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RESEARCH ARTICLE

Multinational Enterprises and their Role in Mitigating Climate Change: Comparative Perspectives

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Abstract
Multinational enterprises (MNEs) sit at the center of global climate mitigation, ranking among the largest contributors to greenhouse gas emissions while possessing the reach and capabilities to advance decarbonization at scale. International business research has examined firms' environmental strategies and national institutions largely in isolation, leaving unexplained why the same MNE may comply merely symbolically in one institutional setting while advancing substantive mitigation in another. This introductory article develops a comparative-institutional account of MNEs and climate change, showing how varieties of capitalism, geoeconomic competition, and deglobalization pressures shape corporate climate action. Drawing on this account and the six articles in the focused issue, we advance a mechanism-based framework in which MNEs simultaneously perform three functions, driving carbon-intensive globalization, mediating climate governance across borders and value chains, and mitigating emissions through innovation and capability building. We specify the institutional, ownership, and capability conditions under which each function becomes most prominent. We conclude with a research agenda that treats climate change not as context for international business but as a force reshaping multinationality itself.

Keywords Multinational enterprises (MNEs) · Climate change mitigation · Institutions and climate change · Global value chains · MNEs decarbonization strategies · International business

1 Introduction

This paper aims to advance both theoretical and empirical knowledge about the relationship between multinational enterprises (MNEs) and climate change, including the circumstances under which MNEs act as drivers of climate change, as mediators of climate governance across borders, or as mitigators of emissions.

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As we argue below, these are not mutually exclusive positions but coexisting functions whose relative prominence varies across institutional settings. Climate change has emerged as one of the most pressing challenges for cross-border operations. However, although the topic has become increasingly prominent in international business scholarship, firms' environmental strategies and the institutional environments in which they are embedded have largely been examined in isolation from one another. An emerging body of work has examined the relationship between MNEs, energy transitions, and climate change (Doh et al., 2021; Huang et al., 2022; Kanagaretnam et al., 2022; Kolk & Pinkse, 2022; Pinkse & Kolk, 2012). However, MNEs differ from domestic firms in several important respects. First, they are often subject to greater public scrutiny than domestic firms, particularly when they are both large and foreign-owned. At the same time, the geographic scale of their activities and their ability to threaten exit from a particular jurisdiction may make them more difficult to hold to account (Palan, 2024). Second, MNEs are subject to multiple regulatory regimes. This may enable them to engage in regulatory regime shopping (Haipeter et al., 2024), while also exposing them to accountability for a single environmental violation under more than one jurisdiction. Third, polluting firms are more likely to engage in non-market strategies designed to delay or dilute environmental regulation (Franta, 2022). MNEs may deploy such strategies in their home countries or countries of domicile to secure diplomatic support or protection from either home or host governments. These characteristics mean that multinationality is not simply part of the context in which climate change is studied. Rather, it shapes how firms contribute to, respond to, and influence climate change across diverse institutional settings.

It is increasingly recognized that climate change is one of the greatest challenges facing governments and firms, specifically MNEs (Buckley et al., 2017; Kolk & Van Tulder, 2010; Wilson, 1981). Discussing its significance, Buckley et al. (2022) argue that climate change has the potential to disrupt globalization. An emerging body of work has also highlighted the relationship between national institutional configurations and the relative propensity of firms to adopt renewable energy (Doh et al., 2021; Wood et al., 2020). It has further been noted that firms originating from more coordinated markets are more inclined to embrace renewable energy sources, whereas firms from liberal markets are more likely to exhibit resistance to the transition away from hydrocarbons (Wood et al., 2020). Although these studies provide important insights into national institutional differences, they offer relatively limited understanding of how operating across multiple institutional environments shapes firms' responses to climate change.

Scholars have highlighted the important role of business organizations, including public, private, and not-for-profit organizations, in addressing climate change (c.f. Howard-Grenville et al., 2014; Wright & Nyberg, 2017). These organizations are not only major contributors to rising carbon emissions (Heede, 2014), but also important sources of innovation for climate change adaptation and mitigation (Doh et al., 2021; Pinkse & Kolk, 2012). As MNEs operate across national boundaries, their propensity to promote greener technologies reflects pressures arising from both their countries of origin and host countries, as well as their own strategic choices. Despite its growing significance, over decades, the topic has received relatively limited

attention in the international business and management literature (Howard-Grenville et al., 2014; Kanagaretnam et al., 2022; Wright & Nyberg, 2017).

In particular, we know little about how MNEs exacerbate or mitigate climate change across their home and host markets (Wang et al., 2018). Wang et al. (2018) note that government bodies can have a direct influence on the corporate environmental practices of firms, particularly those from emerging markets. The popular press (e.g., The Economist, 2019) has also noted that countries more exposed to climate change tend to face a higher cost of capital. Many economies across Asia, Africa, the Middle East, and Latin America are particularly vulnerable to climate change and have experienced droughts, severe pollution, and extreme weather conditions, all of which adversely affect economic development and quality of life. Thus, examining the role of MNEs in mitigating climate change offers important opportunities to advance understanding of the strategies that are most effective in addressing climate change across different institutional contexts. This also raises questions about how climate change is reshaping the environment in which MNEs compete, invest, and engage with governments. This introductory article of the focused issue provides a set of alternative perspectives on this increasingly important topic, which lies at the intersections of political economy, law, international business, innovation, and public policy. It explores the role of MNEs in relation to climate change and encourages comparative research on developed-country MNEs, emerging-market multinationals, and state-owned enterprises (SOEs). Our aim is to encourage further research that explains not only how MNEs respond to climate change across different institutional contexts, but also how multinationality itself shapes climate change outcomes across diverse institutional settings.

This focused issue advances research on the conditions under which MNEs contribute to climate change mitigation. Two definitional clarifications apply throughout this introductory article. First, by mitigation, we refer to actions that reduce or avoid greenhouse gas emissions, as distinct from adaptation to the physical impacts of climate change. Second, we distinguish substantive climate action, that is, verifiable changes in operations, investments, and emissions outcomes, from symbolic climate action, that is, claims, disclosures, and commitments that remain decoupled from such changes (Wright & Nyberg, 2017; Liu et al., this issue). This distinction carries much of the analytical weight of the framework developed below. Although existing studies have examined firms' environmental strategies and the role of national institutions, less attention has been paid to how mitigation efforts vary across the multiple institutional environments in which MNEs operate. It also examines MNEs and their climate change mitigation strategies through two related lenses. The first examines the role of institutions and politics in shaping corporate climate action. The second considers how decarbonization unfolds in a global economy that is increasingly shaped by fragmentation and deglobalization pressures.

