

FIRM PARTICIPATION IN MORALLY CONTESTED MARKETS

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ABSTRACT

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Organizational participation in morally contested markets, that is, markets surrounded by controversy reflecting values-led beliefs, is an understudied topic (Zelizer, 1978, 1979; Healy, 2006; Quinn, 2008; Anteby, 2010). The extant research has tended to focus on the genesis and evolution of contestation toward certain categories of trades, to the relative neglect of attention toward the responses of organizations, to such contestations. Yet the market exchange outcomes of organizations hinge not only upon social relations (Granovetter, 1985; Uzzi 1996, 1997) and power distribution (Blau, 1964; Emerson, 1976) but also upon the legitimacy benefit that exchange might render (Jensen, 2006).

In deciding whether and how to engage in markets associated with debated legitimacy, organizations establish and express their meaning, status and identity (Phillips and Owens, 2004; Jensen, 2010). Particularly in markets that are morally contested, firms inevitably balance two competing sources of institutional demands: the rationale for economic efficiency, and the defense of values and norms. In weighing and negotiating these interests, how do firms behave and choose in response to institutional and organizational factors? Meanwhile, organizations on either side of the market act as critical forces to enhance or challenge a market's capacity to survive (Fligstein and Dauter, 2007;

King and Pearce, 2011); given this, how do the organizational participation decisions matter for the institutionalization of a new, morally convicted market as a whole?

This dissertation studies organizations as customers, by looking at factors that facilitate or impede their purchasing decisions in morally contested markets. I examine firms' differing decisions toward participation in one such market, the carbon credit trade, across several countries displaying varying cultural attitudes. I study these choices at the nascent, unstable stage, before the carbon market has become institutionalized as a viable solution strategy responding to global environmental challenges. I argue that firms construct the proper scope of commercial activity via channels including managers' individual mental accounting as well as social norms and law, and that all channels can be understood as culturally dependent. Building upon cross-national qualitative comparative work of morally contested markets (Zelizer, 1979), I empirically link market participation patterns to dissimilarities originated from the various national institutional environments surrounding firms (Healy, 2006).

I look at organizational structural and strategic factors that affect firms' participation in morally contested markets, in order to understand how cultural norms matter for firms' choices. The prevailing norms and values in the country where a firm operates may be deemed to matter, either because of a firm's reputational concerns vis-à-vis its customers; or because of firm internal rationales, e.g. the top management also shares those values, or the firm wants to

appeal to current or potential employees who share those values. By looking at whether cultural values matter more for firms that are more retail oriented, or are more inclined to retain employees, or have a chief executive officer with educational background in economics, I disentangle the internal and external mechanisms.

The empirical context for understanding the organizational and institutional dynamism of morally contested markets is the carbon market. By facilitating the exchange of carbon credits, the carbon market authorizes an entity to achieve greenhouse gas reduction goals by exchanging part of its obligation with another party, which is believed to both lower the costs of mitigation and increase the efficiency of emission reductions (Sandor, Walsh and Marques, 2002; Stern, 2006). Since its debut in 2005, however, the idea of carbon trading has been much contested, based on claims that the environment is a sacred good and that providing a market for pollution allows the wealthy to evade their responsibilities (Caney and Hepburn, 2011). The carbon market, then, offers a fitting setting for my study in three ways: First, the market prompts firms to make a distinct choice, between efficiency and norm. Firms reducing their carbon outputs choose either to *trade on-market*, which is a more efficient solution but violates the cultural notion of a “non-tradeable” environment, or to *reduce in-house*, which is perceived as a less tainted way of emission abatement, yet a more costly one. Second, the carbon market purports to respond to the issues of global warming and climate change, which has

become increasingly recognized as a global priority. Examining the carbon market can elucidate how organizations across nations differ their choices on carbon trading, based on the given organization's headquartered country values and norms. Third, this carbon market allows for directly examining the values effect, by offering a relatively clean-cut measure for the efficiency gains that the market mechanism would provide.

My results suggest evidence of a strong cultural norm effect that can indicate whether firms are likely, or not likely, to engage in the carbon credit market. Firms located in countries where people more frequently voice skepticism toward market mechanisms in environmental policy are less likely to engage in the carbon credit market. The channel is specific to cultural norms about environmental-economic trade-offs and not to norms about environmental concerns in general. Moreover, by looking at firm-level factors such as consumer orientation, CEO educational background, and sector-level factors such as unemployment rate, I highlight the mechanisms through which cultural values are demonstrated. The result suggests that for firms' choices, cultural values and norms do matter, for reasons based in rationales that are both internal and external.

Beyond illuminating such a values effect that influences the choices firms make, this work reveals the nuanced ways in which values-based beliefs impact corporate behavior by examining the interplay between cultural norms and countervailing sources of legitimacy, namely, regulatory forces as well as

other firms' decisions or experiences. The results suggest that while firms regulated to reduce emissions have a higher rate of carbon market participation, the rate difference between regulated and unregulated firms is evidently larger in countries where the idea of using the market to deal with environment problems is perceived as less acceptable. In the meantime, there is little to no evidence that similar or connected organizations' decisions toward participation in the contested market engenders a positive spillover that reinforces the values effect. Both results hint at the unique properties of the values effect as it tends to separate "good" firms from "bad" firms, according with the extent to which corporate behaviors conform to the moral ideals.

