10)	0.11 (0.09)	0.10 (0.09)
Subsidiary size	-0.12 (0.07)	-0.15* (0.07)	-0.10 (0.06)	-0.08 (0.06)
Chemical industry	0.28 (0.25)	0.29 (0.25)	0.53* (0.23)	0.55* (0.23)
Energy and petroleum industry	-0.05 (0.29)	-0.12 (0.29)	0.02 (0.26)	0.02 (0.26)
Headquarters' country's environmental regulation	0.02 (0.09)	0.11 (0.10)	0.10 (0.10)	0.09 (0.09)
Subsidiary's country's environmental regulation	0.29 [†] (0.11)	0.23 [†] (0.12)	0.16 (0.10)	0.14 (0.10)
Environmental institutional distance		0.28* (0.12)	0.29* (0.11)	0.26* (0.11)
Headquarters' financial performance			-1.16*** (0.10)	-1.44*** (0.20)
Headquarters' financial performance × Environmental institutional distance				-1.03*** (0.32)
R^2	0.05	0.08	0.22	0.26
Adjust R^2	0.02	0.04	0.19	0.23
F change	1.85 [†]	5.35*	38.44***	10.43**

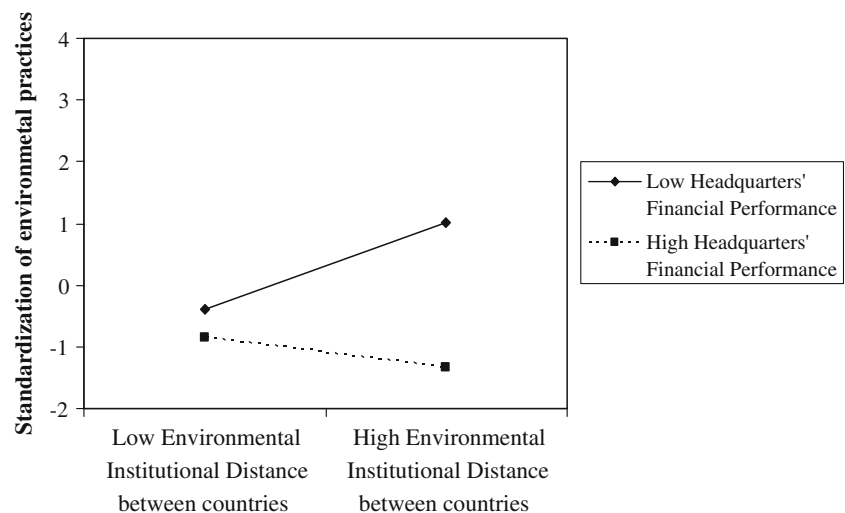
Dependent variable: Environmental standardization within the MNC

Non-standardized regression coefficients are shown. Standard errors are in parenthesis

Negative coefficients show a positive effect on the environmental standardization within the MNC. In contrast, positive coefficients show a negative impact on the environmental standardization within the MNC

$N = 210$; [†] $p < 0.10$; * $p < 0.055$; * $p < 0.01$; *** $p < 0.001$

Fig. 1 The moderating effect of headquarters' financial performance on the relationship between environmental institutional distance between countries and environmental standardization within the MNC



Discussion, Limitations and Implications for Future Research

In business ethics literature, there is a comprehensive debate of the role, extent and necessity of ethical decision making in business (Bush and Hoffmann 2009). The firm's challenge of simultaneously developing an environmental and profitable responsible attitude is a very relevant ethical issue (e.g., Hart 1995; Russo and Fouts 1997) and increasingly so nowadays. From a business ethics perspective, not only does the development of advanced and proactive environmental management practices improve

the organizational and financial performance (e.g., Hart and Ahuja 1996; Shrivastava 1995), but also contributes to a more sustainable society by enabling management to address more quickly and adequately issues related to the natural environment (Bush and Hoffmann 2009).

In the context of MNCs, there is a general belief relating to the MNCs' code of conduct that ensures that their activities have a more negative impact on the natural environment than that of other firms (e.g., Vernon 1992). On the other hand, it has been suggested that MNCs increasingly self-regulate their environmental conduct. Therefore, firms would not take advantage of the different

levels of permissiveness that countries' environmental regulations have (Christmann 2004).

Combining the institutional and the resource-based view (Darnall et al. 2008; Oliver 1997), the purpose of this research is to analyze the influence of environmental institutional distance between headquarters' and subsidiaries' countries, and headquarters' financial performance on the environmental standardization strategy within MNCs. Five contributions can be gained from this article.

First, we combine the institutional theory and the resource-based view in order to determine external (environmental institutional distance between countries) and internal (headquarters' financial performance) drivers that lead MNCs to generate and transfer environmental standards within their internal network, independent of the regions where they operate.

Second, we can see that a low environmental institutional distance between the home and the host country encourages MNCs to transfer environmental standards to the rest of the units. Indeed, a low-environmental institutional distance between countries allows MNCs to gain legitimacy easily since they do not find difficulties in assimilating the national institutional requirements.