In doing so, this focused issue builds on, yet is distinct from, earlier agenda-setting work. Doh et al. (2021) mapped the interface between long-term energy transitions and international business, and recent contributions have examined MNEs' climate innovation under conditions of risk exposure (Genin & Bu, 2026), the financing capabilities that MNEs can deploy across borders (Allen et al., 2025), and the circumstances under which MNEs may act as environmental institutional

entrepreneurs (Kano et al., 2025). What distinguishes the present issue is its explicitly comparative-institutional orientation. Rather than asking whether MNEs respond to climate change, the papers assembled here ask why the same pressures produce different responses across institutional configurations, and they trace the mechanisms through which those configurations shape substantive action, symbolic compliance, and the redistribution of abatement burdens.

The papers in this focused issue adopt a comparative perspective to examine MNEs' climate mitigation strategies. They highlight, first, the importance of institutional environments in shaping whether firms move from commitments to substantive climate action. Second, they demonstrate how mitigation pressures are transmitted through global value chains, where responsibility and impact are distributed across the networks. Third, they question the assumption that technological change alone is sufficient for decarbonization, documenting instead that its effectiveness depends on regulatory, organizational, and institutional conditions. Overall, the focused issue shows that MNE mitigation of climate change is not driven by intentions alone, but is shaped by comparative-institutional settings, cross-border value chain relations, and the conditions under which technology is deployed. These findings highlight the importance of comparative analysis for understanding how and when MNEs either exacerbate climate change or contribute to its mitigation. They also provide the foundation for the mechanism-based framework developed later in this editorial, which integrates these insights into three complementary functions through which MNEs shape climate outcomes and highlights potential areas for future research.

Accordingly, in the remainder of this introductory editorial, we first develop a broader framing of the relationships among institutions, politics, MNEs, and climate change. We then turn to decarbonization and deglobalization as intersecting forces shaping MNEs' strategies. Next, we introduce the articles included in this focused issue and develop a mechanism-based framework that integrates their insights. Lastly, we present an agenda for future research on this important topic.

2 Institutions, Politics, MNEs, and Climate Change

Comparative-institutional analysis distinguishes economies primarily in terms of relative shareholder and stakeholder rights (Hall & Soskice, 2001). In countries closer to the liberal market economy ideal type, firm ties with shareholders are stronger and those with stakeholders weaker (Jackson & Deeg, 2019). In more coordinated markets, there are denser or thicker ties with a wider range of societal actors (Jackson & Deeg, 2019). In turn, each type of economy has strengths in supporting specific production paradigms. More dynamic financial markets, lighter regulation, and short-term investor horizons may provide advantages when it comes to radically innovative technology (Rahman & Thelen, 2019). In contrast, more patient investors, stronger vocational training systems, and closer coordination between actors are conducive to incrementally innovative production (MacNeil, 2013). However, each system incorporates considerable internal diversity (Lane & Wood, 2009).

This account of institutional divergence should not be treated as static. Kano et al. (2025) challenge views that portray MNEs as uniformly harmful to the environment. They argue that ownership, home-country institutions, and value-chain position shape whether an MNE has the capacity and discretion to act on climate commitments. This complicates the varieties-of-capitalism distinction developed above. The liberal–coordinated market divide remains useful, but it becomes less sufficient once state-owned enterprises and GVC-peripheral suppliers are considered, since these actors do not fit neatly into either category. State ownership, in particular, exerts countervailing inducement and constraint effects on firm conduct that cut across the market-type binary rather than aligning with it (Wu & Zhao, 2015). Evidence on regulatory stringency also points to some convergence across market types. For instance, Nippa et al. (2021) find that MNEs covered by the EU Emissions Trading Scheme maintained a carbon-performance advantage over domestic firms across institutional contexts, although this advantage narrowed as host-country regulation became more stringent. Taken together, these studies suggest that institutional configuration and firm-level heterogeneity are not competing explanations of MNE climate conduct. They need to be examined together, a point we return to in the future research agenda.

For historical reasons bound up with the emergence of the liberal market paradigm (territorial expansionism and the ability to expropriate indigenous populations), the largest liberal markets (the USA and the UK) have played a major role in the development and ownership of the oil and gas industry. The majority of privately owned oil and gas majors (that are also MNEs) are located in the US, with two headquartered in the UK. In turn, the latter are highly politically influential in both countries (McBeath, 2016; Williams & Sovacool, 2020). For similar reasons, liberal market economies have a large concentration of major mining firms.

The pattern is not uniform. Several coordinated and state-influenced economies with substantial colonial histories also produced major oil and gas firms, most notably the Netherlands (Shell, prior to its full redomiciliation to the UK in 2022) and France (TotalEnergies). Nevertheless, most coordinated markets possess comparatively limited domestic oil and gas endowments and weaker historical ties between finance, the state, and hydrocarbon extraction. In turn, this has, in most instances, led to a greater willingness to explore and promote alternative energy sources (Wood et al., 2020). The association between market liberalism or coordination and relative propensity to move toward renewables is confirmed by a growing body of empirical literature (Wood et al., 2020). US-based oil and gas majors have chosen to double down on hydrocarbons, and with a few fluctuations, their UK counterparts have followed suit.

The different competitive advantages of different sectors according to varieties of capitalism play out in the activities of their respective MNEs abroad. If liberal markets are relatively weak in incrementally innovative manufacturing, but have advantages stemming from strong technology and minerals sectors, this is likely to be reflected in their MNE ecosystems and their presences overseas. As is the case with their traditional manufacturing counterparts, US tech firms have tended to exhibit a particular preference for a business model that entails outsourcing production abroad (Rikap & Lundvall, 2022). This is not a viable option for the oil and gas

industry, which requires physical presences in locales with reserves; as the resource curse literature alerts us, these are often unstable countries, where mineral reserves cultivating often coincide with weak governance and lopsided and unstable economic growth (Ross, 1999). A body of the literature suggests that in such countries of domicile, non-market interventions can include not only cultivating client politicians, but also organizing coups, instigating wars, and expediently exiting to evade accountability (Frynas, 2004; Langø et al., 2022). This is not to generalize about all LME oil and gas majors, but the activities of at least several have been, and continue to be, controversial.

Although several coordinated market economies (CMEs, e.g., Netherlands, Germany, Scandinavia) were early movers in establishing and promoting renewable energy industries, their advantage has been usurped by a major second mover in this area, China, which has now attained a clear lead (Andres, 2024). While there are a number of renewable energy MNEs (e.g., Vestas and Siemens), their position has increasingly come under threat from their Chinese counterparts, which have clear cost advantages and have proven adept at rapidly adopting technological innovations. This does not mean that overall progress of CMEs to renewables has not been stronger than LMEs, but it does affect the renewable energy MNE ecosystem (Liu et al., 2023; Song & Wang, 2018). Hence, a common theme persists: LME firms dominate the oil and gas MNE ecosystem, and CME firms have been first movers and leaders among renewable energy MNEs.