My investigation of the carbon market among European firms contributes to the institutional literature by highlighting the importance of specific national institutions in particular organizational domains (Vasudeva, Spencer and Teegen, 2012) as well as interrelatedness between institutional theory and strategic perspectives in the context of firm market participation decisions (Oliver, 1991). By assessing the effect of national cultural values in legitimating these nascent markets while taking into account the opportunity cost of not using the market, my dissertation sheds light on some of the conditions that determine when and how much concerns about legitimacy, controlling for efficiency, loom large in market behaviors, as well as which organizational and institutional mechanisms are involved.

This dissertation also contributes a new framework for thinking about morally contested markets in responding to the relative lack of studies on what happens before the institutions become institutionalized (Fligstein and Dauber, 1989), by connecting and extending literature on institutionalization. One of institutional theory's main ideas is that the legitimacy of practices within an organizational field rises with the level of their diffusion in the field (DiMaggio and Powell, 1983; Tolbert and Zucker, 1983). By studying the values effect in the nascent stage of institutional development, my dissertation reveals a necessary but often understated condition for extant explanations of institutional shifts (Schneiberg and Soule, 2005), that is, for the instrumental and normative rationality of an institutional project to occupy the same domain which implies the capacity to reinforce each other. In cases where the rationale of economic efficiency is separated from normative rationality by strict moral codes, these moral challenges not only impede buy-in, but also prevent the enactment of the diffusion processes as well as shifts in cultural framings and thus halted the dynamism that usually underlies the spread of practices and social changes. Identifying whether a market institution is embedded within the right social environment helps to shed light on the divergent institutional trajectory that new markets follow.

This research has implications for corporate reputation management. A key aspect of corporate social responsibility is dialogue with and responsibilities to diverse stakeholders that project conflicting demands and raise difficulties for

companies seeking to meet those demands. The case of the carbon market poses challenges and interesting trade-off for companies intending to pioneer in innovative but controversial CSR instruments. This paper also aims to arrive at implications for the design of the carbon market and policy making. Many observers take the view that the answer to invigorating the carbon market lies in identifying ways to increase demand or reduce supply of carbon credits. What I show and suggest is that, the dissolution of moral restrictions on the carbon market can be seen as one of the most important processes among attempts to institutionalize this currently quasi-taboo market, and should be part of the ongoing policy debate.

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Chapter 1 Introduction

The intellectual roots of dealing environmental problems with tradable property rights may be traced back to Adam Smith's invisible hand theory, cross-pollinated with Ronald Coase's market allocation system of property rights. Adam Smith observed that "[i]t is not from the benevolence of the butcher, the brewer, or the baker, than we expect our dinner, but from their regard to their own interest (Smith 2000[1776], pg. 15)". That is, even though individuals are not leaning towards promote the public interest, they are restrained from charging above-average price for good and services they provide so that customers won't switch to alternative suppliers. The competitive mechanism in the market figures out the price automatically, as well as the best allocation of resources. This is because when the price of certain goods gets too low, sellers who are then earning less for the equivalent amount of work will shift to more profitable activities. Coase expanded the functioning of market to the clearing of property rights. Rather than characterizing pollution as a market failure problem that could be solved only by extra-market measures such as government administered tax, Coase (1960) suggested a market of pollution rights where the polluters could purchase the right to pollute the air by paying local residents to contractually give up their right to use clean air, and argued that in the absence of transaction cost, such a market achieves a socially optimal allocation of pollution rights.

Such a market-led environmental activist approach, introduced in the 1960s (Crocker, 1966; Dales, 1968) and congressionally legislated for EPA implementation as the Clean Air Act in the late 1970s, proved successful for raising air quality standards in the U.S. (Tietenberg, 2006), and were thus tapped for incorporation in the Kyoto Protocol in 1998 as the so-called “carbon market,” an cross-national initiative for addressing the negative environmental impacts of global greenhouse gases.

The schema for a global carbon market stems from three innovative advantages: First, it converts the environment from public good to private good, by establishing clear property rights on who emits how much. Second, by putting a price on emissions, it provides information about whether it is more cost-effective for entities to reduce emissions internally, or cheaper to purchase the emission credits on the market, so that the overall cost of abatement is economized. Third, allowing businesses to sell extra emission credits incentivizes them to assess and find the most efficient ways of reducing pollution. Overall, as in both the Smithian and Coasian model, the carbon market aligns firms' incentives in profitability maximization with the societal interests, by providing the mechanisms through which each firm would be able to make socially optimal decisions. Since its introduction in 2005, carbon trading has gained significant traction. Besides the most famous European Union Emissions Trading Scheme (EU ETS) that is currently operating in Europe in full swing, the carbon market also exists in the form of two global offset

markets, as well as in more than ten other regional, national, and sub-national regional initiatives in countries including, among others, the U.S., New Zealand, Australia, India, South Korea, China, and Brazil.

