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**THE ROLE OF TIME AND UNCERTAINTY IN CORPORATE CLIMATE CHANGE
INACTION: A MULTILEVEL FRAMEWORK***

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THE ROLE OF SHORT-TERMISM AND UNCERTAINTY IN ORGANIZATIONAL INACTION ON CLIMATE CHANGE: A MULTILEVEL FRAMEWORK

Abstract

Despite increasing pressure to address climate change, firms have been slow to respond with effective action. This paper derives a multi-level framework for a better understanding of why many firms are failing to reduce their absolute greenhouse gas emissions, which contribute to climate change. To explain the phenomenon of organizational inaction on climate change, we draw on the related concepts of short-termism and uncertainty avoidance from research in psychology, sociology and organization theory. We argue that antecedents related to short-termism and uncertainty avoidance reinforce each other at three levels – individual, organizational and institutional – and result in organizational inaction on climate change. We discuss the implications of our framework for research on corporate sustainability.

Key words: Climate change, corporate sustainability, short-termism, uncertainty avoidance, multi-level theory

Managing corporate sustainability has gained momentum over the past decades, which has also led to a wealth of research by organization scholars. Relying primarily on the resource-based view and institutional theory, corporate sustainability research has developed insights into the types of environmental business practices firms have adopted (Buysse & Verbeke, 2003), when the adoption of such practices creates an economic pay-off (Margolis & Walsh, 2003; Orlitzky, Schmidt, & Rynes, 2003), and which factors have pushed firms to engage in these practices (Bansal & Roth, 2000). Notwithstanding the important contributions of existing sustainability research, many of these studies assume that firms do indeed address sustainability issues, be it to gain a competitive advantage or to maintain legitimacy. What is lacking, however, is a deeper understanding of the reasons why many firms simply *do not* reduce their impact on the natural environment. To date, the corporate sustainability literature has not provided a clear conceptualization of firms' *inaction* with regard to sustainability issues.

To explore the phenomenon of organizational inaction on sustainability issues, we focus on climate change in this paper given the urgency of this issue for society. We define organizational inaction on climate change as the failure to reduce absolute greenhouse gas (GHG) emissions due to a lack of effective measures, where effectiveness refers to achieving durable emissions reductions in absolute terms. This definition highlights that inaction refers not only to the fact that firms fail to permanently reduce their absolute GHG emissions, but also that they do not take the necessary measures to achieve such reductions. In addition, we focus on absolute rather than relative emissions reductions to emphasize that economic growth without absolute reductions will continue to stress our ecosystems with adverse consequences for humanity (Rockström et al., 2009).

While the existing literature on corporate responses to climate change has examined a wide variety of measures that proactive firms take to reduce their GHG emissions (Hoffman, 2005; Okereke & Russel, 2010; Pinkse & Kolk, 2009), recent data in industrial GHG emissions show that despite their stated efforts many firms have not reduced their overall emissions. For example, the fifty largest corporate emitters reporting to the Carbon Disclosure Project (CDP) have increased their GHG emissions between 2009 and 2013 (CDP/PwC, 2013). Notwithstanding the importance of understanding the reasons why firms engage in proactive measures, this evidence suggests that the failure to take effective measures to permanently reduce absolute emissions is far more pervasive and warrants further investigation. It must be noted that inaction is not simply the opposite of action, however. There is an asymmetry between action and inaction in the sense that “[w]e are held responsible (or we hold ourselves responsible) for harms that we cause through action but not for harms that we fail to prevent” (Wade-Benzoni et al., 2002, p. 45). Hence, we posit that developing a deeper understanding of the reasons for organizational inaction on climate change offers a unique opportunity to explore new perspectives in corporate sustainability.

Previous organizational and psychology research on climate change has pointed to the role of individual and organizational time perspectives in explaining inaction. However, despite a few exceptions (see Hoffman & Bazerman, 2007), such research lacks integration and tends to focus on one level only. Nevertheless, a broader perspective on climate change suggests that antecedents (e.g., individual attitudes, business practices, and government policies) that could explain inaction not only operate at different levels, but are also closely interconnected across levels (Hulme, 2009). Therefore, in this paper we develop a multi-level framework that draws on theories from a variety of disciplines, including psychology, sociology and organization theory.

Our framework highlights two mechanisms in particular – short-termism and uncertainty avoidance – that operate at the individual, organizational, and institutional levels as well as across these levels, resulting in persistent organizational inaction towards climate change.

In developing our multilevel framework of organizational inaction to reduce GHGs, we contribute to organizational research on climate change and to corporate sustainability research in three ways. First, by focusing on inaction rather than on the different types of responses or strategies that firms take, our framework explains why many firms fail to respond to sustainability issues. Second, drawing on multiple theories, our multi-level framework of climate change inaction highlights the interaction between factors at different levels that impede action and thus achieve a more comprehensive understanding of the complex web of factors that hinder the action needed to reduce absolute GHG emissions. Finally, we discuss how the related concepts of short-termism and uncertainty avoidance operate at all three levels of analysis and integrate them into a multi-level theory of inaction. Temporal concepts have been given little attention in corporate sustainability research even though time is central in many conceptualizations of sustainable development (Gladwin, Kennelly, & Krause, 1995; Held, 2001).

CLIMATE CHANGE INACTION

A growing body of research has emerged over the last decade that examines the various types of organizational responses to climate change (Hoffman, 2005; Kolk & Pinkse, 2005; Okereke, Wittneben, & Bowen, 2012; Sprengel & Busch, 2011). This research has argued that firms are increasingly responding to climate change by taking advantage of both the cost savings and GHG reductions from reducing their energy consumption (Pinkse & Kolk, 2009).

Accordingly, there is evidence that firms have developed business solutions to mitigate climate change such as investing in energy-efficiency technologies, renewable energy, and financial instruments to enable transactions in the carbon market (Hoffman, 2005; Okereke & Russel, 2010; Pinkse & Kolk, 2009). However, according to the recent CDP findings mentioned earlier, many firms have not reduced their absolute GHG emissions. This means that despite increased attention to climate change, many firms have not taken sufficient measures to reduce their absolute GHG emissions.

