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**MNES AND CLIMATE CHANGE:
EXPLORING INSTITUTIONAL FAILURES AND EMBEDDEDNESS**

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Abstract

This paper explores how climate change affects MNEs, focusing on the challenges they face in overcoming liabilities and filling institutional voids related to the issue. Climate change is characterized by institutional failures because there is neither an enforceable global agreement nor a market morality. Climate change is also a distinctive ‘international business’ issue as its institutional failures materialize differently in different countries. As governments are still highly involved, MNEs need to carefully consider their strategies to cope with nonmarket forces, including their embeddedness in multiple institutional settings. Using some illustrative examples of MNE responses to climate-related components in stimulus packages, we explore MNEs’ balancing act concerning their institutional embeddedness (or lack thereof) in home, host and supranational contexts as input for further research on the dynamics of MNE activities in relation to climate change.

MNES AND CLIMATE CHANGE:

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INTRODUCTION

The global issue of climate change is one of the main current challenges resulting from the non-market domain (Lundan, 2010) that “could be critical to MNEs in many sectors” (Dunning, 2009: 26). Climate change is germane to MNEs because there is international concern about this issue and its consequences *and* it is one of the drivers behind the formation of new markets for ‘green’ products and services around the world (Hoffman, 2005; Kolk & Pinkse, 2008). While climate change constitutes a global issue arena in which all countries are involved, it also suffers from institutional failures as there is no enforceable global agreement and stringent frameworks at regional and national levels are lacking as well. As a consequence, MNEs are confronted with green markets that are still in their formative stages and beset by institutional voids, as they “fall short to varying degree in providing the institutions necessary” (Khanna & Palepu, 1997: 41) for developing competitive businesses. MNEs thus need to carefully consider their strategies to cope with nonmarket forces: governments are highly involved in the market creation process (Frynas, Mellahi, & Pigman, 2006), but in different ways and in varying degrees across countries (Pinkse & Kolk, 2009).

This paper explores how climate change and its institutional failures affect MNEs, focusing on the challenges they face in filling institutional voids and overcoming liabilities related to the issue. In view of the specific institutional failures associated with climate change, we examine MNEs’ embeddedness in home, host and supranational institutional contexts, and how interactions with nonmarket forces may affect competitiveness in upcoming green markets. We use some illustrative examples of climate-related components in recent stimulus packages, as they exposed some of the relevant pressures and contradictions. The paper first addresses the institutional failures in relation to climate change and the implications for MNEs. It subsequently discusses institutional embeddedness, or lack thereof, in MNEs’ home, host and supranational contexts, considering advantages and

liabilities. We also reflect on MNEs' complex balancing act concerning institutional embeddedness to suggest areas for further research.

CLIMATE CHANGE AND INSTITUTIONAL FAILURES

Climate change can put the institutions of global capitalism under pressure as it challenges the sustainability of the current system of production and consumption. The problem of climate change is nested in a biophysical system that has existed much longer than the economic system. Climate change, in itself, is therefore more long-term in nature. Nevertheless, climate change has been aggravated by joint, sustained patterns of economic growth with excessive greenhouse gas (GHG) emissions, i.e. at a level exceeding the biophysical system's adaptive capacity. It relates to environmental sustainability, human security and economic prosperity, affecting many stakeholders in different ways. Climate change represents an externality, since costs and impacts of human-induced GHG emissions are by and large not factored in into day-to-day decision-making. Stern (2006: 27) therefore labeled it as "a market failure on the greatest scale the world has seen". However, it is not just the market that has its shortcomings; many market failures arise from underlying institutional failures (Peng, Wang, & Jiang, 2008). While it has been argued that the issue necessitates immediate measures, the urgency of climate change is neither experienced nor acted upon equally across the globe by different countries and actors (IPCC, 2007).