Against this backdrop of a wide rollout and increasing visibility and salience over the past decade, the carbon trading market is, nonetheless, far from becoming an institutionalized instrument for emissions reduction. As of the time of writing of this work in 2012, the price of carbon credits languished in a prolonged slump of \$9 per tonne of carbon dioxide, which was significantly lower than its peak price of roughly \$39/tco₂, and well below the \$12.8/tco₂ that some experts have viewed as the average physical marginal cost of abatement in the system. Even though carbon markets give companies the flexibility to either reduce their own greenhouse gases or buy emissions permits, the number of firms that actually exercise this market option is quite limited. So far, the prevalence of adopting the market mechanisms has stalled at about 15% among European firms, and at 5% among the largest U.S. firms.¹ Moreover, the climate change challenge, which architects of the carbon market aim to address, remains daunting. The general consensus among scientists who focus on climate change is that to allow for a likely chance of keeping the increase in temperature to 2°C, greenhouse gas emissions need to be stabilized at the level of 39-44 gigatons of carbon dioxide equivalent (GtCO₂e). That number at the end of 2009 was estimated at 49.5 GtCO₂e, and is likely to reach 56 GtCO₂e by 2020 under the

¹ Author's calculation, with data compiled from Carbon Disclosure Project in 2006-2009

business-as-usual projections (The World Bank, 2012). The minimal impact of the market instrument in worldwide emissions of greenhouse gases raises serious doubts about the evolutionary potential of the carbon markets.

Taking stock of the cumulative impact of carbon market mechanisms, it appears that even though the ideas of carbon markets are not without virtues and there have been significant efforts to move the regime onto the path of progressive development, the carbon market has, nevertheless, shown some early signs of arrested development (Davis and Anderson, 2008). This is reflected in both limited adoption of the market instrument, as well as in a lack of consensus concerning the normative status of its operation. How could we account for such an interrupted phase in the case of the climate regime? More generally, what happens in the era before institutions become institutionalized (Fligstein and Dauber, 1989)? Insights can be drawn from this interesting and substantively important context, contributing to our understanding of the institutional change of new markets.

Chapter 2 reviews the contemporary scholarship on models of institutionalization and points out some of the gaps in this literature, particularly in explaining the current institutional story in the carbon market. Chapter 3 presents the empirical context of this analysis, the carbon credit market. Chapter 4 presents theory and hypotheses regarding the impact of values, organization structure and strategy, and other countervailing institutional forces on firm participation in the carbon market. Chapter 5 describes the data and methods to

test the propositions in Chapter 4. Chapter 6 reports the analysis results. Finally, Chapter 7 discusses contributions to the literature and implications for corporate strategy and policy making.

CHAPTER 2: LITERATURE REVIEW

Models of Institutionalization

Institutions are defined as the "rules of the game in a society" (North, 1990, pg. 3), and consist of "cognitive, normative and regulative structures and activities that provide stability and meaning to social behavior" (Scott, 2001, pg. 33). Institutions define norms, stabilize expectations, and enable ordered actions by prescribing consistency in human activities. While stable by definition, institutions do not come into existence automatically, nor do they exist ostensibly. The increase of institutionalization, that is, the process by which structures and activities get transmitted and acquire stability (Zucker, 1977), needs to be explored in order to better understand why and how some institutional projects stick, while others fail.

A practice becomes institutionalized when it is integrated with a social order, and can be reproduced without substantial mobilization and contestation (Scott, 2001). Studies encompassing the range of transformations in cultural and economic practices—from gradual shifting of organizational structure or culinary procedures into take-for-granted rituals, to sweeping adoption of new technologies—have informed how a social order might be attained and reproduced. Schneiberg and Soule (2005) characterize the process of institutionalization by four distinct modes, including "cultural expression" (e.g., Dobbin, 1994; Meyer and Jepperson, 2000; Meyer and Rowan, 1977), "diffusion and legitimization" (e.g., Tolbert and Zucker, 1983), "punctuated equilibrium"

(e.g., Edelman, 1990; Edelman et al., 1999; Fligstein, 1990, 1996), and "political process" (e.g., Schneiberg and Soule, 2005; Stryker, 2002). While each of these modes emphasizes different aspects of institution building, they are not necessarily mutually exclusive. In fact, often they can be intertwined, and unmasking a single instance of institutionalization requires enacting more than one of these processes. Just as importantly, a theory of institutionalization must examine ideas that failed to surface, spread and stick (Fligstein and Dauber, 1989). Failed institutionalization refers to situations where a practice languishes in short of a legitimate status. This is often reflected by lack of adoption or persistent controversy about the practice. Below, I will review literature on modes of institutionalization, aiming to understand each theory tradition's explanation on how institutions are created, as well as why some institutional projects fail to be successful.

Early institutionalism scholars adopt a top-down perspective and think of institutionalization as a large symbolic totality and process of rationalization. The adoption of certain practices reflects and is enforced by a system-wide cognitive and normative structure, encompassing "public opinion, the views of important constituents, knowledge legitimated through the educational system, social prestige, the laws, and the definitions of negligence and prudence used by the courts" (Meyer and Rowan, 1977: 343). These rule-like social structures are taken-for-granted, such that the adoption of them is quasi-automatic and goes beyond individual discretions. This mode of institutionalization puts more

emphasis on macro-level factors such as cultural understandings (Meyer and Jepperson, 2000), meaning systems or national politics (Dobbin, 1994), and less on actors, their characteristics, and individualized interests. In this mode of institutionalization, theory is generally inadequate to explain the endogenous emergence of unorthodox practices. If a practice belies a misfit between the values and meaning it purports to represent versus the impersonal rules of the system, it is likely to face strong resistance from those agents that represent the societal values and exercise social control (Zucker, 1977).