In light of all the managerial responses and mitigation options discussed in the literature and the general need to curb GHG emissions, a key question remains: why is it that many firms remain inactive and continue to increase their absolute GHG emissions? Given that corporate GHG emissions continue to rise, it is just as important to understand why firms *do not* act as it is to understand why they *do*. As Wade-Benzoni et al. (2002, p. 45) argue, inaction is a unique phenomenon because people have “the tendency to consider harmful acts to be worse than equally harmful omissions”; that is, individuals tend to attach a higher level of importance to harm caused by action than to harm from a failure to take action. While some research has examined barriers that may hinder firms from engaging in effective environmental management practices (Delmas, 2000; Hoffman & Bazerman, 2007; Tinsley & Pillai, 2006; Wackernagel & Rees, 1997) or carbon management practices specifically (Gillingham & Sweeney, 2012; Hoffman, 2010; Jeswani, Wehrmeyer, & Mulugetta, 2008; Okereke, 2007), this prior research tends to focus on the difficulty of implementing certain practices rather than on the phenomenon of inaction itself. Meanwhile, Hoffman & Bazerman (2007) point to cognitive barriers to action on sustainability, such as the mythical fixed pie bias in which individuals frame the relationship between sustainability and competitiveness as a win-lose and choose the latter over the former.

They also point to organizational barriers such as an overreliance on regulatory standards which leads to compliance rather than to effective solutions for sustainability challenges. This research, however, lacks an integrative multi-level approach to explaining inaction. Multi-level theorizing can provide important insights into complex phenomena such as sustainability (Kozlowski & Klein, 2000; Rousseau, 1985).

Overall, the extant literature has not given due attention to the concept of inaction. As presented above, we define organizational inaction on climate change as the failure to reduce absolute GHG emissions due to a lack of effective measures. This definition highlights two important conditions of inaction (see Table 1). The first condition is that firms fail to undertake purposeful and far-reaching measures to deal with climate change. When firms do not seek to reduce their GHG emissions through mitigation measures, but still inadvertently reduce their emissions, such reductions are not deliberate but rather the result of efficiency improvements or a decrease in production. As the reductions are not the outcome of deliberate measures, we still consider this to be inaction. The second condition is that firms do not achieve reductions in their absolute GHG emissions. A firm can be considered inactive when it seeks to reduce emissions but the measures undertaken only yield marginal improvements in carbon efficiency (e.g., measured by the GHG emissions per unit produced) instead of absolute emissions reductions. In such cases relative improvements are countered by overall increases in GHG emissions often due to increased production. Increasing carbon efficiency, therefore, is a necessary but insufficient condition for effective action on climate change (cf., Ehrenfeld & Hoffman, 2013). Tackling climate change requires absolute reductions in GHG emissions, which means that as a firm grows, its improvements in carbon efficiency must exceed the growth-related emissions increase. In other words, firms need to permanently reduce the additional emissions stemming from

growth. Given their high level of dependence on carbon-based resources, many organizations will require large transformational change which will take considerable time to take hold, if they are serious about climate change (Hoffmann & Busch, 2008; Unruh, 2000).

Insert Table 1 about here

To better understand climate inaction, it is important to examine the challenges that are posed by the climate change issue. Climate change presents unique challenges for businesses and society given that its effects are both long-term and urgent in nature. On the one hand, the biggest impacts of climate change may be decades or more away; yet, there is limited time to find cost-effective ways to reduce GHG emissions (Keith, 2009; Levin, Cashore, Bernstein, & Auld, 2012). Because GHGs stay in the atmosphere for a sustained period of time, the world may have already reached a tipping point after which physical impacts will be experienced on a massive scale (IPCC, 2007). In fact, in May 2013 the daily mean concentration of carbon dioxide in the atmosphere surpassed 400 parts per million for the first time in recorded human history, marking an important threshold recognized as a dangerous level for a changing climate and its impacts on humanity (Carrington, 2013). These developments emphasize the necessity to focus on GHG reductions in absolute and not in relative terms, as the latter can lead to increasing emissions overall. However, making investments now to cut total GHG emissions will only have delayed and uncertain benefits for society at some point in the future (Levin et al., 2012). In addition, the precautionary nature of climate change also creates mixed signals regarding the need for action (Hulme, 2009), because it asks for measures that may not have tangible benefits in the short run and only uncertain benefits in the long run (Levin et al., 2012). Hence, climate

change has been referred to as a predictable surprise: “an event or set of events that catch an organization off-guard, despite leaders’ prior awareness of all of the information necessary to anticipate the events and their consequences” (Bazerman, 2006, p. 180). Given the relevance of climate change’s temporal and uncertainty dimensions (Lazarus, 2009), we now turn to research on time and uncertainty for answers regarding the inaction of firms on this sustainability issue.

A MULTILEVEL FRAMEWORK OF INACTION

For over a century, social scientists have examined the time perspectives of individuals and their behavioral consequences (Fraisie, 1963; Klineberg, 1968; Lewin, 1948; Strathman, Gleicher, Boninger, & Edwards, 1994; Zimbardo & Boyd, 1999). A particular focus of this research has been on the tendency of individuals to favor the short term over the long term. While a number of reasons have been presented for this short-termism, one reason has received particular attention: uncertainty avoidance. Time and uncertainty are inextricably linked, for as Prelec and Loewenstein note “anything that is delayed is almost by definition uncertain” (1991, p. 784). But while short-termism is often seen as a consequence of a time delay in expected impacts of decisions, uncertainty avoidance instead stresses the lack of information about the likelihood that expected impacts will materialize (Laverty, 1996; Marginson & McAulay, 2008; Prelec & Loewenstein, 1991).

Short-termism has been linked to poor sustainability outcomes at various levels of analysis. The link between shorter time perspectives and a lack of pro-social and pro-environmental behaviors has been established at the individual level of analysis (Joireman, Kamdar, Daniels, & Duell, 2006; Strathman et al., 1994). In addition, research at the organizational level has pointed to a link between a short-term focus in organizations and a

limited response to environmental issues, including climate change (Slawinski & Bansal, 2012). However, there is no comprehensive multi-level theory of organizational inaction on climate change that brings together the antecedents at each level as well as interactions across levels (cf. Klein, Dansereau, & Hall, 1994; Rousseau, 1985).