Following North (1994: 360), institutions are defined as "humanly devised constraints that structure human interaction", which "are made up of formal constraints (e.g., rules, laws, constitutions), informal constraints (e.g., norms of behavior, conventions, self-imposed codes of conduct), and their enforcement characteristics". Accordingly, the institutional failure of climate change relates both to formal and informal constraints, or, to be more precise, a lack thereof. Although climate change is a truly global issue in its causes and manifestations, national governments and supranational entities have been unable to reach agreement on enforceable global rules. The 1997 Kyoto Protocol offered a formal institutional constraint, but it contained binding targets for a limited number of countries for the period until 2012, was not ratified globally, and lacked strong enforcement mechanisms. Hence, laws and regulations have been relatively weak and insufficient to

adequately address the issue, and there is uncertainty as to what will happen after 2012. To illustrate, attempts to create a global carbon market have not been successful so far. Although there has been more progress on regional and national levels, the stringency of the regulatory frameworks implemented on these levels has not been satisfactory either. A case in point is the European Union emissions trading scheme which has so far seen major problems in putting a real constraint on carbon-intensive production activities (Pinkse & Kolk, 2009).¹

As climate change is a widely salient issue (Kolk & Pinkse, 2007), it has become rather difficult for MNEs to state unawareness of their contribution in terms of emissions. However, this has not led to informal constraints on firms to behave according to norms that would be conducive to mitigate the issue (Nilsson, von Borgstede, & Biel, 2004). Due to temporal, social and geographical barriers, decision-makers often do not see a direct link between their actions and the impact on the climate or on society. Negative consequences of climate change mostly affect people in other (developing) countries or future generations, not the ones taking decisions now. Those in charge do not profit from 'positive' results of steps taken and are merely confronted with costs (Milfont, 2010). Climate change has not yet incited a so-called "market morality", i.e. "the set of ethical norms that the vast majority of MNEs would attempt to practice, because, other things being equal, adopting such moral practices are either necessary for economic survival or confer advantages that enhance the MNE's prospects for success" (Bowie & Vaaler, 1999: 165-166). Self-imposed codes of conduct guiding moral behavior and other voluntary corporate initiatives adopted to fill institutional voids (Kolk & Van Tulder, 2005) have been only first steps in addressing the problem as they suffer from ineffective monitoring and enforcement mechanisms (Pinkse & Kolk, 2009). What further complicates matters is not only that MNEs have been slow in taking into account their impact on climate change and in setting norms, but also that consumers have proven unwilling, or at least unable to act upon climate change concerns by adjusting their purchasing behavior (Lorenzoni, Nicholson-Cole, & Whitmarsh, 2007).

MNEs AND CLIMATE CHANGE

Hence, in the case of climate change, formal and informal institutions appear insufficient. This

constitutes a liability for MNEs if they remain unprepared for an issue that is global in nature, but shows considerable variety across locations; not only in stakeholder expectations and government approaches (Kolk & Pinkse, 2008), but also in the locus and scope of potentially large, unpredictable impacts (Stern, 2006). Interestingly, recent work on sustainable entrepreneurship argues that institutional failures of climate change might also offer entrepreneurial opportunities (Dean & McMullen, 2007). This is reminiscent of a discussion in IB that while MNEs face costs of doing business abroad, they may also develop firm-specific advantages to overcome these liabilities of foreignness (Eden & Miller, 2004; Zaheer, 2002). The challenge for MNEs is that both types of liabilities are interwoven: not only is climate change an issue beset by institutional failures, i.e. there is neither an enforceable global agreement nor a market morality, but it is also a distinctive 'international business' issue as climate change's institutional failures materialize differently in different countries.

While MNEs do not yet face stringent formal and informal constraints, this does not mean that the most rational response would be to refrain from action altogether. MNEs have started to consider the implications of climate change, as it may affect their profitability, competitiveness and future growth opportunities related to upcoming green markets (Kolk & Pinkse, 2008). These markets are emerging only slowly, however, and appear to require government support. Degrees and types of government involvement show considerable variety across countries, reflecting the state of institutions more generally (Khanna & Palepu, 1997; Khanna, Palepu, & Sinha, 2005), and the level of political support and public assent that MNEs have in a particular context. MNEs therefore need to be cautious about nonmarket forces and carefully consider their institutional embeddedness in home, host, and supranational contexts (Frynas, et al., 2006; Sun, Mellahi, & Thun, 2010). Since climate change is characterized by strong interdependencies between countries and MNEs, a firm's competitiveness in one country's green market is intricately linked to its business activities, institutional embeddedness and reputation in other countries.