The second mode of institutionalization, rather than treating actors as homogeneous, distinguishes actors into two different types: the ones that receive functional necessity from a practice awaiting to be institutionalized, and the ones that do not (Tolbert and Zucker, 1983). The first type of actors is incentivized to become early adopters of the practice, and their early adoptions increase the normative values of the practice in the larger population. Once the number of endorsers passes a threshold, the practice acquires a normative status which is thereafter taken for granted as fact, and can be transmitted directly on that basis. The second type of actors are obliged to follow suit and adopt this practice, even though it might not bring pragmatic benefits or could sometimes even be harmful to their own performance. On this account, institutionalization includes two stages, a local problem-solving stage in which organizations develop or import a new form or policy in response to immediate challenges they encounter, and a second mimesis stage in which organizations copy others' behaviors in

order to attain legitimacy and consistency with the larger structure (Davis and Greve, 1997; Strang and Meyer, 1994; Colyvas and Jonsson, 2011). In turn, failed institutionalization means that a practice does not arrive at the minimal requirement of adoption threshold to attain the normative status.

The third model of institutionalization introduces shocks to extant systems as the sources of institutional change. These shocks disrupt existing practices and render the assumptions underlying the setup of the extant system untenable. Generally exogenous, examples of these interventions include the passage of laws, court rulings, and the creation of new agencies. Such acts evoke uncertainty, claims making and political struggles over jurisdiction, as different groups of actors seek to institute their preferred practices or conceptions as the new dominant logic. In so doing, they produce disruptions to the system, and provide windows of opportunity for a succession of players, forms and logics to mobilize, grab power, and establish new institutions (Edelman, 1990, 1992; Edelman, et al. 1999; Filgstein, 1990, 1996; Hoffman, 1999; Sine and David, 2003). At the same time, coming from a different theoretical origin, rational choice theory (North, 1990) also perceives exogenous shock as the way to shake the system so that new institutions can be created and extended. Here, the failure of institutionalization means falling short of a punctuated revolutionary crisis to shake up the orders established and maintained by the incumbents.

The fourth model is the political process approach, which deals directly with the conflicts inherent in institutional systems (Schneiberg and Soule, 2005). This approach views institutions as collectively enforced rules and norms, established by negotiated rights and obligations for actors. Institutionalization is a constant struggle between groups in mobilizing resources, framing cognitive schemes and institutional models, and shaping outcomes that best maximize their interests.

Could these four accounts plausibly explain the developmental path of carbon markets that I introduce in the first chapter? Consistent with a view of institutionalization as expression of cultural understandings, players in the carbon market have used the language of efficiency to justify introducing market mechanisms in solving the commons problem. In fact, the carbon market was posed and accepted as a means to achieve and allocate efficiency, by allowing parties that can reduce emissions effectively to receive economic incentives for reducing more carbon (Stern, 2006). Moreover, consistent with arguments about diffusion, member nations of the Kyoto protocol watched each other closely for interpretation and adoption of the practice. Consistent with an image of exogenous shock, the carbon market emerged in response to the global warming challenge. In fact, there is a growing consensus that coping with climate change by preventing profound disruptions and adapting to major changes is emerging as one of a handful of issues that will define the era. Finally, consistent with the view of political process, institutional entrepreneurs such as carbon market

consultants and third parties emerged who actively frame people's understanding of the market catalyst that encourages key players to take an active interest in adaptation (McNish, 2010). So, why is it the case that we see patterns of arrested development in the carbon market?

Closer inspection of the case leads to a different view, one that looks back to Viviane Zelizer (1979)'s classic study on morals and market. This view also draws on work that conceptualizes institutional orders as constituted by plural and competing principles and logics (Stryker, 2002). Before I delve deeply into this question, I will first give a short overview of the carbon market and its institutional story.

CHAPTER 3: THE CARBON MARKET: A BRIEF INTRODUCTION

The carbon market operates, in many ways, like any commodity market; producers have a commodity to sell, and consumers have a demand for that good. The commodities exchanged in the carbon credit trade, however, are not tangible goods. Rather, they are the license to, and the promise not to, emit greenhouse gases. Those selling the commodity essentially give the buyer the promise not to emit a specific amount of carbon dioxide so that the buyer can consume the commodity by emitting that specific amount of carbon dioxide.

The trading mechanism for the carbon market is an institutional innovation designed to deal with a problem, i.e., global warming or climate change, which affects a resource commons, the environment. Over the past decade, the problem of climate change has gained critical momentum as an issue of progressive global concern. Climate scientists observe an intensifying atmospheric concentration of greenhouse gases and have warned of the serious consequences to humankind: escalating global temperatures, rising sea levels and increased frequency of extreme weather, along with greater flooding, droughts, loss of plant and animal species, and increased malaria transmission (IPCC, 2001). Moreover, scientists suggest that the long-term damages expected to arise from climate change will exceed the costs of addressing the problem now by a wide margin (Stern, 2006). There is a growing awareness that climate change could have major consequences, even at the levels of high

politics or national security. To organize collective actions on a global level and fight the challenge, a group of nations ratified an international mandate known as the Kyoto Protocol, which commits signatory states to take actions toward meeting targets and timetables for emissions reduction, and incorporates participation in market-based mechanisms as effective means toward emissions reduction.