To explain how short-termism and uncertainty avoidance prompt firms to avoid effective action on climate change through absolute reductions of GHG emissions, we present a multi-level framework which emphasizes the cross-level and mixed-determinants nature of our phenomenon under study (Klein et al., 1994; Kozlowski & Klein, 2000; Rousseau, 1985). Taking a multi-level approach is especially important given the complexity associated with sustainability broadly, and climate change in particular (Hoffman & Bazerman, 2007). The framework explains organizational inaction on climate change through factors related to short-termism and uncertainty avoidance that operate at the individual, organizational, and institutional levels (see Figure 1). Our framework is cross-level because it involves “relationships between independent and dependent variables at different levels” (Rousseau, 1985, p. 20); yet, it is also a mixed-determinants model since we highlight how explanatory variables at different levels affect an outcome variable at the organizational level (Klein et al., 1994; Kozlowski & Klein, 2000). Drawing largely on the fields of psychology, sociology and organization theory, we theoretically explore how the mechanisms of short-termism and uncertainty avoidance operate at each of the three levels, how the levels interact and the boundary conditions under which these interactions between levels further reinforce inaction.

Insert Figure 1 about here

The Individual Level

Various streams of research in psychology point to the tendency of individuals to focus on the short term at the expense of the long term and suggest a relationship between a short-term focus and a lack of attention to sustainability issues (Joireman et al., 2006; Strathman et al., 1994). In addition, a focus on the short term is tightly linked to avoiding uncertainty and we argue that both these individual-level factors affect organizational decisions on climate change. While these factors will have a bearing on all managers in an organization, in our analysis we focus in particular on managers with a dedicated responsibility for addressing climate change. For instance, this role could vary from the Environmental, Health and Safety (EHS) manager to the CEO.

Research in psychology has shown that individual time perspectives affect decision-making (Fraisse, 1963; Klineberg, 1968; Lewin, 1948; Strathman et al., 1994; Zimbardo & Boyd, 1999). Zimbardo and Boyd define time perspective as “the often nonconscious process whereby the continual flows of personal and social experiences are assigned to temporal categories, or time frames, that help to give order, coherence, and meaning to those events” (1999, p. 1271). Individuals use these temporal cognitive frames in forming expectations and goals and for making decisions.

When it comes to making decisions that have a long-lasting environmental impact, individuals with a present-time perspective are less likely to take these impacts into consideration. The link between a present-time perspective and a lack of pro-social and pro-environmental behavior has been demonstrated in a number of studies (Fraisse, 1963; Joireman, Van Lange, & Van Vugt, 2004; Klineberg, 1968; Lewin, 1948; Strathman et al., 1994; Zimbardo & Boyd, 1999). These studies show that because social and environmental outcomes tend to be

felt over time, they are not accorded much weight by present-oriented individuals. Accordingly, in the case of climate change, the benefits of effective action on climate change tend to be temporally distant and will therefore be assigned less urgency or importance by present-focused managers who are more likely to focus their attention on business issues that matter in the short run.

Individuals with a present-time perspective are also more likely to possess high discount rates, meaning that they undervalue outcomes in the future (Lavery, 1996). In other words, present-focused individuals tend to underestimate future benefits while overestimating present costs, which can lead to economic short-termism whereby “decisions and outcomes pursue a course of action that is best for the short term but suboptimal over the long run” (Lavery, 1996, p. 826). Overestimating present costs of mitigation will result in managers proposing fewer long-term substantive initiatives that can decrease absolute emissions. Instead they are more likely to focus on initiatives that result in immediate pay-offs.

Part of the reason individuals tend to possess high discount rates lies in the relationship between time and uncertainty (Ashkanasy, Gupta, Mayfield, & Trevor-Roberts, 2004; Wade-Benzoni, 2008). The future is related to uncertainty because, as Augier and March (1995, p. 405) explain, “outcomes that are distant in time are systematically harder to predict than are outcomes that are near.” As such, when individuals make a decision regarding the future, such decisions also encompass uncertainty. Wade-Benzoni (2008, p. 225) argues that “because of the inherent uncertainty regarding whether an event will actually occur at a future point in time, people are tempted to neglect potential negative developments and put off ‘bad things’ with the hope that they will just go away.” This is especially the case for individuals who exhibit a low tolerance for uncertainty. When presented with an issue such as climate change, where information may be

limited or inconsistent, individuals will tend to avoid the issue (Dutton, Fahey, & Narayanan, 1983; Dutton & Webster, 1988) and focus on information that is more certain. In addition, when people experience uncertainty in their jobs, they tend to focus on the short-term requirements of their job to regain control, even when this is detrimental to the long run (Marginson & McAulay, 2008). Thus, short-termism and a low tolerance for uncertainty reinforce each other. In the case of climate change, if the managers who are responsible for addressing the issue possess a present-time perspective, they may ignore its long-term consequences, both because it is uncertain and because it is temporally distant. These managers will focus instead on the immediate needs of the firm, such as regulatory compliance, which presents them with more certainty.

Given that the consequences of climate change are long-term and uncertain, and that effective climate change mitigation requires significant upfront investments, climate managers who are present-focused, and who have a low tolerance for uncertainty, are unlikely to advocate for significant organizational changes – e.g. to the strategy or the main business model – that could lead to absolute emissions reductions. Instead, present-oriented climate change managers are more inclined to seek incremental changes, or changes that lead to immediate results, while avoiding significant investments in climate change mitigation (Milfont, 2010; Wade-Benzoni, 2008). While incremental changes might improve a firm's carbon efficiency, they are unlikely to be sufficient to bring down absolute GHG emissions. Therefore, we propose the following:

Proposition 1: The greater the managers' present-time perspective and the lower their tolerance for uncertainty, the more an organization will be disposed to inaction on climate change.

