

U.S. corporations' climate
change strategies in
response to foreign and
domestic regulation

Unintended consequences of
regulatory plurality

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B2075
November 2012

The report approved:
2012-11-15



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<p>Organization</p> <p>IVL Swedish Environmental Research Institute Ltd.</p>	<p>Report Summary</p>
<p>Address</p> <p>P.O. Box 21060 SE-100 31 Stockholm Sweden</p>	<p>Project title</p> <p>Clipore; and Jan Wallander's and Tom Hedelius' Foundation (grant number W-2009-0194:1).</p>
<p>Telephone</p> <p>+46 (0)8-598 563 00</p>	<p>Project sponsor</p> <p>The Swedish Foundation for Strategic Environmental Research (Mistra); and Handelsbanken Research Foundation</p>
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<p>Title and subtitle of the report</p> <p>U.S. corporations' climate change strategies in response to foreign and domestic regulation: Unintended consequences of regulatory plurality</p>	
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<p>Keyword</p> <p>Climate change; Corporations; Policy; Regulation; Strategy</p>	
<p>Bibliographic data</p> <p>IVL Report B2075</p>	
<p>The report can be ordered via</p> <p>Homepage: www.ivl.se, e-mail: publicationservice@ivl.se, fax+46 (0)8-598 563 90, or via IVL, P.O. Box 21060, SE-100 31 Stockholm Sweden</p>	

Foreword

The authors have contributed equally to this project. The authors thank Melissa Forbes, Jonathan Haynes, Alwyn Lim, Jason Owen-Smith, participants in the Economic Sociology Workshop at the University of Michigan, and the audience at the Academy of Management Annual Meeting 2010 for valuable comments on prior versions of this report. We are also grateful to Mark Rivera for statistical advice. Melissa Forbes was very helpful in sharing data on shareholder resolutions and institutional investors. The authors also acknowledge financial support from Handelsbanken Research Foundation as well as the research program Clipore funded by the Swedish Foundation for Strategic Environmental Research (Mistra).

Summary

This report examines how domestic and foreign regulations interact to shape corporate strategies to address climate change. We expect that heightened attention and uncertainty encourage firms to use low commitment strategies that signal involvement in an issue, but discourage high commitment strategies which can expose firms to higher levels of external accountability. Analyzing climate change strategies of U.S. corporations, we find support for the idea that firms with both domestic and foreign regulation experience are less likely to develop emission reduction plans (high commitment strategy) than firms with sole experience from one of the two contexts. Thus, passivity can be an unintended consequence of multiple regulatory initiatives.

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Introduction

Climate change is a concern for an increasing number of corporations around the globe (Hoffman 2007; Jones and Levy 2007). Scholars of management and organization have suggested a range of explanations as to why some corporations develop strategies towards climate change, while other firms are reluctant to do so (for an overview see Etzion 2007). One influential argument within this literature is theoretically grounded in the institutional tradition of organizational theory and it suggests that changing institutional pressures, such as new regulations, force corporations to take action on environmental issues (Delmas and Toffel 2008; Hoffman 2001; Hoffman and Ventresca 2002). The institutional argument becomes, however, more complicated when one considers the multifaceted nature of the regulatory environment facing large U.S. corporations (Levy and Rothenberg 2002). Some U.S. states have developed more stringent standards than federal environmental regulations, and in addition, many U.S. firms must comply with foreign climate change regulation like the European Union's Emissions Trading Scheme (EU ETS). For these reasons, many corporations need to navigate different -- and sometimes conflicting -- institutional expectations when they develop their climate change strategies.

This situation is not unique to corporations that consider strategies to reduce emissions. Researchers have identified a variety of organizations such as hospitals, universities, and public schools that frequently have to deal with pluralistic institutional demands (for an overview see Kraatz and Block 2008). This observation has triggered several studies on how firms act when they are exposed to multiple regulations or other more informal expectations for how to structure their activities. There are two central arguments in this literature. One strand of research suggests that different institutional demands can complement each other to make an issue more salient for organizations. Under these conditions, practices become perceived as natural, and locked into self-reinforcing patterns (Douglas 1986; Hargadon and Douglas 2001). Another argument proposes that contexts with different co-existing demands for action can be highly uncertain and fragmented settings (Friedland and Alford 1991; Schneiberg and Soule 2005). Thus, large corporations often opt for a passive approach until the situation becomes more settled and controversies are resolved (Ahmadjian and Robinson 2001). Yet, while these prior bodies of work indicate that different regulations can both complement and undermine each other, researchers have paid limited attention to the conditions under which each of the two processes occur. This gap in the literature is unfortunate since it restricts our knowledge about corporate responses to complex regulatory matters such as climate change where large institutional differences exist between geographical regions.

Against this backdrop, we examine in this report how different regulations interact to shape corporate strategies on climate change issues. We draw on an analysis of how U.S. corporations' climate change strategies are affected by the firms' exposure to state-level regulations within the U.S. and the EU regulation in Europe. Climate change represents one of many policy issues where regulation has developed at very different paces and in different directions across geographical locales. Because large U.S. corporations differ in their exposure to state-level and foreign climate change regulation, this empirical field offers an important setting for developing a more contextualized theory about institutional

pressures that takes into account possible interaction effects between domestic and international regulatory environments.

To theorize about the mechanisms that shape the interplay between domestic and foreign policies, we distinguish in this report between heightened attention and uncertainty. We suggest that heightened attention is a mechanism that encourages organizations to develop strategies that signal their involvement in a certain issue to various stakeholders. This mechanism is likely to dominate when firms consider the development of *low commitment strategies* -- that are internal measures with relatively high levels of ambiguity for external audiences such as the provision of management incentives. In contrast, uncertainty is a mechanism that encourages firms to avoid or postpone strategies that bind them to a certain set of goals and practices. We expect that uncertainty is the dominating force when firms consider *high commitment strategies*, such as formal plans for working with an issue. We theorize that high commitment strategies may be risky undertakings in uncertain policy environments since they make goals and tactics visible and expose firms to greater accountability.

In what follows, we describe critical institutional developments to encourage large corporations to mitigate their impact on climate change with particular focus on regulations in the U.S. and the EU. We thereafter turn to institutional approaches in organization theory to develop an account for how domestic and foreign institutions are expected to influence firms' use of low and high commitment strategies. After considering the direct effect arising from each form of regulation, we theorize how domestic and foreign regulations interact and change each other's effects. Next, we present findings from a series of models which estimate the influence of regulations on climate change strategies among the U.S. firms listed on the S&P 500. Finally, we highlight how our empirical observations of climate policy contribute to organization theory. Our work extends the institutional literature by documenting different patterns of interactions between domestic and foreign regulations and their impact on different forms of corporate strategies. In doing so, we argue for a more contextualized theory of institutional influences which takes into consideration the regulatory pressures in different geographical locales and the level of commitment that is required by different corporate responses.

Especially, we demonstrate in this report that an unintended consequence of situations governed by multiple policy initiatives is that firms are less likely to adopt high commitment strategies. Whereas policymakers in each geographic region seek to increase organizational efforts to reduce emissions, their combined efforts give firms incentives and -- to some extent legitimacy -- to opt for a "wait-and-see" strategy. Regulatory plurality can therefore lead to the opposite outcome than one that policymakers strive for, in our case policy makers' efforts to achieve increased corporate action on climate change lead to less action at the firm level.

U.S. and EU Regulation to Mitigate Climate Change

Concurrently with the accumulation of scientific evidence about the changing world climate, a new climate change regime has emerged. Since the late 1980s, several new policy arenas have been set up to discuss and negotiate how to deal with global warming, including the United Nations Framework Convention on Climate Change (UNFCCC) at the global level, and a multitude of regional, national, state, and local level forums. Yet, the climate change issue has also led to different forms of regulations in different regions around the globe, resulting in a highly uncertain regulatory environment for firms (Marcus, Aragon-Correa, and Pinkse 2011).

Our empirical analyses focus especially on the year 2008. This is a year of theoretical and empirical interest since U.S. corporations during this time experienced particular high levels of uncertainty. The upcoming 2008 U.S. presidential election was expected to significantly affect both domestic and international climate change policy but the Republican and Democratic presidential candidates had very different climate change agendas. Moreover, it was highly unclear if any new global climate agreement would come out of the UNFCCC negotiations to take effect after the expiry of the Kyoto Protocol and thereby provide a global regulatory framework for corporations to relate to. Finally, many U.S. corporations had to relate to new European regulations on climate change.