Proposing the design for a world market in emissions reductions, Richard L. Sandor, economist and architect of the successful acid rain market in the U.S. in the 90s, designed the schema for a global carbon market. Initiated in 2005, the carbon market has since grown into a 176 billion global business (The World Bank, 2012), with a handful of different emissions trading venues up and running. The most noteworthy is the EU Emissions Trading Scheme (EU ETS), which came into effect since 2005 and now close to finishing the second phrase. In the EU ETS scheme, the countries hand out a number of emissions allowances to companies, which set a cap on possible emissions, while subsequently reducing the cap gradually over time. According to the European Commission, about 10,000 facilities are under the EU ETS and account for more than half of the EU's Co₂ emissions. They include power generation plants using fossil fuels, oil refineries, coke ovens, iron and steel plants, and factories making cement, glass, lime, brick, ceramics and pulp and paper (The World Bank, 2012). Companies surrender one allowance for each ton of carbon dioxide they have emitted into the

atmosphere. Emission rights are freely traded. If companies' cuts to emissions are insufficient, they can meet requirements by switching to low-carbon fuels, increasing efficiency or adding emission-control technology, rather than paying a hefty fine. They could also buy the allowances needed from brokers or from other capped firms on the market, who are emitting below their caps and have extra allowances to sell.

Along with allowances, there is another market outlet that is made available, named the offset markets. Offsets, like allowances, provide companies with the right to emit. Unlike allowances, however, offsets permit entities to offset, or compensate for, their emissions by financing carbon control projects outside of the system. For instance, if an electric utility with no caps in China elects to build a windmill instead of a coal plant, it may qualify for offset credits that equals to the emissions levels in the windmill minused by that of the coal plant.

The market mechanism of the offset scheme permits the utility to next sell this offset credit to a utility with capped emission amounts in Switzerland, allowing the Swiss utility to meet its regulatory obligations without reductions on its own or buying allowances from other firms with caps (McNish, 2010). Therefore, emissions of a particular geography or sector within the cap and trade regime will be above the cap level, but emissions external of the regime will drop by a corresponding amount. Overall, the system's contribution to worldwide greenhouse gas reduction will not be affected using offset.

Moreover, in order to generate the credits, the project participating in the offset trade must realize emissions reductions that are “additional,” implying they should not have happened without the project. Once the additionality has been confirmed, the amount of emissions reduction achieved by the project will become available for sale as carbon credits, and those credits can then be used to fulfill EU-ETS requirements.

Among the global offset programs currently in force, most significant are the Clean Development Mechanism (CDM) and Joint Implementation (JI), both of which are administered by the United Nations and harvests carbon credits from emerging and developed economies, respectively. Common to all these markets, the demand for emission credits is not exclusively compliance-based. A number of non-capped firms also purchase these credits voluntarily, in anticipation either of future regulation or of public relations benefits.

Importantly, once individual firms become accountable for meeting emissions reduction targets, they are not subject to any requirements regarding choice of instruments to meet their commitments; they are free to pursue the goals while choosing their preferred instruments. Such a mechanism design offers benefits: The provided flexibility of choice recognizes the diversity among both countries and firms, with regard to their existing production systems and timetables for replacing emission intensive facilities, and essentially encourages maximum levels of involvement by heterogeneous parties. Yet such a situation can also give rise to ambivalence, as debates

keep emerging on the pros and cons of different approaches to the reduction of GHG emissions.

Indeed carbon trading, albeit a promising idea, has faced many thorny contestations since its inception (Corbett, Montgomery and Dacin, 2011). Primarily, two normative arguments challenge the carbon market: On one hand, conceptualizing environmental protection in monetary terms is deemed unacceptable (Vatn and Bromley, 1994). Emission trading schemes assume that humans have property rights in the world, and for some that is considered to be undesirable and degrading, i.e., the natural environment cannot be regarded as people's private property, and it belongs to a class of goods that should not be traded. Defending this argument, Lisa Bunin, spokesperson for the environmental NGO Greenpeace commented,

“Industry simply does not have the right, nor should it ever be given the right, to make money off our air. Air is a part of nature that is priceless—it is essential to all life on earth. It must never be allowed to be quantified or traded by industry over the heads of communities, nor should industry be allowed to bribe communities into consenting to allow them to do so. ... In my view, it is a highly offensive and dangerous program that should be eradicated at the earliest opportunity.”

From another perspective, the carbon market arguably violates people's belief systems about accountability, ie. that polluters should pay for their actions, rather than being offered an easy way out (Bohm and Siddhartha, 2009). The idea of buying “the right to pollute” (Coase, 1960) is concerning as it provides incentives for alienating a responsibility that is inappropriate to

alienate. Long before the idea of a carbon market was executed, Sandel (1997) commented to The New York Times on the immorality of such markets, by highlighting the difference between a fee and a fine,

“..turning pollution into a commodity to be bought and sold removes the moral stigma that is properly associated with it; if a company or a country is fined for spewing excessive pollutants into the air, the community conveys its judgment that the polluter has done something wrong. A fee, on the other hand, makes pollution just another cost of doing business, like wages, benefits and rent. The distinction between a fine and a fee for despoiling the environment is not one we should give up too easily. Suppose there were a \$100 fine for throwing a beer can into the Grand Canyon, and a wealthy hiker decided to pay \$100 for the convenience. Would there be nothing wrong in his treating the fine as if it were simply an expensive dumping charge? Or consider the fine for parking in a place reserved for the disabled. If a busy contractor needs to park near his building site and is willing to pay the fine, is there nothing wrong with his treating that space as an expensive parking lot? In effacing the distinction between a fine and a fee, emission trading is like a recent proposal to open carpool lanes on Los Angeles freeways to drivers without passengers who are willing to pay a fee. Such drivers are now fined for slipping into carpool lanes; under the market proposal they would enjoy a quicker commute without opprobrium. (Sandel, 1997)”

This argument, it should be noted, makes no claim that those who purchase emission permits are somehow not making a sacrifice as obviously they are. The problem raised is that they are not making the right type of sacrifice. The polluter should only fulfill their duties by keeping the emissions within a pre-determined cap. Extending the argument even more aggressively, best selling author and columnist George Monbiot observed that the carbon market can be considered analogous to the selling of indulgences in the 15th century, when temporary license to sin could be bought in advance, by

payment to clergy, and commented that similarly, the carbon offset market allows for polluters to pre-pay for a clean conscience despite continuing dirty business as usual.