The Organizational Level

Akin to the individual level, temporal factors also operate at the organizational level (Ancona, Okhuysen, & Perlow, 2001; Ashkanasy et al., 2004). There is a stream of literature that seeks to understand the causes and consequences of short-termism in organizations, arguing that many firms routinely undervalue the future in favor of making short-term profits (Lavery, 1996; Marginson & McAulay, 2008). Organizational factors such as standard management practices are critical in explaining firms' short-termism. Researchers have argued that practices such as investment appraisals based on discounted cash flow analysis and short-term performance management result in the immediate future being weighted heavily compared to the distant future (Johnson & Kaplan, 1987). Others have pointed to reward and incentive systems that create short-term biases and direct managerial attention to immediate personal goals (Hoffman & Bazerman, 2007). While the use of such management practices is standard in most firms, they may become a source of inaction when they start to dominate organizational decision-making on sustainability issues that clearly have non-financial aspects as well. For example, using discounted cash flow analysis to evaluate investments in climate change mitigation may lead to decisions that favor short-term financial returns over long-term emissions reductions. Similarly, incentive systems that reward short-term cost savings may contribute to a preference to invest in climate change initiatives that will save the firm money in the short term, but will only have limited impact on reducing absolute GHG emissions. The more capital-intensive investments required to achieve absolute reductions would be perceived to be detrimental to achieving short-term performance objectives, and therefore seen as undesirable.

In addition, management practices that encourage short-termism also serve to reduce uncertainty in firms, which may explain why they are preferred to other practices that encourage

firms to make decisions that lead to reductions in absolute GHG emissions. Many firms exhibit a preference for tangible results over uncertain benefits and as such tend to focus on the more obvious win-win solutions that address both financial and environmental goals simultaneously, such as energy efficiency and waste management. However, win-win solutions might preclude taking more effective action on climate change, such as significant investments in emissions reduction technologies, that have no immediate financial benefits to the organization (Hahn, Figge, Pinkse, & Preuss, 2010). It should be noted that some firms choose to balance quantitative investment appraisals and planning, such as discounted cash flow analysis, with more qualitative approaches such as scenario analysis which explores different possible futures (Marcus, 2009). The majority of firms, however, gravitate toward quantitative measures because these measures appear to reduce uncertainty by making investment decisions and variables more tangible. For instance, Slawinski and Bansal (2012) found that firms that relied primarily on quantitative approaches to decision-making on climate change focused singularly on the cost of carbon rather than on various dimensions of the issue. This limited perspective prevented them from taking effective action on climate change mitigation. At the same time, these firms also tended to be less tolerant of uncertainty. Because climate change was seen as an uncertain issue, firms that were less tolerant of uncertainty avoided making significant investments in climate change mitigation. Consequently, when organizational decisions regarding climate change mitigation are made using investment appraisal practices, firms are likely to favor the short-term financial benefits and will ignore the long-term impacts of climate change.

To summarize, firms that rely heavily on the use of management practices that emphasize short-term financial returns in their decision-making on climate change will be less likely to make significant investments that would contribute to absolute GHG emissions reductions,

especially in light of the uncertainty associated with such investments and their long-term pay-off periods. Thus, we propose the following:

Proposition 2: The more an organization uses standard management practices for climate change decision-making, the more it will be disposed to inaction on climate change.

The Institutional Level

The two mechanisms that we distinguish as main sources of climate change inaction – short-termism and uncertainty avoidance – also operate at the institutional level. In this section, we examine how institutional logics, combined with regulatory uncertainty, lead to an institutional environment that encourages organizational inaction on climate change. Institutions and their underlying logics are relevant in explaining corporate approaches to climate change (Ansari, Wijen, & Gray, 2013; Hoffman, 2011), including inaction, given that “the interests, identities, values, and assumptions of individuals and organizations are embedded within prevailing institutional logics” (Thornton, Ocasio, & Lounsbury, 2012, p. 6). Accordingly, the climate change debate is profoundly ideological exposing deep faultlines between actors embedded in fundamentally different institutional logics (Hoffman, 2011; Wade-Benzoni et al., 2002).

On the one hand, scholars have asserted that climate change is governed by a transnational commons logic, which states that the global climate is a common resource, and everyone has a shared responsibility to ensure its biophysical functions are not put at risk (Ansari et al., 2013). On the other hand, climate change has been approached through a market logic

(Thornton, 2002; Thornton et al., 2012), which in its purest form states that climate change mitigation should not occur at the expense of economic growth (Hoffman, 2011), because this logic “prizes growth in share price, wealth accumulation, keen competition, and committing investment capital” (Miller, Le Breton-Miller, & Lester, 2011, p. 4). Climate change mitigation should therefore not only contribute to the reduction of GHG emissions, but also to firms’ growth objectives, wealth accumulation and strategic position in the market (Bumpus & Liverman, 2008; Hoffman, 2005).

The dominance of the market logic in the global economy has contributed to an institutional environment that encourages organizational inaction in various ways. First, the market logic has been used to oppose action on climate change, based on the assumption that it will hinder economic growth (Ansari et al., 2013; Hoffman, 2011). As climate change is closely connected to the functioning of a fossil-fuel-based economy (Hoffman, 2011), proponents of drastic action to reduce GHG emissions are seen to be challenging the main sources of economic growth and putting at risk the capacity of firms to create profits and shareholder value. Second, in a less extreme incarnation, the market logic would not lead to a full opposition of climate change mitigation, but at least to pressures that GHG reduction measures should also contribute to shareholder value (Bumpus & Liverman, 2008). As such, the market logic would not automatically lead to short-termism, because shareholder value should also reflect a firm’s long-term value. Nonetheless, since the share price forms the main source of legitimacy in a market logic (Thornton et al., 2012), there will be a bias toward maximizing the current share price. Only when investors have a strong belief in the potential of low-carbon investments to be a main driver of economic growth will organizational measures to reduce GHG emissions translate into a higher share price. As argued above, uncertainty about the future payback of such investments

will thus mean that the current dominance of the market logic will create short-termism in firms and a bias towards taking marginal emissions reduction measures.