3 Decarbonization and Deglobalization

Mitigating climate change is not only about achieving a relative balance between the production of green and carbon-intensive energy; it also concerns energy consumption. Here, two sectors particularly stand out: the automotive and technology sectors. In the automotive sector, electric vehicles now outperform those powered by internal combustion engines, while there has also been rapid progress in vehicle range (Ma et al., 2025). Electric vehicles have far fewer components than their internal combustion counterparts, and this can result in substantial savings in production costs. However, this also means that the lucrative spare-parts business is greatly diminished (Lee et al., 2025). Building on advantages conferred by its home country's technology ecosystem and developed venture capital markets, the US firm Tesla was the first to introduce an attractive product that secured a wide following, although that following has since diminished. However, the traditional US automotive MNEs have been considerably less enthusiastic about electric vehicles and have instead doubled down on large, gas-guzzling SUVs and consumer-orientated trucks, in line with the pro-hydrocarbon policies of the second Trump administration (Ballor & Näsman, 2025; Boigon, 2025). The European automotive MNEs' strategies toward electrification have been undeniably erratic, encouraged by the desire to remain competitive over the long term and to meet green energy targets, and facilitated by more patient capital (see Ledebur et al., 2026). However, they have also been deterred by the prospect of large-scale job losses, owing to the reduced number of components required and the decline of

the spare-parts business, as well as by the fact that Chinese MNEs have already established a significant comparative advantage, making the process of catching up particularly daunting.

These developments have had far reaching implications for the global automotive ecosystem, which was already undergoing substantial change. Most notably, GM has partially deglobalized by ceasing production at most of its overseas operations, with the notable exceptions of South Korea, its Chinese joint ventures, and the Americas (Wu, 2025). Ford has partially followed suit by narrowing its global scope, as did Chrysler many years earlier when it was still under US ownership. Such developments are also part of the broader reconfiguration of global value chains under rising trade protectionism (cf. Zahoor et al., 2023). The increasing penetration of Chinese automotives—including electrics—into Southeast Asia (Lee, 2024) and elsewhere in the Global South, including Africa, is likely to accelerate this process. Indeed, having once dominated the global automotive MNE ecosystem, the traditional US automotive majors seem to be gradually reverting to largely single country firms (see Cole & Yakushiji, 2020). Although the policies of the Trump II administration have been highly erratic, it is quite possible that a "Ladafication" of the US automotive market is taking place, with consumers increasingly left with a diminished choice of vehicles built around obsolete technologies, while consumers elsewhere in the world have largely moved on. The European automotive manufacturers seem more willing, or at least less reluctant than Detroit counterparts, and more capable of moving to an electric future. However, Chinese automotive manufacturers have rapidly outpaced them (Dietz et al., 2025; Yang et al., 2023). The emerging prospect is increasingly one of joint ventures, in which European automotive MNEs facilitate market access in Europe in return for access to Chinese technologies and new manufacturing techniques, thereby reversing the traditional relationship between the two.

Elsewhere in the world, the operations of the European automotive majors are also increasingly under threat, with rapid losses in market share to Chinese competitors. Part of the issue is that there has historically been not only competition but also cooperation among the established automotive majors, with contemporary internal combustion technologies being heavily protected by patents. China's transition to electric vehicles enabled its automotive industry to bypass this barrier. Although these new technologies may themselves become subject to extensive patent protection, in the short term they have opened the global automotive industry to new entrants, whereas previously the relevant knowledge and industrial capabilities were concentrated in a small number of countries and firms (cf. Gereffi et al., 2021).

Turning to the tech industry, the US platform MNEs have embraced a carbon-intensive model of AI based on large datacenters (Chen & Song, 2026). Enthusiasm surrounding AI has generated substantial inflows of investor capital and readily available credit, predicated on the assumption of large future returns (Floridi, 2024; Potrykus, 2024). However, as the case of the dot-com bubble demonstrated, even a genuine technological advance does not mean that all players will equally prosper. To date, the promised productivity gains have been much more modest than the resources invested, perhaps because new market entrants are better positioned to exploit these gains or simply because the ability to interpolate vast amounts of information may itself contribute to further information overload.

In line with different national institutional ecosystems, rather different AI systems have emerged in China that are much less capital and energy intensive (see Chen & Song, 2026). Although the jury is out as to which paradigm will gain the upper hand, it does confirm the greater tendency to carbon heavy paradigms in the USA as the archetypical LME. This variety of AI paradigms also has important implications for multinationality. Although the US tech MNEs have rapidly deployed AI systems around the world, there are already concerns around privacy, copyright, the general capture and monetization of information, and the extent to which AI is being used to advance increasingly aggressive national security agendas (Feldstein, 2024). In turn, there is already a move toward AI protectionism, with both the USA and China seeking to lock out each other's systems. In the case of the EU, there is concern about dependence on either of these technological powers, prompting efforts to develop domestic alternatives and regulate foreign providers. Progress has been uneven and incremental, but there is little doubt that AI protectionism will become increasingly prevalent. This raises the question of whether AI itself will become deglobalized, with competing AI systems and associated production paradigms, whether carbon-intensive or relatively carbon-light, dividing the world according to countries' relative diplomatic influence, the perceived benign or malign nature of their governments, and the relative advantages and disadvantages of the technologies they offer (see Dyson, 2022). This, in turn, may impact the global operations of platform firms. In respect to the latter, the active or passive promotion of extremist content that is corrosive to political institutions, social solidarity, and even markets may itself drive pressures toward regulation and deglobalization, thereby encouraging the development of alternative AI models that may be either more or less carbon intensive.

These sectoral shifts are not occurring in a policy vacuum. Meckling (2025) argues that decarbonization has undergone a geoeconomic turn: Three decades of climate governance organized around burden-sharing and international cooperation have given way to a period in which states compete for the economic benefits of the green transition through industrial policy, rather than simply dividing up its costs. This reframes much of what we have described above. The automotive and AI cases are not just examples of firms responding to markets; they are also examples of firms operating inside state strategies to capture manufacturing and technology leadership in low-carbon sectors. Geoeconomic competition of this kind can speed up technology deployment and cost declines, but it can equally entrench trade protectionism and widen the gap between countries that can subsidize their way into green industries and those that cannot. For middle-income countries, this gap is not fixed. Lema et al. (2025) show that participation in renewable energy value chains is now widespread among middle-income economies, but that upgrading into higher-value manufacturing segments depends on the specific combination of demand-side, supply-side, and technology-focused industrial policies a country deploys, not on market access alone. The comparative-advantage logic set out earlier in this editorial, in other words, is being actively rewritten by policy choices in real time, not simply inherited from historical endowments.