As we will explain below, companies in this period faced high uncertainty related to differences between different policy initiatives. In more theoretical terms, this was a time when institutional plurality was an important concern for many U.S. corporations. Issues of international competitiveness and cost-effectiveness are ubiquitous in any debates where involvement of the private sector in climate mitigation measures is discussed. Grounded in these concerns, policy-makers in the U.S. and the EU put different emphasis on various policy measures (Pinkse and Kolk 2009). Climate change policies in the U.S. and the EU were described by Carlarne (2006) as “an ocean apart.” U.S. regulations represented a less stringent situation relative to the EU counterpart. In addition, U.S. and EU regulations exposed companies to different demands on *how* to achieve emission reductions.

In Table 1, we summarize the key dividing lines between climate change policy in the U.S. and the EU as of year 2008. The U.S. was seen a key country to “bend the trend” of global warming as the country was responsible for almost twenty percent of global CO₂ emissions in 2008 (International Energy Agency 2009). Moreover the U.S. government had a central political role in the global climate change negotiations. In the U.S., there had been a number of federal initiatives to address global warming, but the country’s regulatory landscape was largely structured along a bottom-up approach where an abundance of activities takes place at the state-level (Byrne et al. 2007; Román and Carson 2009). Climate change policies at the state-level were characterized by a high degree of experimentation, but two overarching themes guided a large share of the U.S. initiatives to mitigate corporations’ effect on global warming in year 2008 (see e.g. Pinkse and Kolk 2009). First, there was a strong emphasis on accelerating the development and deployment of climate-related technologies. Second, several programs tried to promote the reduction of

greenhouse gas emissions on a voluntary basis. Such voluntary programs strived to engage corporations in climate change work without threat of legal sanctions.

Table 1: Climate policy emphasis in the U.S. and the EU in 2008.

Dimension	The U.S.	The EU
Economic instruments	Low	High
Promoting Science and Technology	High	Moderate
Voluntary Programs	High	Low

Building on the ideal of technological progress and voluntariness, political responses at the state-level in the U.S. included climate action plans, emission targets, emission inventories, emission registries, and appointments of climate change commissions, and advisory groups (The Pew Center on Global Climate Change 2010). Policy-makers in a number of U.S. states had also expressed some interest in economic instruments, especially emissions trading, where permits to pollute are bought and sold on an artificially created market for emission rights. Emissions trading was seriously introduced into the international climate policy debate in 1997 with the formulation of the Kyoto Protocol. The Kyoto Protocol outlined emissions trading as one of three flexible mechanisms through which parties may take credit for reduction of greenhouse gas (GHG) emissions (United Nations Framework Convention on Climate Change 2010). A proposal for a federal U.S. emissions trading scheme was pursued in the U.S. Congress in 2009¹ (Román and Carson 2009). At that time, several U.S. states were already involved in emissions trading under the umbrella of the Regional Greenhouse Gas Initiative (RGGI). Other states were preparing for emissions trading under initiatives such as the Western Climate Initiative which took effect as of 2012 (The Pew Center on Global Climate Change 2010). Nevertheless, economic instruments had played a relatively limited role in the U.S. policy debates.

Consider these developments in the U.S against those that occurred in Europe around the same time. Europe was the geographical region where most climate policy activities had been carried out to date (Oberthur and Roche Kelly 2008; Skjærseth and Wettestad 2008). In Europe in 2008, a range of national initiatives operated in tandem with a comprehensive climate policy package developed by the EU. The EU also acted as one single party in the international climate change negotiations on behalf of its twenty-seven member states. Climate change was defined as a responsibility of the EU already in the late 1980s (Scheuer 2005), which was about the same time as the climate change debate was seriously initiated in the United Nations. Throughout the 1990s, the EU issued several Directives, to be implemented by Member States, based on taxes and charges to control European GHG emissions and these economic instruments remain important to date. Agreements that aimed to promote technological development had also been made in the EU, for example the Renewable Energy Directive from 2009, but the role of technology was less pronounced in the EU than the U.S (Pinkse and Kolk 2009).

¹ The proposal for a federal emissions trading scheme was part of the energy bill The American Clean Energy and Security Act of 2009 (ACES), also known as the Waxman-Markey Bill. The bill was approved by the House of Representatives in June 2009, but was not passed by the Senate.

Instead the EU came to structure much of its climate policy framework around the EU ETS. When the EU ETS was launched in January 2005, the initiative was the world's first large scale market for emissions. The mandatory scheme covered facilities that are based within the territory of EU member states, which means that a range of corporations of other nationalities have to be engaged in emissions trading. The facilities that were part of the EU ETS in 2008 were found in energy-intensive industries and include combustion plants, oil refineries, coke ovens, iron and steel plants, and factories making cement, glass, lime, brick, ceramics, pulp and paper (European Parliament 2003). Also a number of corporations which core businesses were not within any of these sectors had facilities which fell under this legislation. For participating corporations, the EU ETS implied a number of mandatory procedures. They were expected to keep track of emissions, produce a report on annual emissions to be verified by a third party, and make sure that the number of allowances corresponded to their emissions year by year to avoid financial sanctions (*ibid*).

The diverging directions of policy in the U.S and the EU, and the absence of a true global agreement, make climate change an interesting context for analyzing organizational responses to institutional plurality. Corporations that operate in various countries often face a complex reality in attempting to respond to the many policy developments and they often experience pressures to look beyond the borders of the country where they are headquartered (Pinkse and Kolk 2009). In year 2008, many U.S. corporations focused not only on domestic policies, but they also took increasing interest in climate policy developments in other regions, especially Europe. Thus both domestic pressures and experiences from foreign institutions such as the EU ETS have potentially made U.S. corporations more inclined to recognize climate change as an issue of strategic relevance that brings business opportunities as well as risks.

Corporate Strategies in Response to Domestic and Foreign Regulation

The impact of regulatory forces on corporations' work on environmental issues has been recognized in several prior studies (Hoffman 1997; Milstein, Hart, and York 2002). These studies draw on insights in organizational theory where institutional pressures including regulation have been highlighted as important features of organizations' external environments since Selznick's (1949) pioneering analyses in the 1940s of the Tennessee Valley Authority. To achieve legitimacy, a well-known argument suggests, organizations conform to shared and socially sanctioned meaning systems (DiMaggio and Powell 1983; Meyer and Rowan 1977; Tolbert and Zucker 1983). Even regulations that do not have a direct cohesive impact on organizations can still have significant influence on organizations by providing them with what Edelman and Suchman refer to as "normative and cognitive guidance" (1997, p 482). The literature concludes that firms can respond to regulations and other institutional forces by developing different kinds of strategies (Dobbin and Dowd 1997; Fligstein 1990; Oliver 1991).

As we can expect from the institutional argument, firms have recently started to explore and adopt a range of climate change strategies (Child and Tsai 2005; Etzion 2007; Pinkse and Kolk 2007; van den Hove, Le Menestrel, and de Bettignies 2002). Empirical studies have found that firms track past and current GHG emissions, forecast future fuel and energy use, establish emission targets (absolute or relative), set up GHG emission reduction plans for how to achieve certain targets, appoint board committees or other executive bodies to have overall responsibility for climate change, and engage with policymakers either directly or through membership in associations or alliances. Firms in some regions can also engage in voluntary emissions trading such as the Chicago Climate Exchange. As climate change is closely related to other environmental issues and sustainable development, corporate climate strategies may also be part of such programs. Examples of programs focused on environmental issues and sustainable development are life cycle analyses, ISO 14001 certification, and awareness raising and training among staff (Hoffman and Ventresca 2002). Corporate responses may also be of more technological character as environmental pressures may trigger process and product innovation.

The examples listed above can be classified on a continuum from low to high commitment strategies towards climate change. Low commitment strategies are internal measures that are associated with relatively high degrees of flexibility, since they allow for a range of tactics to reach certain goals. High commitment strategies, in contrast, make goals and tactics visible to a range of corporate stakeholders and are thereby associated with higher levels of formalization, visibility, and accountability. In the present report, we view firms' provision of management incentives to mitigate climate change as an example of a low commitment strategy. Incentives function as a carrot rather than a stick. They do not prescribe certain tools or practices, but encourage exploration and innovation. Incentives are therefore relatively ambiguous strategies for external audiences to the corporation. Open-ended survey responses to the Carbon Disclosure Project (CDP) from large U.S. firms reveal that corporations often link climate related objectives, such as the

improvement of energy efficiency, to the firm's overall performance reviews of managers and existing compensation programs. Other companies officially recognize certain employees' climate change engagement. Such awards include the Burlington Northern Santa Fe Corporation's "Environmental Employee of the Year Award" and the "Every Drop Counts" campaign to recognize employees who use excellent fuel-saving practices.