“Just as in the 15th and 16th centuries you could sleep with your sister and kill and lie without fear of eternal damnation, today you can live exactly as you please as long as you give your ducats to one of the companies selling indulgences. It [Carbon Offset] is pernicious and destructive nonsense.”

Similar argument challenging the carbon market as modern form of "selling indulgence" can be also found in Smith (2007). A good summary on the layers of moral contestation surrounding the carbon market is provided by Dr. Graciela Chichinisky, author of the carbon market chapter in the United Nations Kyoto Protocol, describing the attacks she received,

“My book “Saving Kyoto” provides a step by step report of the abuse I received as the author of the carbon market of the United Nations Kyoto Protocol, in particular the responses I received while I designed and then wrote the carbon market itself into the Protocol...Initially I was accused of being an unabashed capitalist who was trying to find a market approach to the sacred values of the environment, allowing emitters to get off easy if they paid - and not too different from 'selling one's own grandmother'.”

Complicating the issue, the argument of moral illegitimacy that challenges the carbon market becomes intertwined with other factors, such as concerns for cognitive and pragmatic illegitimacy (Deephouse and Suchman, 2008). Considered furthermore problematic are the over-allocation of carbon permits, as happened in the EU ETS, as well as the basic technical feats of quantifying, accounting for, and trading carbon in the carbon market. Moral

contestation, however, is perhaps the strongest and stickiest form of criticisms that impedes the carbon market from growing.

Given the availability of the carbon market as an economically efficient tool, and in view of the moral baggage that comes with it, firms aiming to reduce their emissions have a distinct choice to make: They can either reduce emissions directly by implementing energy-efficient technologies internally, or they can help achieve emissions reduction by buying emission credits or other forms of offsets to balance their own excess emissions. Executives for VINCI, a French construction and engineering company, expressed their cost-related reasons for engaging in carbon offsets, in response to 2009 CDP survey:

“We investigated being carbon neutral on several on our projects. This is achievable for some concession projects that run on a long time and can resort to renewable energy (e.g.: airport or stadium concessions). However, for construction projects (roads, heavy civil ...), carbon neutrality is unachievable without massive resort to carbon offsetting.”

On the other hand, legitimacy concerns are huge in firms' carbon projects. The discourse of HSBC about its highly publicized decision to become carbon neutral brings out into open an interesting combination of these different motives. The HSBC managers stated that it arose from pressure from various sources: "the pressure to reduce our emissions wasn't overt but it did exist, from peers, from shareholders, from the NGOs we work with and from our own staff" (Slade 2007: 96). So legitimacy with different actors is a concern in driving HSBC against the carbon market. Thus there is this emphasis in their discourse

that they need to reduce their own emissions as well as to be certain of the credibility of their involvement in the carbon market. In fact, a lot of firms emphasized that they work with reputation intermediaries to make sure that all credits purchased can be certified and validated. Other firms try to justify their usage of the carbon market and minimize possible reputational damage either by attributing their carbon market involvement to lack of knowledge. Some claim that they were unaware of the dubious nature of the carbon credits before the EU ruled them out. For example, a public affairs officer in the Netherlands company mentioned in the report,

“We buy CERs over-the-counter, at the time of the transaction, Dow, and in many cases even the seller, don’t know from which types of ... projects the CERs originate.”

Facing the critiques toward the carbon market, firms actually find it hard to go into offsetting even because of cost reasons. They view emission trading and offset projects as a means of reducing emissions without the necessity of internal efforts (an easy way out), and therefore oppose those mechanisms, stating that they intend to take responsibilities themselves through internal measures. For example, managers in Swiss company UBS, carefully considered the critical voices while deciding whether to use the market instrument or not, and stated,

"It is important that internal and external audiences understand the value of the program. While we obviously focus on cost-effectiveness, for example by buying offsets when break-even or in-house investments cannot be reached in a reasonable time frame, we also have to accommodate critical voices. People argue, " Banks are

rich; they can afford to buy their way out of reducing emissions." So we need to optimize across climate change and the UBS reputation." (Oberholzer-Gee, Reinhardt, and Baabe, 2007).

Of course, firms that take action with regard to climate change do not necessarily adopt one measure or another, more likely opting to combine different measures in order to achieve emission abatement goals. What may best explain firms' varying levels of engagement in the carbon market could depend on the extent to which managers perceive the environment as a good that is tradable through the medium of market, and such perception is culturally variant.