Third, the market logic fuels organizational inaction because it forms the foundation of the main regulatory institution to curb GHG emissions – the carbon market – which leads climate policy to be ingrained with a short-term focus (Newell & Paterson, 2010). Pinkse and Kolk (2007) found, for example, that the European Union emissions trading scheme is temporally incompatible with long-term investments required for large fossil-fuel-based installations because relatively short trading periods have lead firms to avoid strategic investment decisions with amortization periods of several decades. Moreover, firms are not necessarily using the carbon market to achieve absolute GHG emissions reductions, but instead to generate short-term profits (Newell & Paterson, 2010). While traditional environmental standards might encourage firms to aim for compliance instead of environmental impact reduction (Tenbrunsel, Wade-Benzoni, Messick, & Bazerman, 2000), the carbon market goes one step further in pushing firms to focus on the short term even more strongly as it can be used for financial speculation (Newell & Paterson, 2010).

The dominance of the market logic is further bolstered by another institutional-level variable – regulatory uncertainty (Marcus, Aragon-Correa, & Pinkse, 2011) – defined as an actor's perceived inability to predict the future state of the regulatory environment (Hoffmann, Trautmann, & Hamprecht, 2009). Research shows that to avoid regulatory uncertainty, firms may postpone large capital investments pending more certainty about future regulations (Hoffmann et al., 2009). Hence, regulatory uncertainty also leads firms to focus on the short term; that is, firms avoid significant investments in climate change mitigation when future regulations are unclear given they cannot predict whether they will receive a payback on their

investment (Hoffmann, 2007). In recent years, regulatory uncertainty on climate change has grown stronger. Not only has the Kyoto Protocol been weakened at the end of its first commitment period in 2012 with Canada, Japan and Russia refusing to take on further emission reductions targets, but the global policymaking process around a follow-up protocol has also stalled considerably (Banerjee, 2012). As a consequence, in many jurisdictions, the nature and form of future climate policy instruments has not been decided and remains uncertain. So while the most dominant form of climate policy, a carbon market, would already lead firms to take marginal measures with a singular focus on improving carbon efficiency, regulatory uncertainty acts as a further deterrent to action.

All things considered, then, the market logic will either lead firms not to act at all, as climate change mitigation could be seen to be in conflict with economic growth, or it might push firms to take incremental measures that either create immediate financial payoffs or that result in compliance. Moreover, the market logic as a source of inaction will be even stronger if firms face regulatory uncertainty. Hence, we propose:

Proposition 3: The more climate policy is dominated by the market logic and the higher the regulatory uncertainty, the more an organization will be disposed to inaction on climate change.

The Vicious Circle of Organizational Inaction

In this section, we propose that the mechanisms of short-termism and uncertainty avoidance interact and reinforce each other across levels, thus creating a vicious circle of inaction. For example, managers' present-time perspectives and low tolerance for uncertainty

can shape and are shaped by short-term organizational practices such as financial investment appraisal tools and managerial rewards systems that favor the near term over the long term. Likewise, there is an interaction between organizational practices and the institutional logics and regulatory uncertainty that reside at the institutional level. Finally, individual managers can also affect the institutional environment, but at the same time behave according to taken-for-granted patterns that have come to be institutionalized. In the following, we explore the conditions under which such interactions between levels are likely to be stronger and thus reinforce the vicious circle of inaction.

Individual and organizational level interactions. Organizations research has pointed to a relationship between individual-level and organizational-level time constructs (Bluedorn, 2002; Lavery, 1996; Marginson & McAulay, 2008). Das (1987) found, for example, that individuals' time perspectives were linked to their preference for short- and long-term planning, which in turn shaped organizational level planning. Specifically managers with present-time perspectives exhibited a preference for short-term planning, which in turn shortened the time horizons of planning practices in organizations. In addition, research has shown that the short-term preferences of managers affect the time preferences of others in their group (Marginson & McAulay, 2008). Social contagion can occur across levels as individual members influence others, eventually shaping organizational level practices, processes and routines (Aguilera, Rupp, Williams, & Ganapathi, 2007; Crossan, Lane, & White, 1999). Hence, managers' short-term preferences and low tolerance for uncertainty may not only affect their own position on the issue of climate change but may also shape management practices, such that inaction on climate change becomes institutionalized within their organization.

In turn, an organization's approach to time, as reflected in standard management practices such as capital budgeting and rewards and incentive systems, may shape the time perspectives of managers and can thus determine their preferred response to climate change. Although time perspectives are a relatively stable individual attribute, they are also situationally determined (Zimbardo & Boyd, 1999). People develop a cognitive temporal bias and become predominantly past, present or future-oriented but their time perspective may also shift over time depending on learned factors such as culture and education. Over time, managers may be influenced by their organization's time perspective, which is reflected in the firm's management practices (Schein, 1992). As such, short-term practices like capital budgeting and annual bonus systems may shape managers' approaches to time (Lavery, 1996). Hence, management practices that emphasize the short term and aim to reduce uncertainty alter the time preferences of managers and could at the same time influence their attitude towards climate change. To summarize, present-focused managers who have a low tolerance for uncertainty and short-term oriented management practices that favor certainty in decision-making on climate change will lead to a vicious circle. We therefore posit:

Proposition 4a: A manager's present-time perspective and an organization's use of standard management practices for climate change decision-making mutually interact to reinforce organizational inaction on climate change.

The strength of the relationship between the time perspective of the climate change manager and the management practices used for decision-making on climate change will be influenced by the climate manager's position within the organization. Organizations tend to be

reflections of their top managers' values and cognitions (Hambrick & Mason, 1984), which implies that managers in more senior positions will have a stronger influence on management practices than employees in a lower hierarchical position within the organization. We therefore expect that when managers responsible for decision-making on climate change are in a more senior position, the likelihood of inaction will be higher, because their time perspective will have a more profound impact on the management practices used for decision-making on climate change. While it has been shown that senior management involvement is an important determinant of pro-active environmental strategies (Bansal & Roth, 2000), we argue that their stronger relative influence on management practices also works in the opposite direction. When managers with a strong present-time perspective are in a more senior position, they will be able to shape short-term oriented management practices, thus hampering concrete action to reduce absolute GHG emissions. As we argued with proposition 4a, the dynamics at the individual and organizational levels reinforce each other and this, in turn, will affect how a firm addresses climate change. This interaction effect will be stronger when the manager responsible for climate change is in a more senior position. As such, we expect the following:

Proposition 4b: The more senior the position of a manager responsible for decision-making on climate change, the stronger will be the interaction between the manager's present-time perspective and an organization's use of standard management practices, which further reinforces organizational inaction on climate change.