On the other hand, high commitment strategies also play an important role in many companies' climate change work. Our analysis treats a formal plan to reduce GHG emissions as an example of a high commitment strategy. Although organizational scholars have argued that planning exercises often are conducted due to their symbolic value (Feldman and March 1981; Meyer and Rowan 1977), we still argue that plans are beneficial examples of a high commitment strategy in the area of climate change. Our argument is consistent with work by Newell (2008) that shows that plans represent a tangible statement that climate change stakeholder groups tend to ask for when holding firms accountable for their actions. Moreover, GHG emission reduction plans are relatively detailed documents that specify formalized action. According to CDP's definition, a GHG emission reduction plan must include emission reduction targets related to the corporations' operations, energy consumption, supply chain, product use, and product disposal. The plan must also encompass a time frame for achieving those goals. Pinkse and Kolk (2009:71) describe companies' climate change target as "the main way for companies to show the public their commitment to helping solving this issue".

Building on the dominant idea of institutional theory, which predicts that organizational strategies are responses to institutional pressures, we test in this report the hypothesis that domestic regulation influence firms' use of climate change strategies. Selznick (1949) argued long ago that organizations depend on being accepted by stakeholders in their immediate geographic proximity for their survival. Consistent with this argument, we theorize that domestic policies are central concerns for large corporations that are difficult to ignore. In examining the effect of domestic institutions on U.S. corporate climate strategies, we take particular interest in regulations in U.S. states since prior research demonstrates that a considerable amount of regulatory action in the country takes place at state-level rather than federal level. Among the range of initiatives that exist at the state-level, we argue that state emission targets are particularly interesting. Not only are targets comprehensive and stretching across industrial sectors, but practitioners in the climate change community perceive them, in general, as a sign of ambition even if targets are not necessarily linked to any legal sanctions. The proposition that emission targets are indicators of stringent state climate change regulation is also supported by the fact that merely seventeen of the fifty U.S. states had emission targets in place in early 2008 (Román and Carson 2009).

Because of institutional pressures, we expect that firms located in states with emission targets are more likely to pay attention to climate change and develop strategies to deal with the issue. We further anticipate that domestic institutional pressures have a positive effect on the development of both low commitment strategies, like management incentives, and high commitment strategies, like GHG emission reduction plans, since these state-level policies encourage a range of strategic responses instead of prescribing one ideal focus.

Even in cases where there exists a state-wide emission reduction target, the state does not prescribe how much a corporation should contribute to reductions or how the corporation should act. Nevertheless, we believe that domestic regulation can trigger climate related corporate responses by changing local norms and expectations and by providing a point of reference that local stakeholder groups can rely on in their interactions with the company. Thus, we hypothesize:

Hypothesis 1a: Firms located in states with emission targets are more likely to provide incentives for the management of climate change

Hypothesis 1b: Firms located in states with emission targets are more likely to use GHG emission reduction plans

Aside from domestic regulations, many large U.S. firms are also exposed to foreign climate change regulation. Prior research in the field of international business has shown that a firm's strategies can be influenced by the foreign contexts in which its business units are embedded (Kostova and Roth 2002; Morgan, Kristensen, and Whitley 2001). Foreign institutions are particularly salient for multinational corporations, since they have operations in physically dispersed settings that often are characterized by different regulative, economic, social, and cultural milieus (Westney 1993). In the empirical field of environmental protection, the importance of foreign institutions for multinational corporations is obvious (Child and Tsai 2005). The regulatory pressures for corporations to reduce their GHG emissions differ significantly across countries and regions as we have indicated in our overview of recent policy initiatives in U.S. and Europe. Building on these insights, we theorize that foreign institutions can push firms to develop climate change strategies in addition to domestic regulation

Especially, we expect that U.S. corporations that have been subject to European climate policy are more likely to develop strategies to address climate change. As described above, Europe is the geographical region where most policy-making in the area of climate change has taken place to date. Although these institutional pressures are not in the immediate physical proximity to the U.S. firms' headquarters, research about multinational corporations suggests that social influences still can occur between foreign units and the unit that makes decisions about the firms' global strategies (Bartlett and Ghoshal 1989). Internal social networks within the firms weaken the role of geographical distance and facilitate learning between units in different countries. These learning processes are likely to encourage the development of various forms of climate change strategies. Similar to our theorizing about the effects of domestic regulations on corporations' strategies, we anticipate that firms have flexibility to interpret the regulation and come up with different strategic responses. We expect therefore that firms covered by the EU ETS are more likely to use both low commitment strategies such as management incentives as well as high commitment strategies such as GHG emission reduction plan to manage climate change.

We propose:

Hypothesis 2a: Firms covered by the EU ETS are more likely to provide incentives for the management of climate change

Hypothesis 2b: Firms covered by the EU ETS are more likely to use GHG emission reduction plans

The expected effects of state-level regulation and the EU ETS on U.S. corporations' climate change strategies raise the question of how the two forms of institutional environments interact. The possibility of interaction effects is stressed by prior studies in organization theory which suggest that the effect of one institution on organizational strategies often changes when other institutions develop. In some situations, innovative practices gain strength from their association and resemblance with other existing institutions (Douglas 1986; Hargadon and Douglas 2001). In other situations, new ideas weaken or even replace previously prevailing institutions (Haveman, Rao, and Paruchuri 2007; Rao, Monin, and Durand 2003; Scott et al. 2000; Thornton and Ocasio 1999). While most research on this topic has focused on competing pressures from overarching logics (Friedland and Alford 1991; Lounsbury 2007; Scott 2004; Thornton and Ocasio 1999) such as the tension between the capitalist market and the bureaucratic state, we theorize in this report that similar dynamics can arise in more specific regulatory domains. Our argument proposes that different regulatory pressures need to be conceptualized as interdependent, not merely additive, forces.

We enter the theoretical discussion about institutional plurality with an interest in specifying the conditions under which regulations increase and decrease the effects of each other. Specifically, we believe that firms with experience from several regulatory regimes face a tradeoff between responding to external audiences' exceptions and committing to a strategy in an uncertain and fragmented environment where future developments are hard to anticipate. We propose that heightened attention is the mechanism that dominate firms' decisions about low commitment strategies, while uncertainty forces firms to avoid or postpone the adoption of high commitment strategies. We will develop each of these two ideas in turn.

We will first consider the effects of co-existing institutions on firms' use of low commitment strategies. Prior literature shows that firms embedded in pluralistic institutional environments are likely to be highly aware of the issue under consideration: in our empirical case climate change. Situations characterized by institutional plurality are often a source of politics and controversy (Friedland and Alford 1991) that draw the interest of policy-makers (Fligstein 1996), social movements (Davis et al. 2005; Rao 2009), professional groups (DiMaggio 1991), the business press (Jonsson and Buhr 2011), and individual entrepreneurs (DiMaggio 1988). Because institutional plurality generates attention from a range of stakeholders, we expect that firms that are simultaneously embedded in several regulatory contexts have a greater awareness of the climate change debate than other firms. In other words, institutional pressures can amplify each other to increase the salience of an issue.

As an issue becomes part of the corporate agenda, firms are more likely to consider strategic responses. We hypothesize that institutional plurality especially increases the likelihood that firms develop low commitment strategies. Low commitment strategies are attractive responses in uncertain and multifaceted environments. In the language of Oliver (1991), such strategies can be understood as “compromise tactics” that firms can use in response to multiple external constituencies with incompatible demands on the company. We anticipate that firms often opt for a low commitment strategy under conditions of uncertainty instead of adopting a formal and more binding strategy. This argument extends prior literature which suggests that firms often decouple the strategies that firms display to the public from the practices that they pursue internally when they are faced with competing demands. We theorize that low commitment strategies form a middle road between ignorance on the one hand and the adoption of formal and binding strategies on the other hand. Low commitment strategies can in this sense be an attractive means to satisfy the firms' stakeholders in contexts where high commitment strategies make the firm highly exposed to uncertainty. For these reasons, we hypothesize:

Hypothesis 3: The EU ETS and state-level emission targets increase the effects of each other, so that firms with experience from both institutions are more likely to provide incentives for the management of climate change

While firms exposed to institutional plurality have reasons to use low commitment strategies, they also have incentives to avoid high commitment strategies that bind them to specific actions. In the public policy literature, scholars have highlighted that elements of uncertainty and sudden unexpected progress are important features of policy developments (Kingdon 1984). We also know from the institutional literature that it is commonplace for pluralistic environments to be characterized by contradictory ideas as well as high rates of social change. These factors cause uncertainty which make it hard for firms to anticipate future developments. We argue that uncertainty is an important mechanism for understanding organizational responses to institutional plurality, since it is a counterforce to heightened attention. Because regulatory plurality creates a heterogeneous external environment that puts disparate demands on organizations (Kraatz and Block 2008), we expect that firms have incentives to take a more passive approach until the institutional context becomes more settled and standardized across countries and regions. For scholars interested in corporations' climate change strategies, this form of organizational passivity is a well-known phenomena and it has been described as a “wait-and-see” strategy (van den Hove, Le Menestrel, and de Bettignies 2002).