So, what have we established so far? First, we have seen that an institutional innovation, the market for carbon credits, has become an institutional project with early patterns of arrested development. We have reviewed the extant literature on the institutionalization projects, and from the surface, the carbon market plausibly has the necessary conditions for institutionalization. By delving deeper into the institutional story of the carbon market, we have identified the moral contestations surrounding its viability, as well as how these contestations might have penetrated to the degree that firms become influenced in their decisions whether or not to participate. Below, we leverage further analysis regarding this observation; we compare this carbon market with other markets that we have observed in the literature about morally contested markets, and we see how such moral contestation might interact with other firm and industry-level characteristics to impact the institutionalization process of the new market as a whole.

CHAPTER 4: THEORY AND HYPOTHESES

Market as a Cultural, Institutional Project

The market is a central institution in modern society, where it prevails as an efficient way of organizing (Powell, 1991; Swedberg, 1994). Claims to efficiency alone, however, do not suffice to explain why markets come to exist. Legitimacy—the perception that audiences hold on whether an actor’s behaviors are congruent with the norms and values of the larger social system—is essential among conditions determining whether markets become institutionalized or not. The idea that legitimacy concerns are important for markets has not always been salient. In fact, neoclassical economic concepts of the perfect market have, at times, become so dominant as to leave any discussions on market legitimacy behind. Reflecting their discontent with the parsimonious neoclassical economic conceptualization of the market, organizational analysts have proposed arguments that view the market as a social construction (see reviews in Biggart and Delbridge, 2004; Fourdein and Healy, 2007). By considering seriously the idea that values, beliefs, and culture is central to understand markets (Zelizer, 1988), the standpoint that markets are social constructions gives rise, in turn, to the idea that legitimacy matters for markets, and that legitimacy contestation can impose real constraints on a given market in terms of legality, operations and growth.

As a central concept in the institutional literature, the legitimacy of practices or markets is built on three pillars: the normative, the regulatory, and

the cultural-cognitive (Scott, 2001). A practice is deemed to be normatively legitimate when it is consistent with the norms or values that the institution expects as dues of social obligation from its members. Regulatory legitimacy is obtained when a practice conforms to established rules and laws, whereas cultural-cognitive legitimacy is garnered when a practice reflects the shared understandings that the institution asks of its adherents to mimic or follow. New markets, by definition, run short of cognitive legitimacy. Organizational studies have shed light on the roles organizational participants may play in shaping perceptions of their environment and acquiring cognitive legitimacy for new market categories. The central focus of these studies has been on how new markets acquire legitimacy status over time, with the underlying assumption that early adoption of the market aid in the further legitimacy and the increase of instrumental rationality of the practice.

Market and Moral Codes

How normative legitimacy guides behavior in markets is relatively underexplored. Normatively challenged exchange, or so-called "block exchange" (Walzer, 1983), means the embargo or constraining of the trading of certain types of objects or services based on moral standards. Generally speaking, blocked exchange features the detachment of the goods or services that are connected to "sacred" social values from the "profane" sphere of the market (Beckert, 2006). Instrumental rationality is not what is behind exchange

blockages. Instead, value rationality, which refers to the belief in the value of an action independent of its consequences for oneself or for others, is what motivates blocked exchange. As Durkheim (2008[1912]) has pointed out, the sacred and the profane are separated into two domains. This implies that tabooed exchanges cannot be attributed by their contribution to economic efficiency and gains. The restriction on some transactions might have positive influences. Nevertheless, the justification for prohibiting these transactions is not based on the economic reasoning but originated from social values that dishonor them on moral grounds.

Cognitive theorists, further, give useful explanations on the reasons why moral codes operate in separate domains from instrumental rationality, by empirically documenting the human tendency to mentally compartmentalize and to organize love, status, information, money, goods, and services into distinct mental accounts (Foa and Foa, 1976). Teichman and Foa (1975) reported that when individuals received different types of resources in exchange, the exchange became less satisfying. Research on the “taboo trade-off” further presents evidence about the challenge of exchanges that cross the boundaries of resource categories (McGraw and Tetlock, 2005). This work examines exchanges between the important secular values (e.g., money, time and convenience) with sacred values, and found that they are considered morally incompatible. Experimental evidence further demonstrated that when people contemplate buying or selling objects endowed with special relational significance, they are

more likely to refuse to answer certain questions, engage in pricing distortions, or display moral outrage and cognitive confusion. The evidence suggests that there is a psychological transaction cost for people to make value comparisons across mental accounts, which may affect the wheel of material exchange (Ingram and Zou, 2008). The intensity of the resistance of contemplating a cross-account value comparison depends on the distance and the direction between the two schemas involved in the valuation (Fiske and Tetlock, 1997).

Examples of goods that are inclined to be prohibited from monetary exchange in contemporary times are not hard to find, and can be grouped into three general categories (Beckert, 2006). One is exchange that affects the human body. It is illegal to purchase another person (slavery and adoption). The sale of body parts for medical reasons is mostly lawed out (markets for organs); in many countries, woman are not permitted to carry a child for another woman in exchange for cash (surrogacy); and the exchange of sex for money is restricted and even prohibited in many counties (prostitution). A related domain is the market exchange of political impacts and seats. The purchase of political decisions is regarded as corruption. Another domain constitutes of legal claims. Examples of such claims and obligations include criminal punishment, the right to vote, the freedom of speech, or exercising religious beliefs; all of these are considered non-marketable.