This leads us to the question of non-market strategy. It is known that highly polluting firms and industries devote much more resources to such activities (Franta, 2022). Quite simply, these industries and firms face an existential crisis as

economies transition toward renewable energy, and they have mounted sustained resistance to that transition. This is also because, as much of the oil and gas industry moving toward unconventional sources—Arctic reserves, fracking, heavy oils, and ultra-deep water extraction—production becomes much more expensive, and hence, government subsidies become ever more important (Moerenhout, 2022). In turn, the non-market strategies of polluting industries have also become increasingly global, including the funding and promotion of far right causes around the world (Darian-Smith, 2023; Dembicki, 2022). As with the platform firms, this raises important questions about the appropriate boundaries of such activities (Darian-Smith, 2023). In all political systems, there are restrictions against actors which actively seek institutional and societal breakdown, while planetary collapse represents an even more serious threat. However, the emergence of novel forms of non-market strategy, both in scale and method (Darian-Smith, 2023; Dembicki, 2022), raises questions as to whether underlying conventions and restrictions are still fit for purpose, or whether there is a need for renewed dialogue and a new social contract in this area. Some societies have responded more rapidly than others to these developments, which is again likely to affect the global footprint of MNEs. In turn, carbon-intensive MNEs have increasingly sought direct home-country diplomatic backing and protection, as well as indirect support against the efforts of other countries to regulate non-market strategies. However, as the global balance of power continues to shift, such strategies may themselves prove counterproductive.

4 Themes of the Focused Issue Papers

The aim of this focused issue was to encourage scholars to examine the role of MNEs in climate change mitigation from comparative perspectives. We received an encouraging response to the call and are grateful to the anonymous reviewers for their time and constructive feedback on the articles included in this focused issue. The six articles in this focused issue examine how MNEs confront climate change across home and host markets. The articles are summarized in Table 1 and discussed below.

Taken together, they do more than map an emerging body of scholarship. They show how MNE climate action is shaped by institutions, ownership, value–chain relationships, and technological capability. They also speak directly to three difficult problems for international business: the gap between regulation and intention, the gap between climate claims and actual practice, and the difficulty of managing emissions that sit outside the formal boundaries of the firm. We organize the articles into three clusters and then draw on them to identify directions for future research.

4.1 Institutions Over Intentions

The first cluster examines what pushes MNEs to act on climate change. Across three different settings, the papers suggest that formal institutional pressure matters more than voluntary commitment alone. This does not mean that managerial

Table 1 Summary of the articles included in this focused issue on MNEs and climate change mitigation

Authors	Research question(s)	Theory/perspective	Context	Key findings
Rammal et al.	To what extent do institutional pressures, rather than voluntary initiatives, drive the environmental strategies of multinational automotive firms in responding to climate change?	Institutional theory; stakeholder theory; stockholder (Friedman) doctrine	Comparative case study of Tesla (USA) and BYD (China) in the automotive sector	The study finds that substantive climate action is primarily driven by formal regulatory requirements rather than voluntary stakeholder pressure. Informal pressures mainly influence communication and CSR-related activities rather than operational change. Institutional environments play a central role in shaping whether firms move from rhetoric to substantive mitigation action
Liu et al.	Does outward foreign direct investment (OFDI) by Chinese multinational firms drive substantive environmental improvement or increase greenwashing, and how does firm-level heterogeneity shape this relationship?	Neo-institutional theory; organizational learning; legitimacy perspective	Within-country comparative analysis of Chinese multinational firms across ownership structures, managerial backgrounds, and organizational configurations	The authors find a U-shaped relationship between OFDI and greenwashing. At lower levels of internationalization, capability gains reduce symbolic environmental behavior, while at higher levels, legitimacy pressures and diminishing returns to learning increase greenwashing. Firm-level heterogeneity further moderates these dynamics

Table 1 (continued)

Authors	Research question(s)	Theory/perspective	Context	Key findings
Chang et al.	How does family ownership influence MNE climate engagement, and how is this relationship shaped by international exposure to different institutional environments?	Agency theory; socioemotional wealth (SEW); institutional theory	Korean family-owned multinational enterprises with varying exposure to international markets, including institutionally strong and weak regions	The article shows that family ownership is associated with weaker climate engagement in Korea's institutional-void home environment. International exposure moderates this effect: exposure to stringent host-country environments strengthens climate engagement, while exposure to weaker environments has limited effect. Climate behavior emerges from the interaction between ownership structure and institutional context
Choksy et al.	How do multinational enterprise subsidiaries act as bridging mechanisms between global sustainability mandates and local institutional contexts, and how does this shape environmental upgrading and Scope 3 emissions reduction in global value chains?	Subsidiary bridging perspective; global value chain theory; varieties of capitalism	Case study of a French MNE subsidiary operating in the UK salmon aquaculture value chain, with suppliers in Scotland and Norway	The authors find that subsidiaries play a key bridging role in translating global sustainability mandates into local supplier practices. In Norway's coordinated setting, the subsidiary pursues bridging as alliance, co-creating environmental solutions with suppliers, whereas in Scotland's liberal setting it adopts bridging through internalization, enforcing compliance standards upstream. Institutional environments thus shape both the form and the outcomes of Scope 3 decarbonization

Table 1 (continued)

Authors	Research question(s)	Theory/perspective	Context	Key findings
Khan et al.	What climate risks are associated with fast fashion supply chains, and how do firms across developed and developing countries respond to these risks, particularly through the adoption of emerging technologies?	Institutional theory	Comparative study of fast fashion supply chains in Pakistan and the UK	The study identifies multiple climate risks across supply-chain tiers and shows that responses differ across institutional contexts. Firms increasingly adopt emerging technologies such as AI, IoT, blockchain, and automation to mitigate risks, but their effectiveness is constrained by cost, capability, and institutional conditions
Montero-Teran et al.	What assumptions underpin research on advanced technologies and corporate decarbonization, and how do these shape understandings of their environmental impact?	Problematizing review; comparative international business perspective	Systematic review of 64 peer-reviewed articles across management, sustainability, and related fields	The paper indicates that assumptions in existing research often overstate the environmental benefits of advanced technologies. It finds that outcomes vary across institutional and organizational contexts, suggesting that effectiveness depends on regulatory environments, market conditions, and institutional settings. It develops a research agenda for more context-sensitive and comparative studies of technology and climate mitigation

values, stakeholder expectations, or corporate responsibility claims are irrelevant. Rather, the papers show that these pressures are most likely to lead to substantive climate action when they are backed by clear rules, regulatory enforcement, or exposure to demanding institutional environments.