We expect that uncertainty outweighs the pressures from heightened attention when firms consider high commitment strategies. There are three central reasons for why firms have particularly strong incentives to avoid or postpone the adoption of strategies that make goals visible to external audiences. First, external stakeholders are known to refer to firms' high commitment strategies when they make accountability demands. This means that firms that use high commitment strategies face higher pressures to meet their goals. Second, we know from the organizational literature that high commitment strategies often lock firms into certain routines that can become infused with value that extends beyond any technical requirements (Selznick 1957). These factors make it challenging for the firm

to adapt and adopt new strategies, even if the regulatory landscape develop in new directions (Hannan and Freeman 1989). Third, firms exposed to multiple institutional pressures have to some extent legitimacy to wait with developing strategic responses. In a context of high uncertainty, we expect that firms can use strategies that require lower degrees of commitment to satisfy various stakeholder groups. For all of these reasons, we hypothesize:

Hypothesis 4: The EU ETS and state-level emission targets decrease the effects of each other, so that firms with experience from both institutions are less likely to use GHG emission reduction plans.

Data and Methods

Our empirical study draws on an analysis of climate change strategies among firms on Standard & Poor's listing of the 500 largest U.S. corporations (S&P 500). We exclude from our analyses seven firms on the S&P 500 list that are headquartered in countries other than the U.S., to isolate the effect of domestic and foreign institutions on climate change strategies. The final sample consists of 493 firms. For these firms, we have a unique cross-sectional dataset from 2008 that allows us to assess our hypotheses about the effects of regulation on firms' use of climate change strategies. While a longitudinal dataset would have been preferable to make a stronger claim about causality and reduce endogeneity problems, our cross-sectional data set includes a set of unique variables for understanding the effects of institutional multiplicity.

We focus on two dependent variables intended to capture different aspects of corporate climate change strategies. First, the provision of incentives for the management of climate change is included in our study as an example of a low commitment strategy. Second, the use of GHG emission reduction plans is analyzed as an example of a high commitment strategy. The data about these two climate change strategies were retrieved from the Carbon Disclosure Project (CDP) which distributes an annual survey to all companies on the S&P 500 list on behalf of investors. The survey contains a range of questions related to the firms' environmental performance and their strategies towards climate change. The CDP holds the world's largest database of primary corporate climate change information and their data have interested other scholars interested in U.S. corporations and their climate change strategies (Pinkse and Kolk 2007; Reid and Toffel 2009; Stanny and Ely 2008).

Hypotheses 1a and 1b predicted that firms exposed to state-level regulation within the U.S. are more likely to develop low and high commitment strategies with respect to climate change. To assess these hypotheses, we constructed a variable that measures whether a firm is headquartered in a state that has set up emission targets². Data about firms' headquarter

² We also estimated a set of robustness models in which we measured the exposure to domestic regulation as the proportion of the firms' activities that were located in states with emission targets. From Lexis Nexus Corporate Affiliation Database, we collected data on the location of the headquarter and all corporate subsidiaries. From the same database, we also retrieved the number of employees for each location. From these data, we calculated a ratio between the number of employees based in states with emission targets and the total number of employees in all U.S. locales. This independent variable replicates the findings of the measure based on the headquarter address only. The variable is not significantly different from zero in the models for management incentives. For formal plans, the main effect of domestic regulation is .57 ($p = 0.027$, two-tailed test) and the interaction effect between domestic and foreign regulation is -1.19 ($p = 0.037$, two-tailed test). We chose to present the findings from the dummy variable in this report because the interpretation and policy implications are clearer in these models than the ones with a weighted measure.

addresses were collected from the Compustat database which is a frequently used source for data about large U.S. corporations. We matched the location of the firm with information about state-level policies to mitigate climate change. As argued above, we treat emission targets as an indicator of the existence of stringent state-level regulation. In the beginning of year 2008, seventeen states had emission targets in place: Arizona, California, Connecticut, Florida, Hawaii, Illinois, Massachusetts, Maine, Minnesota, New Hampshire, New Jersey, New Mexico, New York, Oregon, Rhode Island, Vermont, and Washington. These states were interpreted to be at the forefront of U.S. climate policy. Aside from having emission targets, many of these states are involved in voluntary emission trading schemes and have other climate change policies in place.

Next, we created a binary indicator that measures if the firm is covered by the EU ETS to assess Hypotheses 2a and 2b regarding influences from foreign regulation. These unique firm-level data were drawn from the CDP questionnaire from 2008. As described in our overview of EU climate change regulation, the EU ETS targets firms with facilities in certain sectors which are considered to be energy intensive located in EU territory. The EU ETS represents a beneficial example of a foreign institution, since it is one of the most comprehensive and discussed policy mechanisms to engage businesses in mitigation of climate change. We treat EU ETS as one institution despite the fact that EU consists of multiple member states. For most European countries, EU creates directives, guidelines and other policies which means that the EU climate policy framework is significantly more monolithic than the U.S. equivalent³.

Finally to test Hypothesis 3 and 4, we generated an interaction effect between the dummy variables for being located in a state with emission targets and being covered by the EU ETS. Hypothesis 3 proposed a positive interaction effect on the likelihood that firms provide incentives to management to work on climate change issues. Hypothesis 4 predicts a negative interaction effect between domestic and foreign institutions on firms' use of formal GHG emission reduction plans.

All models control for a set of other factors known to affect U.S. firms' environmental strategies. The control variables were lagged by one year to establish temporal priority. Several studies suggest that investors, especially institutional investors, can push firms to engage in climate change strategies (Forbes 2009; Monks, Miller, and Cook 2004; Reid and Toffel 2009). To control for this effect, we collected data on ownership by mutual funds and institutional investors from the Thomson Reuters database for the last quarter of 2007. Following Reid and Toffel (2009), we expect that firms that are owned by a high proportion of investors that are signatories of the CDP initiative experience higher pressures to adopt climate change strategies. We matched therefore our ownership data with a list of the investors that signed the 2008 CDP survey. From these data, we calculated the proportion of the firm's total outstanding shares that were owned by CDP signatories.

³ Unfortunately, this observation cannot be tested with our empirical data since the CDP survey did not ask more detailed questions about companies' exposure to EU ETS.

Data on the total number of outstanding shares were collected from the Compustat database.

Another route for investors to influence firms' use of climate change strategies is to file a shareholder resolution (Forbes 2009). One can expect that firms with shareholders who raise concerns about climate change are more likely to use strategies to deal with the issue. To control for this effect, we collected data on all shareholder resolutions related to climate change that were filed against firms in our sample during 2007. The data come from Ceres' Investor Network on Climate Risk. The variable is binary since no firm in our sample was exposed to more than one shareholder resolution about climate change in 2007.

We also expect that firms in different industrial sectors vary in their likelihood to use climate change strategies, since they are exposed to different stakeholder pressures and have different levels of visibility in the climate change debate. From the Compustat database, we collected data to control for sector specific variation. Our analyses include three dummy variables for retailing and services (including wholesale), transport and utilities, and manufacturing. Mining (including oil) serves as the reference category in this analysis, since the industry is one of the most visible in the climate change debate. The industry classification builds on the major industrial divisions of the Standard Industrial Codes (SIC) system. We merged neighbouring industrial divisions if they included very few firms, since very small categories do not allow us to estimate reliable effects.

Moreover, we anticipate that firm size influences the use of climate strategies. A bulk of prior research has uncovered a positive relationship between firm size and environmental performance (Bowen 2000). This finding has been explained by greater visibility and the amount of pressure directed to larger corporations compared to smaller firms (Jiang and Bansal 2003). Institutional scholars, in contrast, tend to view firm size as a force of inertia that makes corporations less likely to adopt new forms of strategies (Ahmadjian and Robinson 2001). We control for the effect of firm size by including the total assets of the firm into our models. We take the natural logarithm of this variable to reduce data skewness. The financial data was collected from Compustat and missing data were hand coded directly from the firms' annual reports (form 10-K) filed with the Securities and Exchange Commission. In a robustness analysis, we included the squared term for assets to account for the possibility that the association between firms' size and the likelihood that firms use climate change strategies is curvilinear. We found no statistical support for that idea. In another set of robustness analyses, we measured firm size as total sales. The results are substantively similar to the ones presented in this report.

Climate strategies can also be influenced by a firm's perspective on the tradeoff between short-term profits and long-term growth. We expect that pressures to focus on short-termism make a firm less likely to use climate change strategies, since those strategies typically are associated with future sustainability. We control for pressures toward short-termism by including a measure of leverage. We calculate leverage as the ratio between debt and assets. These data were also collected from the Compustat database.