In the remainder of the paper we will explore how MNEs respond to climate change's institutional failures, considering advantages and liabilities, and the balancing act concerning embeddedness (or lack thereof) in home, host and supranational contexts. To illustrate some of the

dynamics of MNE operations in relation to climate change, we use several examples from economic stimulus plans adopted during the financial crisis, as these often included climate-related, green measures in an attempt to kill ‘two birds with one stone’. The financial crisis seems to have considerably increased the value of an MNE’s institutional embeddedness due to the revaluation of government as an influential actor in society and uncertainty about what constitutes legitimate norms and values (Cantwell, Dunning, & Lundan, 2010). Climate-related components in stimulus packages clearly exposed contradictions and pressures, on one hand related to the development of green markets, and protection of national interests in the context of internationalization on the other. The illustrative examples thus seem helpful to explore the challenge for MNEs in addressing institutional failures and overcoming different types of liabilities: those related to foreignness, which refer to difficulties MNEs have in a host-country context; to multinationality (Zaheer, 2002), for example in managing divergent norms across countries (Donaldson & Dunfee, 1994); and to origin, for example discrimination of an MNE due to its nationality (Ramachandran & Pant, 2010).

EXPLORING MNE RESPONSES TO INSTITUTIONAL FAILURES

The extent to which a response to institutional failure can be (come) an advantage is highly contextual (Dunning & Lundan, 2008). Extant IB literature has focused on the question of how MNEs’ embeddedness in host countries may help to overcome a liability of outsidership (Johanson & Vahlne, 2009; Sun, et al., 2010). However, as argued by, for example, Frynas et al. (2006: 338) for the case of emerging markets, MNEs need “to count on the active assistance by both the home government *and* the host government”, as it is often through collaboration with both governments that MNEs can gain an advantage. Furthermore, embeddedness in the supranational context is important for a global issue such as climate change. The United Nations is the main political arena for international policy discussions, in which many MNEs participate directly, in addition to their attempts at indirect influence via their home governments in particular. Hence, as Figure 1 indicates, how MNEs respond to institutional failure depends on their ability to interact with a complex web of home, host, and supranational institutions. We argue that, in order to develop firm-specific advantages, MNEs need to carefully balance their institutional embeddedness in all three contexts.

Figure 1 around here

Institutional embeddedness in a home-country context

In many countries, governments have taken steps to further the emergence of green markets. While the imposition of stringent constraints on GHG emissions is not very common, governments often play a role by providing subsidies for specific products, energy sources or infrastructure (e.g. charging facilities for electric vehicles) and furthering public knowledge about the desirability for a change towards a lower-carbon economy. Green market development is a complex institutional process with relatively high government involvement. This means that there are potential benefits for MNEs with a high embeddedness in their home country. MNEs can influence relevant regulatory developments or gain access to government-controlled resources through corporate political activities such as lobbying (Boddeyn & Brewer, 1994; Henisz, 2003; Hillman & Hitt, 1999). They can also engage in so-called institutional entrepreneurship and “leverage resources to create new institutions or to transform existing ones” (Maguire, Hardy, & Lawrence, 2004: 657), through, for example, the development of specific climate products or technology. By voluntarily setting norms or being proactive in climate activities that are well received by stakeholders (Jones, 1995), MNEs contribute to the emergence of formal and informal institutions (Maguire, et al., 2004) that may help to create green markets. Finally, they can act as early ‘buyers’ of new green technologies and service offerings (e.g., triple-bottom-line-related accounting software), thereby engaging in ‘institutional signaling’ in the domestic market that carbon footprint mitigating measures are valuable.