Organizational and institutional level interactions. Regarding the interaction between the organizational and institutional levels, we argue that the dominance of the market logic and

regulatory uncertainty both prompt firms to keep using standard management practices for climate decision-making, even if this does not lead to effective action that reduces absolute GHG emissions. The market logic has a strong influence on firms in pushing them to use standard management practices for decision-making on all kinds of issues, not just those with a clear financial dimension. The main attributes of the market logic, that firm objectives should be aimed at shareholder value and the management of competition (Miller et al., 2011), have become widespread because they are considered to drive the efficient functioning of firms (Thornton, 2002). It is not surprising then that the use of short-term oriented management practices, such as investment appraisal and performance management, which are deeply embedded in the market logic, have also been advocated as a way to tackle sustainability issues (Porter & Kramer, 2006; Siegel, 2009), and climate change in particular (Porter & Reinhardt, 2007).

The rationale is that competitive forces and shareholder value creation would also stimulate firms to find the most efficient approach to reducing absolute GHG emissions. However, as discussed already, the short-termism that is inherent in the market logic makes firms focus their climate efforts on achieving quick financial benefits and tangible results to improve their competitive position (Hahn et al., 2010; Slawinski & Bansal, 2012). This implies that the use of standard management practices could lead firms to fail to reduce their absolute GHG emissions due to the tension between the investment horizon needed for climate change mitigation and the one imposed by the market logic.

Regulatory uncertainty has also stimulated the use of management practices that prevent firms from acting on climate change. A major issue with regard to regulatory uncertainty is that government incentives have followed an erratic trend over the years in many countries. For

example, U.S. utilities' investments in carbon capture and storage technologies stalled as a result of a change in government policies (Banerjee, 2012). Hence, even when firms realize the relevance of adjusting their investment practices to account for uncertainty and to focus more on the long term, regulatory uncertainty will prevent them from doing so, as they risk betting on a policy framework that will not persist (Rugman & Verbeke, 1998). It should be noted, however, that firms have also contributed to regulatory uncertainty themselves. While firms have emphasized on many occasions that they favor more regulatory certainty, at the same time they have exerted considerable influence on climate policy in an attempt to water down more stringent norms. Based on the argument that climate policy should not challenge economic value creation and employment, corporate lobbying has been a barrier against the implementation of more ambitious regulations (Ansari et al., 2013; Kolk & Pinkse, 2007).

Given the dominance of the market logic and regulatory uncertainty in climate change decision-making, the probability that firms will change management practices to lengthen their time horizon and tolerate a higher level of uncertainty for climate-related investment projects will remain low. A transformational change in management practices would require firms to openly challenge the market logic by embracing long-term thinking in core business practices along with a more caring attitude toward the natural environment (Hoffman, 2011; Hoffman & Bazerman, 2007). Hence, we propose:

Proposition 5a: An organization's use of standard management practices for climate change decision-making and the market logic mutually interact to reinforce organizational inaction on climate change.

Not all firms will be affected equally by the market logic, however. An important condition for the extent to which firms are held prisoner by the market logic and tend to be paralyzed by regulatory uncertainty is their position in the organizational field and the maturity of the field (Fligstein, 1997). Firms with a central position in their field tend to fare well by the use of established management practices, and thus have a vested interest to maintain the existing order of the field (Greenwood & Suddaby, 2006; Rao, Morrill, & Zald, 2000). Such powerful incumbent firms have an incentive to advocate a further reproduction of such practices as it strengthens their legitimacy and position in the organizational field (Fligstein, 1997; Maguire, Hardy, & Lawrence, 2004). Through a constant reproduction of standard management practices, incumbent firms create a high degree of taken-for-grantedness of the practices and further reinforce the market logic (DiMaggio & Powell, 1983). When firms operate on the periphery of the field, though, their interest to stick to established management practices is much lower, because they have less to gain from the existing order (Rao et al., 2000).

In addition, in more mature organizational fields, established management practices tend to be more stable. As Maguire and colleagues (2004, p. 659) argue, “[m]ature fields represent relatively well-structured configurations of actors that are aware of their involvement in a common enterprise and among which there are identifiable patterns of interaction such as domination, subordination, conflict, and cooperation.” For firms in a mature field, the potential to break free from the dominant logic and change standard management practices will be far more challenging, compared to firms that operate in an emerging field where such practices have not yet reached the same state of taken-for-grantedness (DiMaggio & Powell, 1983; Maguire et al., 2004). Taken together, both these conditions – position in the field and maturity of the field –

will influence how the interaction between organizational and institutional-level factors affects organizational inaction on climate change. Thus, we propose the following:

Proposition 5b: The more central the position of an organization in the organizational field and the more mature the field, the stronger will be the interaction between an organization's use of standard management practices and the market logic, which further reinforces organizational inaction on climate change.

Individual and institutional level interactions. A further reinforcement of the vicious circle can be found in the interaction between the individual and institutional levels. A key assumption of institutional logics is that individuals shape and are shaped by institutions (Thornton et al., 2012). That is, individuals' temporal cognitive frames are a result of their embeddedness in the market logic, which ensures that a present-time perspective and low tolerance for uncertainty are taken for granted cognitively (DiMaggio & Powell, 1983). Consequently, managers responsible for climate change will not be inclined to question the short-termism that dominates their decision-making process, because it is seen as the proper way to behave in a business context. Moreover, when they continue to behave according to this dominant logic, they will even further reinforce the taken-for-grantedness of the behavior that forms the foundation of the market logic. In the institutional literature, this has been referred to as the paradox of embedded agency, which questions to what extent it would be possible for individuals to change institutions that govern their behavior (Holm, 1995; Seo & Creed, 2002).