Finally, we control for the effect of two forms of firm performance on firms' use of climate change strategies. We expect that environmental performance can influence the likelihood that a firm use climate change strategies in two ways. On the one hand firms with worse environmental performance are likely to face higher pressures from stakeholders to act on climate change since environmental activists often seek to target the worst performers. On the other hand good performance can make the firm associated with environmental concerns, and give the firm a competitive advantage that the firm might want to explore. (cf. Etzion 2007). To control for these effects we use the environmental "concern" ratings from the Kinder, Lydenberg, Domini Research & Analytics (KLD) database. Research has showed that this measure is good summary of the firms' past environmental performance including emissions and spills (Chatterji, Levine, and Toffel 2009). We also control for the possible effects of financial performance on firms' climate change strategies. While scholars dispute whether a firm's involvement in social and environmental initiatives enhances firm performance (Margolis and Walsh 2003), one can also propose a reverse causal relationship whereby high performance give the firm resources to start such initiatives. Irrespectively of the causal order, we control for the association between firm performance and climate change strategies by including net income in our models.

One concern with the data from the CDP survey is the relatively low response rate. For our analyses of GHG emission reduction plans, we have 215 valid responses (43.6 % response rate). The models about management incentives draw on 197 valid responses (40.0 % response rate). Missing data are problematic for our study since the disclosure of information in itself can be interpreted as a signal of the firm's involvement in climate change issues (Reid and Toffel 2009; Stanny and Ely 2008). Thus one can expect that firms that responded to the survey are more likely to use climate change strategies than the ones that did not respond which in turn would result in biased estimates of our covariates. To control for this selection bias in the sample, we test our hypotheses with a series of Heckman probit models which is a statistical selection model for binary dependent variables. The first stage of this two-stage model controls for the likelihood that a company responded to the CDP survey. After a set of exploratory analyses of the factors that predict response to the survey, we include in this stage the effects of industry and firm size. We did not find any statistically significant effect of ownership pressures on response rate despite the fact that the CDP survey was conducted on behalf of investors. Neither did any of our other control variables have statistically significant associations with the response rate. The second stage of the Heckman models estimates the effect of the independent variables and the control variables on the likelihood that a firm has low and high commitment strategies in place to work with climate change.

Another concern with our models is that we estimate two regression equations that may have correlated disturbances since the two dependent variables constitute two aspects of the firms' overall strategy to work on climate change. We therefore re-estimated our models with a set of seemingly unrelated regressions (SUR). SUR offer more efficient estimates than ordinary least square regressions when the error terms from the two equations are correlated (Greene 2003). As expected from a more efficient technique, the SUR models result in a similar pattern of findings, but with slightly higher levels of statistical confidence. We chose to treat the SUR analyses as a robustness test rather than

our main models, since the SUR models do not control for the selection bias introduced by missing responses to the CDP survey.

Table 2 presents descriptive statistics for all variables that are included in our analyses. An unreported correlation table shows that correlations are relatively low. Subsequent tests for multicollinearity show that the highest variance inflation factor score is 6.53 (the dummy variable for retailing and services), which is well below the conventional thresholds of ten.

Table 2: Descriptive statistics

	Variable	Mean	S.D.	Min	Max
(1)	Incentives	0.435	0.497	0	1
(2)	Plan	0.654	0.477	0	1
(3)	Owned by CDP Signatories (%)	0.028	0.011	0.004	0.095
(4)	Shareholder Resolution	0.073	0.261	0	1
(5)	Industry: Transport and Utilities	0.173	0.379	0	1
(6)	Industry: Retail and Services	0.272	0.446	0	1
(7)	Industry: Manufacturing	0.681	0.467	0	1
(8)	Assets (ln)	10.102	1.357	7.299	14.598
(9)	Leverage	0.633	0.196	0.104	1.238
(10)	Environmental Perf.	0.958	1.399	0	5
(11)	Net Income	1.927	5.641	-38.732	40.610
(12)	In State with Targets	0.560	0.498	0	1
(13)	EU ETS	0.225	0.419	0	1
(14)	In State with Targets * EU ETS	0.126	0.332	0	1

Results

Table 3 presents the results from Heckman probit models that predict the likelihood that management incentives and GHG emission reduction plans are part of a company's climate change strategies. We evaluate all findings with two-tailed .95 percent confidence intervals. Recall that we focus on two dependent variables: management incentives are conceptualized as an example of a low commitment climate change strategy and GHG emission reduction plans are conceptualized as a high commitment strategy.

Consider first the lower panel of Table 3, which presents the results from the first stage of the Heckman models i.e. effects on the likelihood that a company responded to the survey. First, we find that larger firms are significantly more likely to respond. This finding is consistent with prior research which suggests that larger corporations experience higher stakeholder pressures to work on environmental issues. Second, we find marginal evidence for the idea that firms in retailing and services are less likely than firms in mining to respond to the survey item about management incentives. The negative effect of retailing and services can be explained by the fact that the climate change debate often has focused on those sectors that are contributing the most to global warming. Retailing and services have therefore received less public and political attention than energy intensive industries such as transportation and utilities, manufacturing, and mining.

Adjusting for these differences in response rate, we estimate in the upper part of Table 3 the effects of regulation and our control variables on firms' use of the two climate change strategies. We start our discussion with management incentives. In Model 1, we find that manufacturing firms are more likely than firms in mining to provide managers with incentives to work on climate change. Moreover, we find that firm size, measured as total assets, has a positive effect on the use of management incentives. Thus the larger the firm, the higher is the likelihood that it has this strategy in place. Our other control variables have no significant association with firms' use of management incentives.

Table 3: Estimated Effects on the Use of Climate Change Strategies among U.S. Based S&P500 companies in 2008 (Heckman Probit Model)

Variable	Management Incentives		GHG Emission Reduction Plan	
	M1	M2	M3	M4
Owned by CDP Signatories (%)	4.123 (7.595)	5.983 (8.086)	1.555 (7.101)	2.518 (8.573)
Shareholder Resolution	0.158 (0.300)	0.205 (0.284)	-0.330 (0.279)	-0.524 (0.323)
Industry: Transport and Utilities	-0.414 + (0.250)	-0.121 (0.267)	-0.257 (0.248)	-0.004 (0.259)
Industry: Retail and Services	-0.126 (0.464)	-0.120 (0.471)	-0.352 (0.395)	-0.457 (0.436)
Industry: Manufacturing	1.034 * (0.423)	0.836 + (0.429)	0.729 + (0.383)	0.516 (0.405)
Assets (ln)	0.316 *** (0.082)	0.271 ** (0.083)	0.374 *** (0.075)	0.335 *** (0.085)
Leverage	-0.134 (0.493)	-0.026 (0.498)	-0.644 (0.566)	-0.616 (0.524)
Environmental Performance	0.101 (0.067)	0.043 (0.071)	0.090 (0.094)	0.097 (0.086)
Net Income	0.002 (0.015)	0.003 (0.015)	0.022 (0.017)	0.028 (0.020)
In U.S. State with Targets		0.153 (0.199)		0.490 * (0.205)
EU ETS		0.706 * (0.345)		0.933 * (0.440)
In U.S. State with Target * EU ETS		-0.241 (0.385)		-1.194 * (0.539)
Constant	-4.698 *** (0.806)	-4.474 *** (0.814)	-4.045 *** (0.742)	-3.720 *** (0.767)
Responded (Selection Equation)				
Industry: Transport and Utilities	-0.106 (0.186)	-0.112 (0.186)	-0.160 (0.189)	-0.157 (0.187)
Industry: Retail and Services	-0.487 + (0.279)	-0.488 + (0.279)	-0.388 (0.277)	-0.384 (0.276)
Industry: Manufacturing	0.439 (0.269)	0.438 (0.269)	0.390 (0.267)	0.390 (0.266)
Assets (ln)	0.350 *** (0.049)	0.352 *** (0.049)	0.326 *** (0.050)	0.325 *** (0.050)
Constant	-3.714 *** (0.528)	-3.724 *** (0.530)	-3.365 *** (0.530)	-3.356 *** (0.528)
N	493	493	493	493
Survey responses	197	197	215	215
LL	-411.866	-408.116	-424.057	-418.952

Robust standard errors within parentheses + p<.1, * p<.05, ** p<.01, *** p<.001 (2-tailed tests) †

Reference category = Industry: Mining (Incl Oil).

Model 2 offers a test of our hypotheses. Hypothesis 1a suggested that firms that are located in states with emission targets are more likely to provide incentive mechanisms for individual management of climate change. Quite surprisingly, our empirical results offer no statistical support for this idea. One possible explanation for this finding is that state-level targets may encourage formal corporate strategies rather than low commitment strategies such as management incentives. When firms experience institutional pressures in their immediate proximity, a low commitment response may not be perceived as sufficient for satisfying local stakeholders. In Hypothesis 2a, we argued that firms covered by the EU ETS would be more likely to provide incentives for the management of climate change. This argument suggests that corporate strategies can be influenced by the institutional environment of the firm's units in other countries and regions. Our results provide empirical support for Hypothesis 2a.