Rammal et al. (this issue, see Table 1) revisit the Friedman doctrine in the context of the automotive transition. Through a comparison of Tesla and BYD, they show that substantive environmental action is closely tied to formal regulatory requirements. Yet, informal stakeholder pressure appears to matter, but mainly in shaping communication, reporting, and CSR activity. The paper's implication is clear: MNE climate conduct cannot be understood only from corporate statements or public commitments. It depends on the regulatory settings in which the firm operates and on whether those settings make climate action commercially or legally necessary.

Liu et al. (this issue, see Table 1) extend this institutional perspective by examining whether international expansion reduces or amplifies greenwashing among Chinese multinational enterprises. Their findings suggest that greater international exposure does not automatically translate into greener behavior. Instead, the relationship between outward FDI and greenwashing is U-shaped. At lower levels of internationalization, firms develop organizational capabilities that reduce symbolic environmental behavior. As international exposure deepens, however, legitimacy pressures begin to outpace capability development, increasing incentives for symbolic compliance rather than substantive improvement. Firm-level heterogeneity further shapes these dynamics. These findings also resonate with the broader literature, which suggests that the performance consequences of Chinese MNEs' rapid internationalization are themselves region-contingent, advantageous in some host settings and costly in others (cf. Kim et al., 2020).

Chang et al. (this issue, see Table 1) add an important governance perspective. Studying Korean family-owned MNEs, they find that concentrated family ownership is associated with weaker climate engagement in a weak home-country institutional setting. However, this effect changes when firms are exposed to more stringent host-country environments. In their study, international exposure, especially to the Eurozone, partly substitutes for weak domestic governance. Exposure to institutionally lax environments, by contrast, is associated with weaker climate engagement overall, although it does not significantly moderate the ownership effect. The paper therefore shows that internationalization does not automatically make firms greener; its effect depends on the quality of the institutional environments to which firms are exposed.

Together these three papers provide empirical weight to the claim that MNEs' climate position is shaped by the institutional pressure they are exposed to across home and host markets, and they add a finding the argument only implied: Where accountability outruns capability, the result is not action but its appearance. State ownership and family control enter here not as curiosities but as the governance configurations that determine how that pressure is absorbed (Cuervo-Cazurra et al., 2014; Wu et al., 2021).

4.2 The Extended Value Chain

The second cluster shifts attention from the MNE itself to the wider value chain. This matters because many emissions linked to MNE activity are not produced inside the firm. They occur through distributed networks of suppliers, logistics providers, customers, and other actors connected to the firm's products and operations. They are difficult to manage because the MNE may influence them, but does not directly own or control the activities that produce them.

Choksy et al. (this issue, see Table 1) examine this problem in salmon value chains. Their study shows that the MNE subsidiary, not only HQs, can play a central role in turning global sustainability targets into local supplier practices. However, this process is shaped by the institutional context. In Norway, suppliers operate in a more coordinated setting, where public–private collaboration supports more substantive environmental improvement. In Scotland, the response is more compliance-oriented. The authors trace this divergence to two distinct bridging strategies. In Norway's coordinated setting, the subsidiary pursues bridging as alliance, co-creating environmental solutions with suppliers and public agencies, whereas in Scotland it adopts bridging through internalization, translating retailer demands into internal compliance standards that are then imposed upstream. The same global mandate, therefore, can lead to different outcomes in different national settings.

Khan et al. (this issue, see Table 1) reach a similar conclusion in the fast fashion sector. Their comparison of the UK and Pakistan shows how climate pressure travels along the supply chain. In this regard, Pakistani suppliers are pushed to adopt the standards and technologies required by UK buyers, while UK firms themselves face regulatory, organizational, and market pressures. The result is not a simple story of technology solving the problem. It is a more uneven process, shaped by cost, capability, regulation, and buyer–supplier power relations. Coercive, normative, and mimetic pressures push Pakistani suppliers toward the standards of stringent-market buyers, while UK firms respond primarily to coercive and mimetic pressures.

Critically, these papers show that value-chain decarbonization cannot be achieved through firm-level targets alone. It requires inter-firm coordination, across countries, and institutions. They also highlight a central tension: Climate pressure often moves from powerful lead firms and stricter markets to suppliers in weaker institutional settings. Interestingly, this may reduce visible emissions for the lead firm, but it can also shift the burden and cost of decarbonization elsewhere in the value chain. In other words, pressure travels downstream from lead firms and stringent-market buyers to upstream suppliers in weaker regimes, the mechanism by which carbon, and the cost of abating it, is moved rather than removed.

4.3 Technology as an Assumed Solution

The third cluster focuses on technology. This is important because technology is often treated as the obvious answer to corporate decarbonization.

Montero-Teran et al. (this issue, see Table 1) provide a more cautious account. Their problematizing review questions the assumption that advanced technologies automatically support decarbonization. The evidence they review is mixed. The same technology can produce different environmental outcomes across settings, depending on regulation, market conditions, organizational routines, and broader institutional context. Their contribution is therefore both methodological and theoretical. It asks scholars to examine the assumptions built into the literature, rather than simply treating technology as inherently positive. This paper is particularly important for the focused issue because it prevents the discussion of climate action from becoming technologically deterministic. Technology can help firms address climate risks, but it is not a substitute for institutions, capabilities, or value-chain coordination. Its contribution to decarbonization depends on the conditions under which it is adopted and used.

Interestingly, a complementary body of evidence suggests that firms do respond to physical climate risk with genuine innovation effort, even as the institutional conditions under which that effort translates into deployment vary widely. Genin and Bu (2026) show that MNEs' exposure to severe climate-related disasters is associated with an increase in granted climate mitigation and adaptation patents, but that this relationship is dampened by stringent regulatory demand and amplified by societal vulnerability to climate change. Read alongside Montero-Teran et al.'s skepticism about the assumed benefits of advanced technology, this finding sharpens rather than resolves the puzzle: MNEs facing climate risk are not indifferent to the problem, yet the institutional environment that determines whether risk exposure becomes innovation, and whether that innovation is substantive rather than defensive, is precisely the environment whose effects the review by Montero-Teran et al. finds so inconsistent across settings. Technology, in short, is neither the deterministic solution the popular narrative assumes nor an empty gesture; its climate value is conditional on the same institutional variables that structure the rest of this focused issue.