The market logic creates a top-down effect that managers will only pay attention to issues that fit this logic (Thornton et al., 2012). The market logic's preoccupation with the share price

and competition puts the climate change issue outside the scope of managers as having relevance to core business practices because the potential impact is not concrete and is surrounded by too much uncertainty. Besides such a top-down effect, there is a bottom-up effect because when acting as industry lobbyists in the climate policymaking process, present-focused managers can contribute to short-termism and regulatory uncertainty at the institutional level. Industry lobbyists have played a critical role in pushing for market-based mechanisms, such as cap-and-trade, as the main way to regulate GHG emissions (Grubb, Vrolijk, & Brack, 1999; Kolk & Pinkse, 2007) and have been pivotal in integrating a market logic into the global climate regime (Ansari et al., 2013). Moreover, at the UNFCCC climate conferences, more than 4200 industry lobbyists aggressively opposed any mandatory limits on emissions (Banerjee, 2012), and thus contributed to prolonging regulatory uncertainty. Hence, we propose:

Proposition 6a: A manager's present-time perspective and the market logic mutually interact to reinforce organizational inaction on climate change.

While we argue that the dominance of the market logic and the present-focused cognitive frame of managers strongly interact in contributing to organizational inaction on climate change, an important condition for the strength of this interaction is the specific personal background of the manager who is responsible for climate change in an organization. As long as managers are not exposed to other institutional logics that would question the market logic (Thornton et al., 2012), it will indeed be very difficult for them to break free from a present-time perspective and become more tolerant towards uncertainty. Managers who have built up a career within the same firm over a fairly long period of time or who have always worked in the same kind of functional

area or industry are likely to be fully immersed in the dominant logic. However, depending on the functional diversity and experience across countries or industries in their career backgrounds (Gupta, 1984), managers might also have been confronted with different, contradictory logics as well (Greenwood & Suddaby, 2006; Purdy & Gray, 2009). It is not uncommon for sustainability managers to have a background in sectors, such as the public sector or NGOs, that are not governed by the market logic of prioritizing economic growth to the same degree. Relatedly, Levy and Kolk (2002) found that board members of US-based oil firms with more international experience were more sensitive to more ambitious European perspectives on climate change mitigation. Whether managers are shaped by the market logic thus depends on the diversity of their career background. Managers with a diverse career background have access to alternative sources of knowledge and perspectives on climate change, which leads to exposure to alternative logics (Thornton et al., 2012). Hence, the manager's specific career background will influence the interaction between individual and institutional-level factors in contributing to organizational inaction on climate change. Thus, we posit the following:

Proposition 6b: The less diverse is a manager's career background, the stronger will be the interaction between a manager's present-time perspective and the market logic, which further reinforces organizational inaction on climate change.

DISCUSSION AND CONCLUSION

Management researchers have drawn largely upon organizational theories, such as the resource-based view and institutional theory, to explain firm responses to climate change (Pinkse & Kolk, 2009). However, these theories do not adequately explain the apparent inaction of firms

towards addressing climate change. In order to better understand the sources of prevailing inaction, we developed a multi-level framework that examines individual, organizational, and institutional antecedents. In developing our model we drew on theories of time and uncertainty in the psychology, sociology and organization theory literatures. We proposed that sources of organizational inaction related to short-termism and uncertainty avoidance exist at each of these levels and that they interact and reinforce each other across levels. In addition, we identified boundary conditions that strengthen the inaction that arises from each interaction. When the climate manager is in a senior role and has a less diverse career background, and when the firm has a central position in a mature field, inaction will be heightened in firms.

Contributions

Our model makes several contributions to the corporate sustainability literature. First, our model takes a different approach from much of the existing corporate sustainability research in that it explores the antecedents of *inaction* rather than focusing on the types of responses and the motivations behind firms' *actions* (cf. Wade-Benzoni et al., 2002). Previous research has focused mainly on how firms respond to sustainability issues highlighting differences such as between proactive and reactive approaches (Roome, 1992; Sharma & Vredenburg, 1998). However, even if some firms are proactive and are reducing their absolute GHG emissions, there are numerous firms that are not, and thus continue to contribute to an increase in global GHG emissions and to potentially dangerous changes to the climate. By focusing on inaction in the context of climate change, we gain insight into the lack of action being taken by firms on one of the most important and urgent issues facing society. Thus, our research calls for a redirection of the current debate towards understanding sources of inaction on a variety of sustainability issues in order to move sustainability research in new and promising directions. For example, a focus on inaction

highlights the importance of addressing limits to growth in research on sustainability. Research on proactive strategies often sidesteps the need to show results in the form of effective outcomes (e.g., absolute emissions reductions) and focuses instead on more positive-sounding relative measurements (e.g., reducing emissions intensity). Such a focus takes attention away from the fundamental issue that as firms continue to grow, so too will their emissions, despite proactive investments in climate change mitigation.

Second, current theorizing only provides fragmented explanations of why climate change is not sufficiently addressed by business organizations. Our multi-level framework offers a more comprehensive set of antecedents to inaction by drawing on theories from various disciplines at different levels of analysis. Given the complexity associated with climate change, a multi-level approach provides a more integrated framework for explaining organizational inaction. As our propositions suggest, inaction on the organizational level is not only the result of factors that reside at individual, organizational, and institutional levels, but also of cross-level interactions between these factors. With our multi-level approach we also show how different theoretical perspectives can inform each other in explaining a complex sustainability issue such as climate change. Consistent with recent work on institutional logics (Thornton et al., 2012), our framework highlights that organizations' failure to change is a result of a persistence of institutionalized practices that are co-determined by cognitive factors at the individual level and logics at the institutional level. Overcoming inaction therefore involves much more than changing these practices on an organizational level alone; it also requires breaking the complex web of taken-for-granted behaviors at all levels (Holm, 1995).