Finally, Model 2 shows no support for Hypothesis 3, which predicted that domestic and foreign regulations would complement each other to amplify the likelihood that a firm provides incentives for management of climate change. The proposed interaction effect between being located in a state with emission reduction targets and being covered by the EU ETS is not statistically significant. We can therefore not conclude that there are any interdependencies between domestic and foreign regulation when it comes to influences on low commitment strategies such as management incentives. One explanation might be that firms face a risk to be attacked by stakeholders accusing them of green-washing when using low commitment strategies to signal their interest in mitigating climate change. Thus while our idea that institutional plurality increases firms' attention to climate change issues still might hold, low commitment strategies might not be the outcome of heightened attention.

We turn now to the results from models that estimate the likelihood that a firm uses a GHG emission reduction plan. Model 3 presents the effects of our control variables. As expected, we again find a positive impact of firm size. Interestingly the other control variables for ownership pressures, industry, and the firms' performance do not have a significant relation to the use of formal plans to work on climate change issues. Model 4 tests our hypothesized effect on the likelihood that a firm uses a GHG emission reduction plan. First, we test if firms that are located in states with GHG emission reduction targets are more likely to use plans than firms in other locales (Hypothesis 1b). As expected, we find a positive and significant coefficient for this effect. In other words, firms that are exposed to domestic regulation, but not the EU ETS, are more likely to use a formal climate change strategy such as emission reduction plans. This finding offer support for Hypothesis 1b. We test thereafter if firms covered by the EU ETS are more likely to use a GHG emission reduction plan (Hypothesis 2b). This hypothesis is also supported by our data. Thus in absence of state-level targets, experience from the EU ETS makes firms more likely to use formal plans. This is in line with the results from our fieldwork that we discussed above, which suggest that firms often pay much attention to foreign regulations.

Finally, we test the interaction effect between domestic and foreign regulation. We predicted in Hypothesis 4 that firms with experience of both domestic and foreign regulation are less likely to use high commitment strategies such as formal plans due to the uncertainty resulting from institutional fragmentation. If the hypothesis is correct, we

expect to find a negative interaction effect between the two variables. Model 4 offers empirical evidence in support of Hypothesis 4. In other words, the effect of one form of regulation on the use of formal plans decreases if the firm also has experience with another form of regulation.

Figure 1 fleshes out these results by showing the predicted probabilities that firms exposed to different institutional pressures use GHG emission reduction plans. The probability rates are calculated from the Heckman two-stage models and they control for effect of firm size and industry on the likelihood that a firm responded to the CDP survey. The first bar in Figure 1 shows that the probability that a firm uses a formal plan if the firm is neither located in a state with GHG targets nor part of the EU ETS is .26. The second bar shows that the probability that a firm uses an emission reduction plan increases by 68 % to .44 if the firm is located in a state with GHG targets. In a similar vein, the third bar shows that firms covered by the EU ETS are 134 % more likely to have a plan in place than firms in the base category demonstrated by the first bar. Finally, the fourth bar shows the results of the negative interaction effect between being located in a state with GHG targets and being covered by the EU ETS. We find here that the predicted probability that a firm in this category uses a formal plan is .34, which is lower than the probability for firms that are either located in a state with GHG targets or covered by the EU ETS. This finding supports our idea that domestic and foreign institutions can undermine each other. We believe that this strong negative interaction reflects that fact that firms in both regulatory contexts often experience a fragmented and uncertain environment. This in turn is likely to make them more hesitant to develop new climate change strategies, in particular those requiring high organizational commitment, like GHG emission reduction plans.

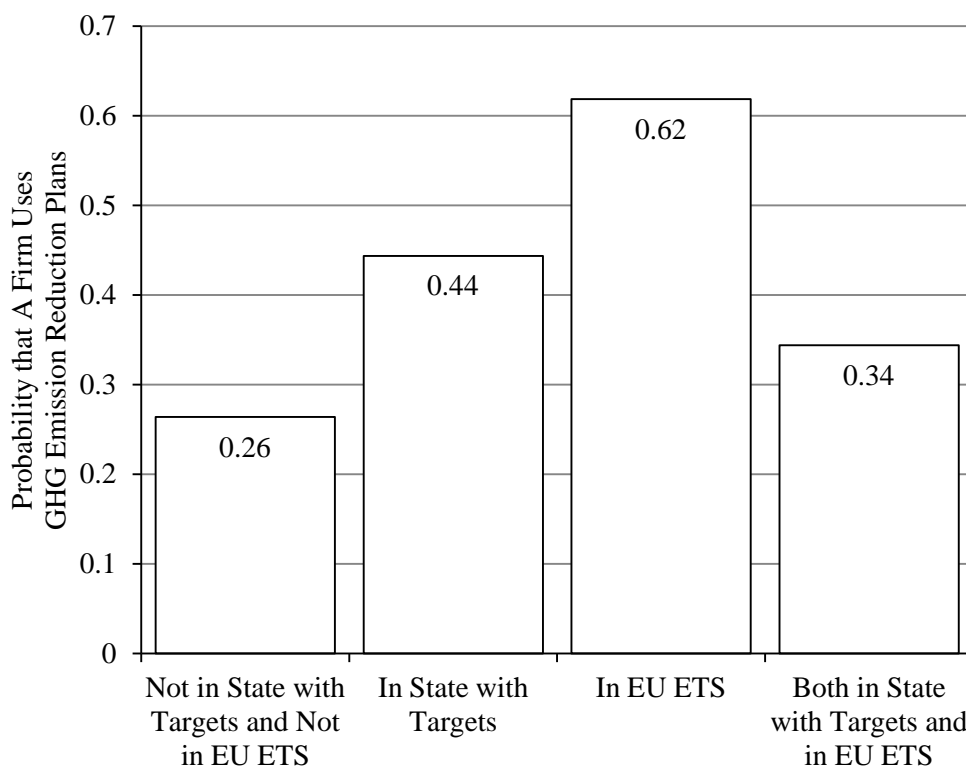


Figure 1: Predicted probabilities for the use of GHG emission reduction plans

Discussion

To summarize, our empirical study offers support for the idea that domestic as well as foreign regulation can influence corporate climate change strategies. While the effect of domestic regulation on firms' strategies has been well documented in prior studies, our inclusion of foreign institutional pressures challenges the implicit assumptions in much climate policy literature that policymakers only target and reach businesses within a certain jurisdictional territory. We find that institutional effects can spill over from foreign units to the firms' overall strategies. This indicates the value of focusing on the broader context in which firms are located instead of only the immediate and local environment, especially when theorizing about strategies of large multinational firms.

Aside from these main effects, we also document that the effects of domestic and foreign regulations are contingent on each other when it comes to a high commitment strategy like formal plans to reduce emissions. We have theorized that uncertainty can outweigh heightened attention and the mechanism explains why firms chose to avoid or postpone the adoption of high commitment strategies. Typically, policymaking in the public sphere includes elements of uncertainty and in the area of climate change this is particularly evident. Even if many multinational corporations, especially those based in Europe, long have seen climate change regulations as "inevitable" (Jones and Levy 2007), neither policymakers nor businesses have reasons to be confident about future developments. In 2008, at the time when the data of our quantitative study were collected, climate policy developments were in a critical phase. Several governments, which had previously not committed to a quantifiable national emission reduction target, were warming to the idea of introducing such or other climate policies in preparation for the major climate summit under the UNFCCC in Copenhagen in 2009. On a more general note, the high levels of uncertainty have remained after the Copenhagen summit, since the summit did not generate the ambitious international agreement that many people in climate circles had hoped for.