It might be argued that such corporate political activity and institutional entrepreneurship can lead to advantages for MNEs in their home country in particular, because countries have historically tried to allocate resources to domestic industries (Lenway & Murtha, 1994) to further their competitive advantage and protect their economies (Dunning & Lundan, 2008). In such cases, regulation is likely to relate much more to the specific resources and capabilities of domestic firms than those of foreign firms. Longstanding ties between MNEs and their home-country governments could, intentionally or unintentionally, discriminate against foreign firms that cannot profit from government resources and regulations to the same extent (Murtha & Lenway, 1994). If MNEs are able

to take advantage of the non-market domain in their home country as a result of higher embeddedness compared to foreign firms, then the latter suffer from a liability of outsidership (Johanson & Vahlne, 2009). Looking at climate change in the context of stimulus packages, for example, the Chinese and South Korean governments have given subsidies that particularly benefited domestic green-energy firms. These subsidies were often coupled with localization clauses that stipulated local sourcing and construction, which strengthened the internationalization efforts of domestic firms (Bradsher, 2009; Oliver, 2010; see also below). While, in theory, MNEs from other countries might also have profited from these subsidies, this turned out to be rather difficult in the absence of adequate lobbying channels and stakeholder support in the Chinese and/or South Korean context.

These beneficial effects for home-country MNEs may not always occur, however. MNEs can also face a 'paradox of embeddedness' (Uzzi, 1997), in case of an overembeddedness that hinders adjustment to wider institutional and technological change (Sun, et al., 2010). If MNEs have a long history of adapting to and influencing home-country institutions, there may be path dependencies (Sydow, Schreyögg, & Koch, 2009) that lock MNEs into the institutional and technological development trajectory of their home country (Cantwell, et al., 2010). If this home country is not at the forefront with regard to green technologies, then there is no real supportive institutional context for corporate leadership as "institutional change generally lags behind the pace of technological advance" (Spencer, Murtha, & Lenway, 2005: 323). In such a situation, MNEs that are highly embedded in their home country, and that also, for example, adhere to government stipulations to cooperate with local partners, have a disadvantage compared to firms originating from countries that are at the technological frontier. Unless these overembedded firms are confronted with stricter regulation abroad and can adjust via their foreign affiliates, they will not be able to adequately compete with other firms that can better leverage country-specific advantages or utilize technological leadership.²

In relation to climate change, several of these aspects have come to the fore. Both in Europe and the US there have been political debates about seemingly protectionist measures such as border taxes for imports from (emerging-economy) countries that have no GHG commitments, and preferred-buyer provisions. Many MNEs have pushed for such domestic policies, also in reaction to

developments in China as mentioned above. US firms have expressed strong fears of losing out to Chinese competitors completely: Chinese firms are dominant players in the global clean-tech sector, with six out of the top ten clean-tech employers in 2010 (Pernick, Wilder, & Winnie, 2010). Leading European industrialists have emphasized the importance of subsidies from European governments for playing a leading role in climate-related technologies (Milne, 2009). However, while climate-related trade policy might benefit domestic firms, this does not necessarily include home-based MNEs, as for them such policy measures may be a disadvantage due to a liability of multinationality (Ramachandran & Pant, 2010; Zaheer, 2002). The locus of emissions output results from trade and investment patterns and the distribution of economic power, reflected in the way global value chains have been organized (Gereffi, Humphrey, & Sturgeon, 2005). Protectionist measures often do not reckon with the geographical spread of MNEs' value-added activities. For instance, General Electric has stated that a national 'green' industrial policy (including local-content rules) may prevent firms from earning economies of scale, which means that such climate change measures either fail or cost too much because no advantage can be taken of (cheaper) products and services originating from emerging economies (Crooks, 2009).

Hence, home-country institutional embeddedness may lead to advantages or disadvantages. How embeddedness issues work out when taking the host-country perspective, in a sense the opposite side of the same coin, will be explored next.

Institutional embeddedness in a host-country context

Compared to a home-country setting, institutional embeddedness in host countries is even more complex as MNEs operate in many different host-country contexts that are often divergent or even inconsistent (Kostova, Roth, & Dacin, 2008). This has been shown for climate change as well (Kolk & Pinkse, 2008; Pinkse & Kolk, 2009). Firm-specific advantages from institutional embeddedness have traditionally been portrayed as a home-country advantage (Murtha & Lenway, 1994; cf. Verbeke & Yuan, 2010). Home-based MNEs have more political clout than foreign MNEs (often based on longstanding relational ties, Uzzi, 1997), have better access to government-controlled resources (Henisz, 2003), and can profit from rules and norms that are shaped in such a way that they

benefit domestic firms more than their foreign competitors (Cantwell, et al., 2010). Host-country firms thus face a liability of foreignness (Zaheer, 2002); a liability that is further aggravated if there is high institutional distance between home and host countries (Eden & Miller, 2004). Scholars have therefore argued that MNEs need to be well embedded in host-country institutions to overcome the liabilities of being an outsider (Johanson & Vahlne, 2009; Sun, et al., 2010). In the example of Chinese and South Korean subsidies for domestic green-energy firms that was given in the previous section, MNEs from the US and Europe could not profit due to lack of embeddedness and the concomitant absence of corporate lobbying and stakeholder support in a high-distance setting.