Third, we find that high-profit headquarters are more willing to destine efforts and resources to develop an environmental standardization approach within the MNC. Thus, these organizations are in an excellent position to reinforce their reputation, transparency (Christmann 2004; Dowell et al. 2000), internal coherence (Christmann and Taylor 2006) and their international institutional legitimacy (Kostova et al. 2008). Further, they can increase their level of efficiency and consequently reduce their operation costs through creation of environmental standards (e.g., Bartlett and Ghoshal 1989; Christmann 2000).

Fourth, we show that high-profit headquarters positively contribute to reducing the negative effects that a high environmental institutional distance between countries has on the environmental standardization within the MNC. Therefore, high-profit headquarters would not limit themselves to merely complying with the countries' environmental "rules of the game". Instead, they contribute to creating solid environmental standards, which are sources of competitive advantage. These standards will allow MNCs to create and transfer distinctive environmental dynamic capabilities, green technologies and processes within their internal network, independent of the environmental institutional profile of the countries where headquarters and subsidiaries are based.

Finally, additional critics of the Porter hypothesis of home-based environmental regulations beyond the home country size and the difficulties in anticipating the environmental regulations of all countries (Rugman and Verbeke 1998a) are necessary. We show that the environmental

institutional distance between the home and the host country is the external factor that explains better this strategy, and not the headquarters' or subsidiaries' countries' environmental regulations.

In sum, we create a bridge between the institutional and resource-based view in the analysis of the environmental standardization strategy within MNCs. Indeed, not only do these organizations give importance to the internal resources that can be obtained in a specific context, but also justify their existence through their direct contact with the agents from the countries where they have a presence (Rugman and Verbeke 2001).

From a government perspective, we aim to shed light on the way in which MNCs' activities affect the natural environment. Since MNCs are key operators in terms of economic and environmental development, they can promote social and environmental values in the society, and at the same time encourage other organizations and institutions to adopt a socially responsible attitude (Kolk and Pinkse 2008; Kolk and Van Tulder 2010). It is required that all public and private agents (e.g., governments, non-governmental organizations) become involved with MNCs' advanced environmental policies through the creation of social and political mechanisms worldwide that lead organizations to adopt more stringent environmental standards in all the locations where they operate. Indeed, environmental standardization can not only reduce MNCs' ability to exploit cross-national differences in environmental regulations, but is likely to create friction with organizations in emerging economies which develop opportunistic approaches to environmental problems (Peng et al. 2008; Yang and Rivers 2009).

From a managerial viewpoint, this research encourages managers to develop an environmentally standardized approach. Through this approach, the MNC will be able to take advantage of positive benefits, such as improvement of environmental performance (e.g., Alberti et al. 2000; Beschorner and Müller 2007), and increase their corporate reputation, transparency (Christmann 2004) and institutional legitimacy (Bansal 2005; Kostova et al. 2008).

Limitations and Future Recommendations

Although we use secondary data in our sample to avoid bias in the measure of variables, we found some limitations in this research. The main one is that we have assessed the headquarters' and subsidiaries' environmental performance through their air releases. This indicator is incomplete since there are other environmental measures of performance (water and earth releases, waste recovery and processing) (Etzion 2007). In addition, we use cross-sectional data since we could not include observations in different years. Future studies would benefit from using data that were collected longitudinally.

There are also limitations related to the ESI effectiveness. Indeed, its methodology does not consider the possible interdependencies between variables in the different dimensions of the index. Moreover, the ESI is a relative index in which countries are scored relative to all other countries, which makes it difficult to measure progress towards sustainability for individual countries or the world as a whole (Niemejer 2002).

Finally, although large governments apply pressure, we need to take into consideration that national environmental registries are still incomplete and we observed in some cases lack of uniformity between them. It would be useful to analyze more heterogeneous countries in the future (as soon as necessary data is available) in order to improve our potential for generalization of results.

For future research, if data were available, it would be very interesting to include environmental information of subsidiaries based in developing countries in Asia and Africa (Kolk and Lenfant 2010; Pinkse and Kolk 2007). Indeed, MNCs can play an important role in addressing the huge environmental and ethical problems faced by these developing regions, such as pollution, human rights violations, inequality and poverty. Future studies can also make use of primary and secondary data simultaneously in order to reinforce and assess the firms' environmental progress in general, and the generation and implementation of environmental standards in particular. Moreover, the strategic importance that subsidiaries may have on the MNCs' environmental management could also be considered. Indeed, subsidiaries can establish diverse and key relationships with stakeholders (Rugman and Verbeke 2001) that can contribute to generating environmental standards. Finally, future research could examine how the general strategic orientation of MNCs (transnational, global, multidomestic and home replicator) could moderate the extent to which headquarters and subsidiaries adapt to local environmental practices to gain national legitimacy.

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