The International Chamber of Commerce (ICC), which is appointed by the UNFCCC to coordinate and organize the interest of business and industry in international climate negotiations, had carried out a range of activities in anticipation of the Copenhagen summit. ICC was "optimistic" that "progress" could be made (International Chamber of Commerce 2009b). They stressed that a climate change agreement based on existing national initiatives would lead to "faster, more concrete policies that businesses can incorporate into their business strategies" (*ibid.*). This emphasizes two important elements of our arguments; that corporate strategies depend on regulatory environments and that firms seek consistency and predictability with respect to regulatory developments. As an immediate response to the outcome of the Copenhagen meeting, the ICC talked about a "disappointment" as the meeting "did not deliver a clearer and more ambitious agreement" (International Chamber of Commerce 2009a). ICC Secretary General Jean Rozwadowski explained in a press release: "Businesses is seeking predictability to help plan its future global investments" (*ibid.*). This quote emphasizes the future relevance of our findings. We want to conclude our discussion by emphasizing some limitations and important extensions of our current work. First, we expect that new regulatory institutions, such as

emissions trading, are not the only triggers for climate action in the private sector. Firms have by no means remained uninfluenced by the alarms of a changing global climate and engage in a number of proactive actions. These practices are closely linked to the rise of corporate environmentalism (Hoffman 1997), and corporate social responsibility more generally (Windell 2006) which can be understood as two intertwined movements that have triggered businesses to take a proactive stance on environmental issues. In this manner, the coercive pressures from regulatory institutions are leveraged by a series of normative and cognitive changes in the business sector. Future research would benefit from taking these results into consideration in examining the links between formal regulations and firms' proactive climate change strategies, including firms' role in policy-making processes. We know from other policy areas that large corporations often engage directly in political behaviors (Mizruchi 1992) and that courts often adjust their understanding of regulatory compliance to the practices that corporations develop in response to the law (Edelman 1992). Research on jurisdictional competition moreover suggests that firms can influence regulatory developments indirectly by moving their activities to regions with preferred legal frameworks (Stewart 1977). Such threats of legal shopping can trigger "races to the bottom" where policymakers are forced to move to weaker standards to maintain business in their jurisdiction. This is a critical concern in the debate about "carbon leakage" (e.g. Paltsev 2001). All of these insights highlight the importance of future research that unpacks the origins of new regulations as a means to improve our understanding of institutional effects.

Second, there is an open debate among practitioners and academics about the links between firms' engagement in climate change strategies on the one side and their present and future environmental performance on the other side. Corporate environmental performance may be linked to particular kinds of policy instruments, and the role of emissions trading versus other alternatives in incentivizing firms to raise their environmental performance would be an interesting research question to delve further into. The much cited argument in the institutional literature by Meyer and Rowan (1977) that strategies often are ceremonial rather than consequential suggest that there are reasons to also investigate the potential driving force of "green-washing", defined as the desire to appear more environmental friendly than is the case (cf. Lyon and Kim 2006). A natural extension of our current work is therefore to examine if climate change strategies are substantial in the sense that they actually influence large corporations' long-term environmental performance.

A third important extension of our work is to go beyond the binary dependent variables used in this analysis and examine qualitative variations in firms' strategic responses. This would allow for a broader understanding about the motives that underpin firms' strategic behaviors when they are faced with multiple regulatory initiatives. One aspect to examine could be how multinational firms coordinate strategies internally given the fact that subsidiaries in different regions can be exposed to different regulatory pressures. In our analysis, we have focused on the strategic responses of the headquarter of the firm, but based on research by for example Kristensen and Zeitlin (2005), we expect that strategic responses can be more nuanced at the level of different business units. This expectation stresses the importance of future qualitative work.

Conclusions

Overall our findings offer new insights into corporate strategies in complex and pluralistic regulatory environments. In our contemporary society characterized by interdependencies and globalization, institutional plurality is difficult to disregard for practitioners and academics alike. Our results show an unintended consequence from multiple regulatory initiatives: firms facing several regulatory frameworks are less likely to commit to formal organizational responses which work against the purpose of the policy. While different regulatory initiatives allow for experimentation and the development of new and potentially more efficient policy frameworks (Schneiberg and Soule 2005), they also bring with them negative externalities in the sense that they generate uncertainty and inconsistencies that make firms more likely to opt for a passive approach. From a policy perspective this outcome is troublesome since each regulatory initiative seeks to increase corporate action on climate change. Yet the long-term consequences of these regulatory processes are still too early to evaluate.

References

- Ahmadjian, C. L. and P. Robinson. 2001. "Safety in Numbers: Downsizing and the Deinstitutionalization of Permanent Employment in Japan." *Administrative Science Quarterly* 46:622.
- Bartlett, C. A. and S. Ghoshal. 1989. *Managing Across Borders*. London: Hutchinson Business Books.
- Bowen, F. E. 2000. "Environmental Responsibility: A Trigger of Green Organizational Response?" *Business Strategy and the Environment* 9:92-107.
- Byrne, J., K. Hughes, W. Rickerson, and L. Kurdgelashvili. 2007. "American Policy Conflict in the Greenhouse: Divergent Trends in Federal, Regional, State, and Local Green Energy and Climate Change Policy." *Energy Policy* 35:4555-4573.
- Carlarne, C. P. 2006. "Climate Change Policies an Ocean Apart: EU & US Climate Change Policies Compared." *Pennsylvania State Environmental Law Review* 14:435-482.
- Chatterji, A. K., D. I. Levine, and M. W. Toffel. 2009. "How Well Do Social Ratings Actually Measure Corporate Social Responsibility." *Journal of Economics and Management Strategy* 18:125-169.
- Child, J. and T. Tsai. 2005. "The Dynamic Between Firm's Environmental Strategies and Institutional Constraints in Emerging Economies: Evidence from China and Taiwan." *Journal of Management Studies* 42:95-125.
- Davis, G. F., D. McAdam, W. R. Scott, and M. N. Zald. 2005. "Social Movements and Organization Theory." Cambridge: Cambridge University Press.
- Delmas, M. A. and M. W. Toffel. 2008. "Organizational Responses to Environmental Demands: Opening the Black Box." *Strategic Management Journal* 29:1027-1055.
- DiMaggio, P. J. 1988. "Interest and Agency in Institutional Theory." Pp. 3-23 in *Institutional Patterns and Organizations: Culture and Environment*, edited by L. G. Zucker. Cambridge, MA: Ballinger.
- DiMaggio, P. J. 1991. "Constructing an Organizational Field as a Professional Project: U.S. Art Museums, 1920-1940." Pp. 267-292 in *The New Institutionalism in Organizational Analysis*, edited by W. W. Powell and P. J. DiMaggio. Chicago, IL: The University of Chicago Press.
- DiMaggio, P. J. and W. W. Powell. 1983. "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields." *American Sociological Review* 48:147-160.
- Dobbin, F. and T. J. Dowd. 1997. "How Policy Shapes Competition: Early Railroad Foundings in Massachusetts." *Administrative Science Quarterly* 42:501-529.
- Douglas, M. T. 1986. *How Institutions Think*. Syracuse, NY: Syracuse University Press.

- Edelman, L. B. 1992. "Legal Ambiguity and Symbolic Structures: Organizational Mediation of Civil Rights Law." *American Journal of Sociology* 97:1531.
- Edelman, L. B. and M. C. Suchman. 1997. "The Legal Environments of Organizations." *Annual Review of Sociology* 23:479-515.
- Etzion, D. 2007. "Research on organization and the national environment, 1992-present: A review." *Journal of Management* 33:637-664.
- European Parliament, C. 2003. "Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (Text with EEA relevance)."
- Feldman, M. S. and J. G. March. 1981. "Information in Organizations as Signal and Symbol." *Administrative Science Quarterly* 26:171-186.
- Fligstein, N. J. 1990. *The Transformation of Corporate Control*. Cambridge, MA: Harvard University Press.
- Fligstein, N. J. 1996. "Markets as Politics: A Political-Cultural Approach to Market Institutions." *American Sociological Review* 61:656-673.
- Forbes, M. 2009. "Climate, Cars, and Catholic Nuns: Identity Interactions in Manager-Shareholder Relationships." University of Michigan, Ann Arbor, MI.
- Frank, D. J., A. Hironaka, and E. Schofer. 2000. "The Nation-State and the Natural Environment over the Twentieth Century." *American Sociological Review* 65:96-116.
- Friedland, R. and R. R. Alford. 1991. "Bringing Society Back In: Symbols, Practices, and Institutional Contradictions." Pp. 232-263 in *The New Institutionalism in Organizational Analysis*, edited by W. W. Powell and P. J. DiMaggio. Chicago, IL: University of Chicago Press.
- Greene, W. H. 2003. *Econometric analysis*. Upper Saddle River, NJ: Prentice Hall.
- Hannan, M. T. and J. Freeman. 1989. *Organizational Ecology*. Cambridge, MA: Harvard University Press.
- Hargadon, A. B. and Y. Douglas. 2001. "When Innovations Meet Institutions: Edison and the Design of the Electric Light." *Administrative Science Quarterly* 46:476-501.
- Haveman, H. A., H. Rao, and S. Paruchuri. 2007. "The Winds of Change: The Progressive Movement and the Bureaucratization of Thrift." *American Sociological Review* 72:117-142.
- Hoffman, A. J. 1997. *From Heresy to Dogma: An Institutional History of Corporate Environmentalism*. San Francisco, Calif.: New Lexington Press.
- Hoffman, A. J. 2001. "Linking Organizational and Field-Level Analyses: The Diffusion of Corporate Environmental Practice." *Organization & Environment* 14.
- Hoffman, A. J. 2007. *Carbon Strategies: How Leading Companies are Reducing their Climate Change Footprint*. Ann Arbor, MI: University of Michigan Press.
- Hoffman, A. J. and M. J. Ventresca. 2002. *Organizations, Policy and the Natural Environment: Institutional and Strategic Perspectives*. Stanford, Calif.: Stanford Univ. Press.