Across the three clusters, a consistent pattern emerges. The articles concentrate on the demand side of the transition, on how firms and their value chains respond to regulation, scrutiny, and buyer pressure. They have less to say about the supply side, the politics of energy production itself, and almost nothing about the globalized non-market strategies through which carbon-intensive incumbents resist the transition. It reflects where comparative empirical work is currently feasible, and marks, precisely, where the field needs to go next.

A second observation cuts across the papers and merits explicit comment. Within, this issue, the UK appears in three different institutional manifestation: as a stringent-market buyer whose requirements discipline Pakistani suppliers (Khan et al., this issue), as a host environment of only moderate regulatory stringency for Korean family firms (Chang et al., this issue), and as a liberal market economy whose limited public–private coordination yields compliance-oriented rather than collaborative upgrading (Choksy et al., this issue). These characterizations are not contradictory once institutional stringency is understood as relational and domain-specific rather than as a fixed national attribute. The pressure a country exerts depends on the position from which a firm encounters it: as an export market enforcing buyer standards, as a host jurisdiction regulating investors, or as a domestic coordination environment for suppliers. This is precisely the conjunctural point that the

framework developed below formalizes. Institutional conditions operate as configurations relative to a firm's position within the value chain, rather than as uniform national effects.

4.3.1 Toward a Mechanism-based Framework

Our use of the term mechanism is deliberate. A causal mechanism consists of the entities and activities that are organized and causally connected to produce the phenomenon to be explained (Cornelissen & Werner, 2026; Hedström & Ylikoski, 2010). A mechanism-based account of MNE climate conduct therefore demands more than correlating institutional types with environmental outcomes. It requires identifying the actors involved, the activities through which they respond to institutional pressures, and the conditions under which those activities yield substantive mitigation, symbolic compliance, or the displacement of emissions. The comparative papers in this focused issue exemplify what Cornelissen and Werner (2026) describe as a contextual perspective on mechanisms. This perspective views causation as conjunctural and context-dependent rather than as a set of isolated relationships between variables (Furnari et al., 2021). It aligns well with comparative-institutional analysis, which treats national institutions as configurations rather than as independent variables (Jackson & Deeg, 2008). As a result, the same institutional pressure may activate different mechanisms and produce different outcomes across different institutional configurations.

Building on the six papers and the broader arguments developed in this editorial, we advance an integrative mechanism-based framework (Fig. 1 and Table 2) to guide future research alongside the research agenda presented in Sect. 5 (Table 3). The framework synthesizes the main insights emerging from the focused issue and highlights that MNE climate conduct cannot be understood as a single, unified response. Instead, MNEs simultaneously perform three interrelated functions. Each function results from identifiable mechanisms that are activated or constrained by specific institutional, ownership, and capability conditions.

First, MNEs can reproduce carbon-intensive globalization and, in some contexts, amplify its effects through uneven responses to institutional pressures and carbon-pricing regimes, as well as through symbolic compliance when legitimacy pressures exceed organizational capabilities (cf. Nippa et al., 2021; Liu et al., this issue, see Table 1). We refer to this mechanism as symbolic decoupling (M1). Its entities are managers, owners, and external audiences. Its activities include selective disclosure, impression management, and differential compliance, which allow firms to bridge the gap between legitimacy pressures and the capabilities they possess. The legitimacy–capability mismatch is therefore the condition that activates this mechanism, rather than the mechanism itself.

Second, MNEs mediate climate-related practices across borders and value chains through subsidiary translation and the uneven diffusion of governance standards (Choksy et al., this issue; Khan et al., this issue, see Table 1). We label this mechanism cross-border translation (M2). It operates through subsidiaries' bridging strategies and the power asymmetries between buyers and suppliers. This mediating function differs from the other two. Whereas driving and mitigating describe the direction of an MNE's climate impact, mediating describes its position within cross-border climate governance. It redistributes

regulatory pressures, governance standards, and abatement costs across institutional settings, thereby influencing where both carbon-intensive and mitigation activities occur.

Two outcome concepts require separation in this regard. Emissions displacement refers to the relocation of carbon-intensive activities toward more permissive jurisdictions, such that aggregate emissions are unchanged or increased. Burden shifting, by contrast, refers to transferring the costs of emissions reduction, rather than the emissions themselves, to value-chain partners operating in weaker institutional settings. The papers, in this issue, provide direct evidence of burden shifting (Choksy et al., this issue; Khan et al., this issue, see Table 1). They do not directly demonstrate emissions displacement. Instead, emissions displacement remains a theoretically plausible outcome that is consistent with the evidence presented here (cf. Nippa et al., 2021). We therefore treat it as a proposition for future research rather than as an established finding.

Third, MNEs can reduce emissions through technology adoption, innovation, and organizational change, although the effectiveness of these responses depends on institutional conditions and firm capabilities (Montero-Terán et al., this issue; Genin & Bu, 2026; Khan et al., this issue, see Table 1). We refer to this mechanism as innovation and learning (M3). It transforms climate-related pressures into organizational capabilities, but only where institutional conditions support learning and innovation.

The relative importance of these three functions depends not on any single factor but on the combination of home- and host-country institutions, ownership structures, and firm capabilities. These influences are increasingly shaped by industrial policy and geoeconomic competition, which affect both incentives for low-carbon investment and patterns of international expansion (cf. Meckling, 2025). Thus, future research could examine how different types of MNEs enact these functions across institutional settings, how firms move between them over time, and how changes in ownership, capabilities, and institutions alter their relative prominence.

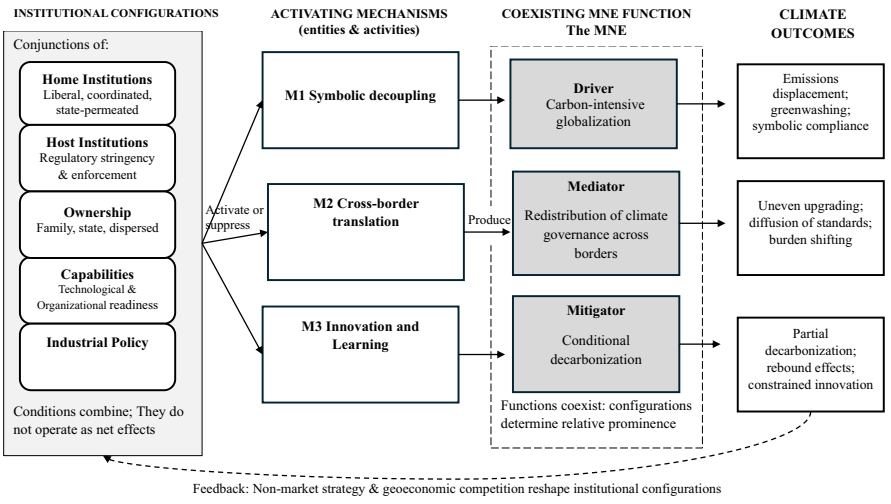

Fig. 1 A mechanism-based framework of MNE climate functions: institutional configurations, activating mechanisms, and climate outcomes