High host-country embeddedness may not always be an advantage, though, in accordance with what we outlined in the previous section for the home country. This is notable in particular when there is radical institutional change and contestation (assuming these are not driven by domestic incumbents in industry, but reflect societal responses to an international crisis situation or to salient demands from non-industry stakeholders). Due to path dependencies, domestic firms and home-based MNEs may have difficulty to adjust to radical change because formal and informal institutions often reflect firms' past preferences (Cantwell, et al., 2010), with foreign MNEs being able to profit if domestic firms are caught up in a paradox of embeddedness (Uzzi, 1997). Instead of facing a liability of foreignness, less-embedded foreign MNEs may actually be in a position to benefit from their foreignness because it is easier to break with the local consensus (Siegel, Pyun, & Cheon, 2010). They are much less constrained by the host country's informal institutions than their local counterparts (Siegel, et al., 2010). Thus, if a country is undergoing institutional change, the new situation might be more favorable to foreign MNEs, because it will be easier for them to adapt to new institutional arrangements in view of lower or no involvement in past trajectories (Sun, et al., 2010). The strength of such an 'outsider-based' advantage (Siegel, et al., 2010) will be particularly high if there is political contestation around an issue in a host country, because local firms will have more difficulty to break with historical positions (Levy & Egan, 2003). Moreover, if these foreign MNEs can leverage firm-specific advantages from their own home country, this gives them even more opportunities in relation to emergent institutional arrangements in the host country, as they have an alternative ready with which they have experience. Examples can be found in the case of climate change or environmental

regulations more generally (Kolk & Pinkse, 2008).

Climate-related debates have shown some of the tensions that we just outlined. In the context of the US stimulus plan, after the financial crisis, there was a lobby to include a 'buy American' clause. This clause would limit the stimulus plan's coverage to domestic firms, but in the end it included US-based subsidiaries of foreign MNEs as well (this was not the original plan). However (and this caused public outrage in the US), the majority of wind-energy grants went to US subsidiaries of European MNEs (Luce, 2009). European MNEs leveraged a country-specific advantage resulting from long-term subsidies and tax breaks granted domestically at an earlier stage, in a context where (Kyoto) climate policy received much more support than in the US. European 'success' was also due to (institutional) entrepreneurial behavior. The German MNE Siemens, for example, launched a broad multi-media campaign branding itself as a US firm and a main employer to avoid stakeholder opposition and increase chances for obtaining green stimulus funding in the US. While a US-based firm such as GE did the same, it was caught up in a situation where various approaches were followed simultaneously, warning against a national green policy (see previous section) while doing its utmost to profit from it as well (Edgecliffe-Johnson, 2009). This US case shows that host-country MNEs did not suffer that much from a possible liability of foreignness but were rather able to profit from disadvantages that domestic firms faced as 'insiders', also because the latter had opposed mandatory climate change regulation for a long time (Levy & Egan, 2003).

Hence, while a certain degree of host-country embeddedness can help MNEs to obtain government funding and public support (Henisz, 2003), too much embeddedness in case of a locally contested issue in the context of institutional change may carry the risk of foregoing an outsider-based advantage (Siegel, et al., 2010). Concerning climate change and green markets, an additional consideration is whether the country in question can be found at the technological frontier or not, as explained in the previous section.