- International Chamber of Commerce 2009a. "ICC Dissatisfied by Climate Accord." *Press Release*, December, 21.
- International Chamber of Commerce. 2009b. "ICC Optimistic Progress Can Be Made at Copenhagen Climate Summit." *Press Release*.
- International Energy Agency. 2009. "CO2 Emissions from Fuel Combustion - Highlights."
- Jiang, R. J. and P. Bansal. 2003. "Seeing the Need for ISO 14001." *Journal of Management Studies* 40:1047-1067.
- Jones, C. A. and D. L. Levy. 2007. "North American Business Strategies Towards Climate Change." *European Management Journal* 25:428-440.
- Jonsson, S. and H. Buhr. 2011. "The Limits of Media Effects: Field Positions and Cultural Change in a Mutual Fund Market." *Organization Science*.
- Kingdon, J. W. 1984. *Agendas, Alternatives, and Public Policies*. Boston, MA: Little, Brown and Company.
- Kostova, T. and K. Roth. 2002. "Adoption of an Organizational Practice by Subsidiaries of Multinational Corporations: Institutional and Relational Effects." *Academy of Management Journal* 45:215-233
- Kraatz, M. S. and E. Block. 2008. "Organizational Implications of Institutional Pluralism." in *The SAGE Handbook of Organizational Institutionalism*, edited by R. Greenwood, et al. Thousand Oaks, CA: Sage Publications.
- Kristensen, P. H. and J. Zeitlin. 2005. *Local Players in Global Games: The Strategic Constitution of a Multinational Corporation*. Oxford, UK: Oxford University Press.
- Levy, D. L. and S. Rothenberg. 2002. "Heterogeneity and Change in Environmental Strategy: Technological and Political Responses to Climate Change in the Global Automobile Industry." in *Organizations, Policy and the Natural Environment: Institutional and Strategic Perspectives*, edited by A. J. Hoffman and M. J. Ventresca. Stanford, CA: Stanford Business Books.
- Lounsbury, M. 2007. "A Tale of Two Cities: Competing Logics and Practice Variation in the Professionalizing of Mutual Funds." *Academy of Management Journal* 50:289-307.
- Lyon, T. P. and E.-H. Kim. 2006. "Greenhouse Gas Reductions or Greenwash?: The Doe's 1605b Program." University of Michigan, Ann Arbor, MI.
- Marcus, A., J. A. Aragon-Correa, and J. M. Pinkse. 2011. "Firms, Regulatory Uncertainty, and the Natural Environment: What Can We Expect? What Should Managers Do?" *California Management Review* 54:5-16.
- Margolis, J. D. and J. P. Walsh. 2003. "Misery Loves Companies: Rethinking Social Initiatives by Business." *Administrative Science Quarterly* 48:268-305.
- Meyer, J. W. and B. Rowan. 1977. "Institutionalized Organizations: Formal Structures as Myth and Ceremony." *American Journal of Sociology* 83:340-363.
- Milstein, M. B., S. L. Hart, and A. S. York. 2002. "Coercion Breeds Variation: The Differential Impact of Isomorphic Pressures on Environmental Strategies." in

- Organizations, Policy and the Natural Environment: Institutional and Strategic Perspectives*, edited by A. J. Hoffman and M. J. Ventresca. Stanford, California: Stanford Business Books.
- Mizruchi, M. S. 1992. *The Structure of Corporate Political Action: Interfirm Relations and Their Consequences*. Cambridge, MA: Harvard University Press.
- Monks, R., A. Miller, and J. Cook. 2004. "Shareholder Activism on Environmental Issues: A Study of Proposals at Large US Corporations (2000-2003)." *Natural Resources Forum* 28:317-330.
- Morgan, G., P. H. Kristensen, and R. Whitley. 2001. *The Multinational Firm: Organizing across Institutional and National Divides*. Oxford: Oxford University Press.
- Newell, P. 2008. "Civil Society, Corporate Accountability and the Politics of Climate Change." *Global Environmental Politics* 8:122-153.
- Oberthur, S. and C. Roche Kelly. 2008. "EU Leadership in International Climate Policy: Achievements and Challenges " *International Spectator* 43:35-50.
- Oliver, C. 1991. "Strategic Responses to Institutional Processes." *Academy of Management Review* 16:145.
- Palsey, S. 2001. "The Kyoto Protocol: Regional and Sectoral Contributions to the Carbon Leakage", *The Energy Journal*, 22:53-79.
- Pinkse, J. and A. Kolk. 2007. "Multinational Corporations and Emissions Trading: Strategic Responses to New Institutional Constraints." *European Management Journal* 25:441-452.
- Pinkse, J. and A. Kolk. 2009. *International Business and Global Climate Change*. Abingdon, Oxon ; New York: Routledge.
- Rao, H. 2009. *Market Rebels: How Activists Make or Break Radical Innovations*. Princeton, NJ: Princeton University Press.
- Rao, H., P. Monin, and R. Durand. 2003. "Institutional Change in Toque Ville: Nouvelle Cuisine as an Identity Movement in French Gastronomy." *American Journal of Sociology* 108:795-843.
- Reid, E. M. and M. W. Toffel. 2009. "Responding to Public and Private Politics: Corporate Disclosure of Climate Change Strategies." *Strategic Management Journal* 30:1157-1178.
- Román, M. and M. Carson. 2009. "Sea Change: US Climate Policy Prospects Under the Obama Administration." The Commission on Sustainable Development, The Government Offices of Sweden.
- Scheuer, S. 2005. "EU Environmental Policy Handbook: A Critical Analysis of EU Environmental Legislation." European Environmental Bureau, Brussels, Belgium.
- Schneiberg, M. and S. A. Soule. 2005. "Institutionalization as a Contested, Multilevel Process: The Case of Rate Regulation in American Fire Insurance." in *Social Movements and Organization Theory*, edited by G. F. Davis, et al. Cambridge: Cambridge University Press.

- Scott, W. R. 2004. "Competing Logics in Healthcare: Professional, State, and Managerial." Pp. 267-287 in *The Sociology of the Economy*, edited by F. Dobbin. New York, NY: Russell Sage Foundation.
- Scott, W. R., M. Ruef, P. J. Mendel, and C. A. Caronna. 2000. *Institutional Change and Healthcare Organizations: From Professional Dominance to Managed Care*. Chicago, IL: University of Chicago Press.
- Selznick, P. 1949. *TVA and the Grass Roots: A Study in the Sociology of Formal Organization*. Berkeley, CA: University of California Press.
- Selznick, P. 1957. *Leadership in Administration: A Sociological Interpretation*. Evanston, IL: Row.
- Skjærseth, J. B. and J. Wettestad. 2008. *EU emissions trading: initiation, decision-making and implementation*: Ashgate Publishing Limited.
- Stanny, E. and K. Ely. 2008. "Corporate Environmental Disclosures about the Effects of Climate Change." *Corporate Social Responsibility and Environmental Management* 15:338-348.
- Stewart, R. B. 1977. "Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementations of National Environmental Policy." *The Yale Law Journal* 86:1196-1272.
- The Pew Center on Global Climate Change. 2010. "U.S. States & Regions."
- Thornton, P. H. and W. Ocasio. 1999. "Institutional Logics and the Historical Contingency of Power in Organizations: Executive Succession in the Higher Education Publishing Industry, 1958-1990." *American Journal of Sociology* 105:801-843.
- Tolbert, P. S. and L. G. Zucker. 1983. "Institutional Sources of Change in the Formal Structure of Organizations: The Diffusion of Civil Service Reform, 1880-1935." *Administrative Science Quarterly* 28:22-39.
- United Nations Framework Convention on Climate Change. 2010. "Kyoto Protocol."
- van den Hove, S., M. Le Menestrel, and H.-C. de Bettignies. 2002. "The Oil Industry and Climate Change: Strategies and Ethical Dilemmas." *Climate Policy* 2:3-18.
- Westney, D. E. 1993. "Institutional Theory and the Multinational Corporation." in *Organization Theory and the Multinational Corporation*, edited by D. E. Westney and S. Ghoshal.
- Windell, K. 2006. "Corporate Social Responsibility under Construction: Ideas, Translations, and Institutional Change." Ph.D. Dissertation Thesis, Department of Business Studies, Uppsala University, Uppsala.