Table 2 An integrative mechanism-based framework of MNE roles in climate change mitigation

MNE function	Core logic	Key mechanisms	Institutional conditions	Illustrative evidence (Focused issue)	Climate outcomes
Driver	Carbon-intensive globalization and emission displacement	M1: Symbolic decoupling: legitimacy pressures outpace capability, and firms decouple claims from conduct through selective disclosure, differential compliance, and ownership-constrained responses across heterogeneous regulatory regimes	Weak or fragmented regulation; capability gaps; symbolic enforcement	Rammal et al. (regulation vs intention); Liu et al. (greenwashing under internationalization); Chang et al. (ownership effects)	Greenwashing; symbolic compliance; emissions displacement (theorized)
Mediator	Translation and redistribution of climate governance across borders	M2: Cross-border translation: subsidiary bridging strategies, buyer–supplier power asymmetries, and the diffusion and filtering of standards across borders	Cross-border exposure; heterogeneous institutions; value-chain governance	Choksy et al. (subsidiary translation in GVCs); Chang et al. (institutional exposure effects); Khan et al. (supply-chain transmission of climate pressure)	Uneven upgrading; diffusion of standards; burden shifting
Mitigator	Conditional decarbonization through innovation and capability	M3: Innovation and learning: technology adoption, organizational learning, and capability development under climate risk	Capability thresholds; regulatory demand; technological readiness; institutional alignment	Montero-Terán et al. (technology is context-dependent); Khan et al. (tech adoption constraints); Chang et al. (stringent host exposure)	Partial decarbonization; rebound effects; constrained innovation

The three functions are not mutually exclusive categories but coexisting roles within MNEs. Their relative prominence varies across institutional environments, ownership structures, and technological capabilities and may change over time as these conditions evolve. Each function is generated by one principal mechanism (M1–M3). The key mechanisms column identifies the activities through which each mechanism operates

5 Future Research Agenda

The argument in this editorial, together with the questions the focused issue leaves open, points to several directions for future research, as explained in Table 3. These directions share one move: They treat as variable what IB theory has tended to hold fixed. Institutions become configurations rather than types, the firm boundary becomes a question rather than a given, legitimacy becomes conditional rather than assumed, and the multinational becomes an actor that shapes the regimes it faces rather than just absorbing them.

The six directions in Table 3 map onto the framework presented in Fig. 1. Two focus on its configurational foundations. Research on institutional contingency and geoeconomic competition can identify which combinations of home-country institutions, host-country institutions, ownership structures, and industrial policy make each function more of less prominent. It can also examine how firms move between functions as these configurations change, thereby advancing comparative-institutional analysis beyond static typologies toward configurational theorizing (Furnari et al., 2021).

Three directions examine the mechanisms themselves. Research on firm boundaries focuses on M2 by asking how responsibility for emissions reduction is redistributed along value chains when firms exercise influence without assuming full responsibility. Research on decoupling focuses on M1 by examining when a mismatch between the motivation and the capability to decarbonize leads to symbolic rather than substantive compliance. Research on the limits of techno-optimism focuses on M3 by identifying the institutional conditions under which innovation reduces emissions rather than displacing them. The final direction specifies the feedback loop. Research on the globalization of non-market strategy would treat MNEs as actors that reshape the institutional configurations they encounter (cf. Khan et al., 2023; Sun et al., 2021). Geoeconomic competition therefore appears on both sides of the framework: as a condition that firms respond to and as an outcome that their strategies help produce.

A mechanism-based perspective also provides guidance for methodological choice. Cornelissen and Werner (2026) distinguish three methodological perspectives on mechanisms, each of which aligns with a different part of our research agenda. The contextual perspective, typically realized through comparative case studies and configurational methods, is well suited to M2 because it traces how translation and redistribution unfold across institutional settings, as illustrated by Choksy et al. and Khan et al. (this issue, see Table 1). The interventionist perspective, realized through quasi-experimental designs based on regulatory shocks such as carbon pricing or disclosure mandates, is well suited to M1 because it can establish whether institutional pressure produces substantive mitigation or merely the appearance of climate action. The constitutive perspective explains firm-level responses by examining the organized activities of their component parts. It is therefore well suited to investigating the micro-foundations of all three mechanisms, showing how ownership structures and top management teams absorb and respond to climate pressures within the firm, and extending the within-firm heterogeneity documented

Table 3 A theory-driven research agenda

Research direction	Core theoretical question	Suggested mechanisms	Theoretical tension	Expected theoretical contribution
Institutional contingency and the boundary conditions of comparative advantage	Under what configurations of home and host institutions and firm ownership does the variety-of-capitalism logic predict MNE climate conduct, and where does it break down?	Home institutional type (liberal, coordinated, state-permeated) interacts with ownership (family, state, dispersed) and host-regime stringency to determine substantive versus symbolic decarbonization	Comparative-institutional theory predicts convergence within types, yet firms in the same system diverge, the decisive state-permeated case sits outside the liberal-coordinated dichotomy, and ownership forms cut across types	Converts comparative-institutional analysis from a static typology into a contingency theory of MNE climate conduct by specifying interaction effects and boundary conditions
The firm boundary and the internalization of climate responsibility	How and Why is responsibility for emissions beyond the legal boundary of the firm internalized, externalized, or displaced along the value chain?	Lead-firm power and value-chain governance determine whether environmental upgrading is coordinated through alliances or cascaded as compliance. The subsidiary acts as a boundary-spanning bridge translating global mandates into local practice	Internalization theory sets the firm boundary at the efficient limit of transactions, but climate liability extends past that boundary while authority does not, so the cost of reduction is displaced rather than internalized	Reconceptualizes the firm boundary under conditions where liability exceeds control, integrating value-chain governance with internalization theory
Decoupling, legitimacy, and the motivation–capability gap	When does external scrutiny produce substantive decarbonization rather than symbolic conformity, and what governs the slippage between claim and conduct?	A gap between the motivation to meet environmental expectations and the capability to deliver generates symbolic decoupling. Also enforcement strength can moderate whether firms pursue substantive compliance or impression management	Legitimacy theory predicts conformity, but conformity can be ceremonial. Exposure can raise legitimacy pressure faster than capability, producing a non-monotonic relation that linear accounts miss	Builds a contingency theory of decoupling that locates the enforcement and capability thresholds at which legitimacy pressure converts into substantive action