Institutional embeddedness in a supranational context

Since climate change is a global issue, the supranational context needs to be considered as well, thus adding another level of complexity. In view of the global relevance of the issue, the multiple levels

involved and the variety in policy approaches to climate change, MNEs cannot approach it on a country-by-country basis. Similar to what Spencer et al. (2005: 334) stated for new, knowledge-intensive industries, the emergence of green markets for a global issue “requires firms to leverage their country-based advantages with the best learning partners, regardless of their nationalities”. MNE activities in one country may have ‘spillover’ effects in other countries. On the one hand, there are potentially positive effects because MNEs can be instrumental in a cross-border transfer of green best practices (Christmann, 2004) and help fill institutional voids by leveraging expertise built up in other contexts (Kolk, 2010; Verbeke, 2009). MNEs are also well positioned to contribute to the creation and spread of global behavioral norms, because they have easier access to supranational stakeholders, including UN bodies and NGOs (Kolk & Van Tulder, 2005). If MNEs become active in helping emerging and developing countries to cope with climate change and address vulnerability to its consequences, this might be well received in a supranational context, because it meets stakeholder expectations.

On the other hand, there are potential negative spillover effects in a supranational context. Close ties with specific governments (for example, those that are opposed to climate policy) or an incident or a bad reputation in one market can easily transfer to other markets. Embeddedness in the supranational context thus draws further attention to liabilities that MNEs face. First, there is a potential liability of multinationality (Ramachandran & Pant, 2010; Zaheer, 2002). Consumer perceptions and ethical norms show considerable divergence across countries, which complicates MNEs’ decisions as to which one(s) to follow (Donaldson & Dunfee, 1994). Moreover, as research on ethical consumption has shown, consumers are not very responsive to moral behavior of MNEs. These firms are often identified with corporate abuses in the past and may therefore lack credibility (Belk, Devinney, & Eckhardt, 2005). Second, there is a potential liability of origin (Ramachandran & Pant, 2010). In a global issue arena, MNEs’ green reputation tends to be imbued with the political stance of their home country (Dunning & Lundan, 2008), even if they do not have close links with or direct influence on their home-country governments. Accordingly, MNEs are often associated with their home countries’ positions in the negotiations to a follow-up to the Kyoto Protocol. Particularly in the case of emerging-economy MNEs, this can lead to a liability of origin. Their home countries have high

emissions but no binding reduction targets, and also engage in stimulus funding to domestic firms in particular. Especially Chinese firms have caused resentment in this regard, in both Europe and the US. For example, German firms openly complained that German solar subsidies (and thus taxpayers) fund products from Chinese competitors. Similarly, to avoid anti-Chinese sentiments from turning into opposition to imports, Chinese firms started to become active in US industry groups, and considered locating assembly plants in the US to avoid protectionist measures (Bradsher, 2009).

Hence, due to the significance of the supranational context for MNEs in developing a firm-specific advantage in green markets, there are many potentially conflicting nonmarket forces that require attention, including a possible liability of multinationality and of origin. These two liabilities add to the liability of foreignness that was discussed in preceding sections on home and host contexts. MNEs need to carefully consider their strategies and levels of embeddedness in multiple institutional settings. A high level of embeddedness in the supranational context may, for example, be conducive to green market success, but it might also require lower embeddedness in home-country institutions and thus forego the benefits that go along with this.

CONCLUSIONS

This paper aimed to shed light on MNEs in relation to climate change and its institutional failures, by exploring how MNEs may overcome liabilities and fill institutional voids related to the issue. We considered different types of liabilities (foreignness, origin, multinationality), reckoning with variance in climate-related institutions in home, host and supranational contexts. We used illustrative examples of MNE responses to climate-related components in stimulus packages as these exposed some of the pressures and contradictions in developing green markets. Our main argument is that MNEs face a complex balancing act, concerning embeddedness (or lack thereof) in home, host and supranational contexts, as there are multiple institutional factors that play a role in developing a competitive advantage. Table 1 summarizes main institutional factors that we explored, and that may serve as input for further research on the dynamics of MNE activities in relation to climate change.

Table 1 around here

Obviously this short note could merely introduce MNEs' responses to institutional failure to encourage further research on this and other nonmarket domains(cf. Lundan, 2010). Since many of the issues are very recent and sometimes literally unfolding while we were writing about it, empirical research is more likely to be qualitative in nature to enable an in-depth investigation. There is also a notable absence of databases and large-scale quantitative information on these phenomena However, the perspective adopted in this paper might also be applied to other topics than climate change (see the examples given in Cantwell et al. (2010) for both formal and informal institutions), in which case there may be more empirical data available.