Finally, we draw out the importance of short-termism and uncertainty avoidance across different levels. Research on time perspectives has been located primarily within the psychology

literature, yet has much to offer corporate sustainability research given that practicing sustainability requires a longer-term perspective (Gladwin et al., 1995; Held, 2001). While some temporal research does exist at the organizational level, few studies have examined the role of time in sustainability (for an exception, see Slawinski & Bansal, 2012). Furthermore, we showed how short-termism and uncertainty avoidance operate at different levels of analysis and how these levels interact to create a vicious circle that reinforces inaction on climate change. In so doing, we heed the call for a better understanding of the sources of short-termism at various levels of analysis (Laverty, 1996). Ultimately, by linking time and sustainability, we develop a new theoretical approach that holds promise for pushing corporate sustainability research in new and promising directions.

Limitations and directions for future research

There are limitations in our theoretical model that present opportunities for future research. First, although our model considers the related concepts of short-termism and uncertainty avoidance as interdependent mechanisms that operate at three levels of analysis, there are likely other factors that contribute to climate inaction at each level. Further theoretical development may therefore seek to extend our model. While we focused mostly on temporal aspects, the literatures we drew on contain many other potential factors that could contribute to improving our understanding of climate inaction (Hoffman & Bazerman, 2007; Milfont, 2010).

Second, while we have focused on explaining the vicious circle of inaction, future research could seek to identify ways to get out of the vicious circle. We believe that the mechanisms of short-termism and uncertainty avoidance that we focus on in this paper may also contain the seed for an organizational turnaround on climate change. That is, the interdependence between these mechanisms at, and across, levels also means that changes that lengthen the time

horizon and reduce uncertainty avoidance at any one level may serve to change the antecedents at the other levels, thus prompting more climate change action among individuals, organizations and governments. For example, greater regulatory certainty would allow firms to lengthen their planning horizons when it comes to investing in climate change mitigation. Conversely, firms with practices that encourage longer time horizons such as scenario planning might lobby governments for more stringent policies which could create regulatory certainty (Slawinski & Bansal, 2012). Firms have increasingly reached out to governments, international agencies, and NGOs by engaging in multi-stakeholder partnerships on climate change (Pinkse & Kolk, 2012). Such stakeholder engagement practices have the potential to extend the time horizons of firms and managers, as they cooperate with more long-term oriented actors. Further research is necessary, however, to investigate whether there are also virtuous interactions between these mechanisms.

Third, our multi-level framework focused only on the issue of climate change. Notwithstanding the importance of this global issue, this raises the question of whether our multilevel framework is also relevant to other sustainability issues. We believe the temporal dimension is pertinent for other issues as well (Gladwin et al., 1995; Held, 2001), including biodiversity or the nitrogen cycle (Rockström et al., 2009), because these have similar temporal dynamics reinforcing each other at different levels. When looking at the public debate, however, these issues do not appear as urgent as climate change, yet. Hence, understanding why businesses fail to act on climate change is critical for understanding the failure to act on other sustainability issues as well (Whiteman, Walker, & Perego, 2013; Winn & Pogutz, 2013).

Finally, while multi-level theorizing allows researchers to address complex organizational phenomena, it is not without its challenges. Multi-level frameworks normally cross disciplinary

lines with differences in jargon and competing theoretical frameworks (Kozlowski & Klein, 2000). To overcome this barrier we drew on similar concepts – short-termism and uncertainty avoidance – within these disparate literatures. Future research could test our propositions to ensure that our model is robust. Such empirical research could include testing the relationship between managers’ time perspectives and their propensity to act on climate change. Other tests could include the relationship between specific management practices and inaction within organizations as well as the relationship between regulatory uncertainty and inaction.

Implications for managers and policy makers

Our research contains a number of implications for both managers and policy makers. Our model suggests that when managers approach sustainability issues with a present-time lens and a low tolerance for uncertainty, they not only fail to understand the future implications of such issues on the firm and the business environment, but they are also less likely to act, which can have negative consequences both for the firm and for society. Thus, managers need to be aware of their time perspective and tolerance for uncertainty and be cognizant that particular management practices encourage short-termism while discouraging action on sustainability issues. Organizations can introduce practices that encourage longer-term horizons, such as scenario planning or long-term incentive schemes for managers.

With regard to public policy makers, one may argue that current regulations are too weak, unreliable, and short-term oriented, and therefore have not led to marked improvements among firms in terms of absolute GHG emission reductions. Instead, regulations need to be more stringent and stable over time, while allowing firms the flexibility to incorporate climate change into their strategy. In addition, regulations should encourage firms to take a longer-term perspective in addressing the climate change issue. As such, more stability and consistency of

institutional arrangements may provide the certainty needed for firms to make more significant investments in climate change mitigation.

Concluding remarks

Climate change is an urgent problem that requires organizations, civil society and governments to find long-term solutions. With the absence of strong measures by governments, and the lack of power of civil society organizations, firms are increasingly being called on to provide solutions to the sustainability challenges to which they have contributed (Hoffman & Bazerman, 2007). Although sustainability scholars have pointed out that a growing number of firms are taking a proactive stance on climate change (Hoffman, 2005; Pinkse & Kolk, 2009), the numbers tell a different story – absolute GHG emissions are growing among many firms (CDP/PwC, 2013). Our multi-level approach highlights the inherent complexity and interrelationships that create a vicious circle of inaction. If firms are to achieve meaningful absolute GHG reductions, then we need to understand how managers, organizational practices and the institutional environment interact. We suggest that extending time horizons at all three levels and embracing the uncertainty inherent in confronting climate change shows promise for tackling this most vexing of sustainability issues.

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Tables and Figures

Table 1: Organizational inaction on climate change explained

		<i>Corporate mitigation measures</i>	
		<i>No</i>	<i>Yes</i>
<i>GHG emissions</i>	<i>No reductions</i>	Inaction; climate change not on business agenda	Inaction; symbolic action on climate change
	<i>Relative reductions</i>	Inaction; reduction only due to regular efficiency improvements	Inaction; necessary but insufficient condition for effective action on climate change in case of growth
	<i>Absolute reductions</i>	Inaction; reduction only due to organizational downsizing	Sufficient condition for effective action on climate change

Figure 1: A multi-level model of organizational inaction on climate change