Table 3 (continued)

Research direction	Core theoretical question	Suggested mechanisms	Theoretical tension	Expected theoretical contribution
Institutional misalignment and the limits of techno-optimism	When does technology actually cut emissions for good, rather than delivering efficiency gains that get cancelled out by rebound? It depends on how a country's innovation, economic, and environmental institutions line up	When innovation and financial institutions push for growth but environmental institutions are weak and uncoordinated, technology gets used to optimize rather than transform. What firms can do (cost, skills, data integration) shapes adoption, and rebound effects eat into the gains	Technology is assumed to cut emissions, but how institutions interact can reverse the effect, and looking at institutions one at a time hides the misalignment behind it	Names institutional misalignment as a concept and shifts the field from seeing technology as the fix toward a theory where decarbonization depends on how institutions combine and what firms can actually do
Multinationality and the globalization of non-market strategy	How is the low-carbon transition changing where MNEs operate and how established firms defend their carbon-intensive advantage across borders?	As the transition shifts who holds comparative advantage, firms that gain from it expand abroad while those that lose defend their position through cross-border lobbying and political protection of carbon-intensive sectors. Multinationality itself becomes the thing to be explained	IB theory treats climate as context and multinationality as given; here the transition becomes a determinant of multinationality, and the supply-side politics of energy and transnational obstruction fall outside both market-based IB and firm-level CSR theory	Positions climate change as a force that reorganizes multinationality and brings supply-side political conduct into IB theory

Table 3 (continued)

Research direction	Core theoretical question	Suggested mechanisms	Theoretical tension	Expected theoretical contribution
Geoeconomic competition and the reordering of decarbonization advantage	How does the shift from burden-sharing to green industrial policy competition redistribute comparative advantage among MNEs from different home institutional types, and does the variety-of-capitalism logic set out in this editorial still hold once states actively compete for green-industry advantage?	State subsidy, procurement, and trade-policy regimes interact with firm ownership and home-country industrial strategy to determine which MNEs capture manufacturing versus deployment segments of green value chains. In middle-income countries, the specific mix of demand-side, supply-side, and technology-focused industrial policy determines whether local suppliers upgrade or remain locked into low-value participation	Comparative-institutional theory treats institutional configurations as relatively durable, but geoeconomic competition changes the rules while firms are still playing, so an advantage predicted today may not hold within a few years. IB theory has also tended to treat industrial policy as background rather than as a variable that reshapes multinationality itself	Extends the comparative-institutional argument developed in this editorial into a dynamic, state-contested register, and connects MNE strategy to the industrial-policy and GVC-upgrading literatures

by Liu et al. and Chang et al. (this issue, see Table 1). Matching research questions to these perspectives would strengthen the analytical rigor of comparative international business research on climate change and align it more closely with contemporary mechanisms-based scholarship.

6 Conclusion

This focused issue began from a simple but unresolved question: What role do MNEs play in mitigating climate change? The answer is necessarily conditional. MNEs are not simply drivers of climate harm, nor are they automatically agents of decarbonization. They are cross-border actors embedded in multiple institutional systems, which makes their climate role both powerful and ambiguous. As such, the papers, in this issue, show that MNE climate action is shaped less by general commitments to sustainability than by the institutional conditions under which firms operate. Regulation matters, but not all regulation matters in the same way. Host-country pressure can discipline firms, but only where rules are sufficiently clear, demanding, and enforceable. Accordingly, internationalization confronts MNEs with a dilemma. It exposes firms to more stringent environmental expectations, yet where those expectations exceed firm capabilities, the result is often the appearance of action rather than action itself. The issue also shows why firm-level climate targets are not enough. Much of the climate burden linked to MNEs sits outside the legal boundary of the firm, in suppliers, logistics providers, customers, and local production systems. This makes value-chain decarbonization a coordination problem, not simply a managerial commitment. Subsidiaries, suppliers, and buyers all matter. Yet the distribution of responsibility is uneven. Powerful firms and stringent-market buyers may push climate requirements down the chain, while the cost and difficulty of adjustment are borne by actors in weaker institutional settings. A similar caution applies to technology. While green technologies and digital tools may support decarbonization, their context matters as their effects depend on various factors (e.g., regulation, capabilities, data infrastructure, and local institutions). The question, then, is not whether technology can help, but under what conditions it does so.

Indeed, there is a case for a more optimistic reading of this duality. Allen et al. (2025) argue from a finance perspective that MNEs' internal capital, governance, and technology markets let them circumvent country-specific frictions, such as weak regulation or limited access to green finance, that constrain purely domestic firms. In addition, Kano et al. (2025) make a related point when they position MNEs as candidates for institutional entrepreneurship, capable of building the multilateral coalitions that comparative-institutional analysis suggests are necessary for environmental value creation. Neither claim overturns the evidence assembled in this focused issue that accountability can be evaded as readily as capability can be deployed. But both point to a genuine possibility rather than a settled outcome: whether MNEs' cross-border reach becomes a vehicle for coordinated climate governance or a means of arbitraging around it appears to depend on exactly the institutional and ownership conditions this editorial has traced throughout, rather than on the reach itself.

Taken together, this focused issue offers a more critical perspective on the role of MNEs in the climate change domain. While MNEs can diffuse environmental practices, mobilize resources, and coordinate across borders, they can also shift emissions, exploit regulatory gaps, and resist change through non-market strategies. This duality is central. Operating across jurisdictions enables MNEs to contribute to climate mitigation, but it also enables them to evade accountability more easily than domestic firms. The framework developed in this editorial provides an analytical account of this duality. The same MNE can simultaneously drive emissions, mediate climate governance, and mitigate its environmental footprint. Which function becomes most prominent depends not on corporate character but on the configuration of institutions, ownership structures, and firm capabilities in which the MNE is embedded, and on the mechanisms that these configurations activate.

Overall, the broader implication is that climate change is not only a context for IB. It is beginning to reshape the geography, boundaries, and political conduct of multinationality itself. Decarbonization is changing the relative position of firms, sectors, and national business systems. Some MNE ecosystems are strengthened by the low-carbon transition, while others defend older carbon-intensive advantages or retreat from parts of the global economy. In this sense, climate change is not simply an environmental challenge for MNEs. It is becoming a force that reorganizes global competition and the future scope of international business.

Data Availability Data sharing is not applicable to this article because no datasets were generated or analyzed in this article.

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