In follow-up studies it seems worthwhile to also take note of firm-specific dimensions that we could not pay attention to, but that are relevant for climate change, such as the geographical spread and the type of MNEs' value-added activities(Kolk & Pinkse, 2008). This may include a consideration of location-bound and non-location bound advantages, and the organizational levels involved, as well as the importance and location of upstream and downstream activities. Country-level issues might also be explored, considering the degree to which a country is at the technological frontier, and the implications from a double, or even multiple, diamond perspective (cf. Verbeke, 2009)as applied to the climate case.

NOTES

¹ In the first phase of the EU trading scheme(2005-2007), EU member states provided industry with more emission allowances than required. As a consequence,firms were in compliance with the scheme by continuing business as usual. In the second phase (2008-2012), the number of allowances was reduced but the financial crisis slowed economic growth to such an extent that industry was again not facing a shortage of allowances.

² We are grateful to one of the reviewers for alerting us to this point.

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FIGURES AND TABLES

Figure 1 MNEs' interaction with institutional contexts

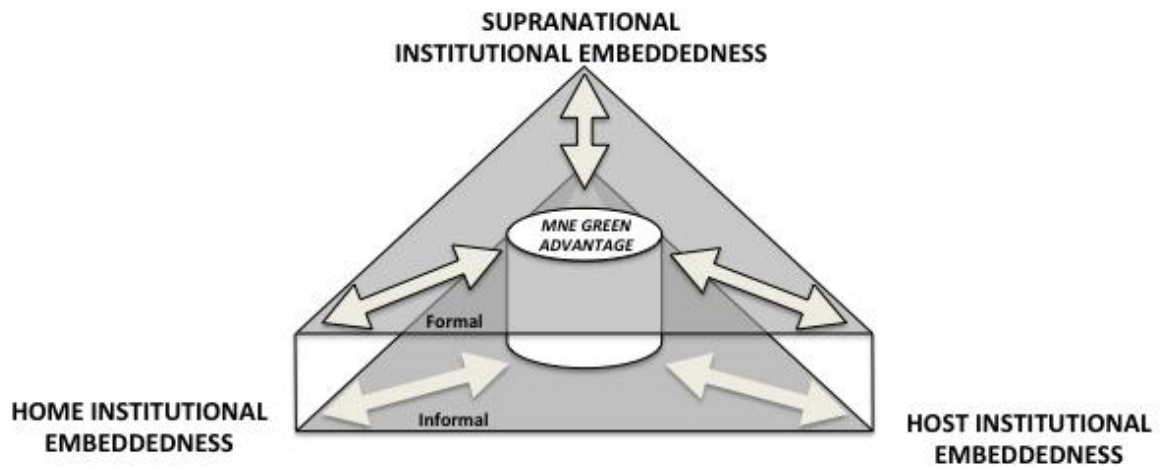


Table 1 Main institutional factors explored in this article in relation to green market development

| <i>Institutional factors</i> | <i>Possible advantage in green market development</i> | <i>Possible disadvantage in green market development</i> |
|--|---|---|
| Provision of public subsidies, knowledge, and infrastructure | Firms may be able to profit if they can utilize corporate political activities and/or institutional entrepreneurship | Foreign firms may not be able to profit if localization clauses hamper leverage of country-specific advantages |
| Proximity of country to technological frontier | Firms from a technologically leading country on the issue may leverage country-specific advantages | Firms from countries that are not at the technological frontier may be locked in institutional and technological development trajectories |
| Degree of institutional change | Foreign firms may be able to more easily adjust to new institutional arrangements due to low involvement in past trajectories | Home firms may not be able to adjust to new institutional arrangements due to constraints resulting from high involvement in institutional trajectories |
| Degree of political contestation of issue | Foreign firms may be able to break more easily with local consensus and leverage country-specific advantages from other locations | Home firms may have difficulty to break with historical positions and suffer from complex domestic debates around the issue |
| Political stance of country in global issue arena | Firms from a country that supports global climate policy may be able to profit from easier access to supranational stakeholders and spread global norms | Firms from a country that is less favorable to global climate policy may suffer from a liability of origin when operating in countries more supportive of the issue |