While the general categories exist, the list of objects to which trade limitations apply, historically, differs among societies. Two functionally critical

fields where such changes have taken place include the limits placed on interest-charging lendings, as well as the abolishment of slavery. Cultural variances can be observed in religiously oriented taboos on the consumption of particular food like horse meat (Roth, 2007). Likewise, Garvía (2007) demonstrated that lottery tickets are often shared based on interpersonal ties in Spain, and such rituals transform the conceptualization of lottery gambling from that involving pure economic assets to one that becomes a symbolic carrier of social relationship and status. This may, in part, explain the unique popularity of lottery gambling in Spain, compared with that in other nations.

Given the culturally-variant normative acceptance of certain markets, whether and how do such norm variations affect organizations' decisions to participate in these markets? There are multiple channels through which managers construct the proper scope of commercial activity, including individual mental accounting, social norms and laws (Krawiec, 2009). While individual mental accounting is rooted in people's cultural upbringings, social norms and legal rules, at the institutional level, reinforce these valuations and boundaries of tradable goods. Some commercial exchanges are distasteful to certain members of the society (Roth, 2007). Other commercial exchanges are strictly forbidden as a means to restrict access to an item or activity considered dangerous or harmful to society. Illegal drugs, such as heroin and cocaine, and some types of weapons, fall into this category. Whether trade is permissible at the institutional level is not necessarily commensurable with the standard at the

individual level. The sale of cadavers, though partly legalized, persists in being categorized as immoral, according to individual and societal values (Anteby, 2010). These channels through which managers construct the proper scope of commercial activity do not always operate uniformly across the board. The legal standards on economic exchanges can be diverse across national states; for example, the legal status of prostitution varies from country to country, from that of a crime to one of a regulated profession.

Organizational Participation in Morally Contested Markets

Applying the theory of morally contested markets on the carbon market of interest, I argue that cross-cultural differences on the acceptability of environmental markets will shape firms' choices of carbon emission reduction strategy. Companies and managers are culturally informed, and they devise strategic decisions in accordance with prevailing cultural beliefs. This influence extends, it is important to note, to such effect that managers will tend to become acutely responsive to citizens' values, which contrasts behaviors seen in other areas of firm strategy where the cultural effect is subdued by motivations in other dimensions (cf. Hamilton and Biggart, 1988). The carbon market is relatively new, and activities that characterize markets are relatively unstable. Firms experience a lot of uncertainty dealing with the market, which makes them more susceptible to public sentiment (Pinkse, 2007). After all, emission reduction is part of a firms' corporate social responsibility agenda. Thus,

Hypothesis 1: Firms in countries where people tend to express higher enviro-prioritizing values, when faced with the environmental-economic interests tradeoff, will be less likely to engage in the carbon credit market.

Firms rely on suppliers, capital markets, labor markets and customers, as well as on states, for their stability (Pfeffer and Salanick, 1978). Exactly what institutional forces motivate firms to respond when they comply with headquarters-national culture norms? In addition to examining direct effects, I look further, to examine how organizational strategic and structural factors influence corporate responses to cultural pressures, leading to variation in the encompassing impact of institutional environment. By complying with the national culture, firms may intend to build image and maintain reputation toward their external stakeholders that constitute their existing and potential customers (Fisman, Heal and Neal, 2006). A large literature on ethical consumers has shown that customers may be scattered across a wider society that as a whole, prefers to buy the products of a socially responsible company and willing to pay more (Elfenbein and McManus, 2010), for simply altruistic reasons (Casadesus-Masanell, Crooke, Reinhardt, and Vasishth, 2009), or for the bragging rights (Schuler and Christmann, 2011), and may boycott the products of a company when they are perceived to violate ethical codes (King and Pearce, 2010). Thus, values effect manifests more when the firm has higher dependence on end-user consumers.

Hypothesis 2: The negative effect of higher enviro-prioritizing values on firms' participation in the carbon credit market will be particularly strong for firms that hold greater concerns toward their consumers.

Beyond the consumer as external stakeholder, internal groups such as employees are also likely to exert a normative influence. By complying with the values of the employees, organizations enhance their perceived legitimacy and social fitness. For example, Lounsbury (2001) finds that the presence of student groups can account for variation in the recycling strategies that universities adopt. Delmas and Toffel (2008) find that organizational functional structure affects facility managers' receptivity to institutional pressures. Beyond organizational practices in the environmental domain, Ingram and Simons (1995) find that one of the determinants of organizations' responsiveness to work-family issues is the existence of a female at the management level. Thus, I argue that firms may intend to attract the internal stakeholder, constituted by their existing and potential employees, and the effect of cultural values is particularly acute when the firms have higher reliance on employees:

Hypothesis 3: The negative effect of higher enviro-prioritizing values on firms' participation in the carbon credit market will be particularly strong for firms that have high dependence on employees.

Corporate elites may also act as decisive agents in devising strategies related to corporate social responsibility in general. It is been widely accepted that organizations' outcomes can be understood as the "reflections of the values and cognitive bases of powerful actors in the organization" (Hambrick and Mason, 1984: 193). When it comes to CSR, empirical evidence suggests that the upper echelons play a significant role in impacting CSR policies of their companies by acting according to their personal values, beliefs and biographies (Drumwright, 1994; Hemingway and MacLagan, 2004; Choi and Wang, 2007). Related to firms' carbon market participation decisions, survey evidence show that when CEOs do not possess an economics or finance education background, they would be less likely to express sympathetic views toward the carbon market. I postulate that the cultural norms also take effect through CEO's preferences for carbon trading. Thus,

Hypothesis 4: The negative effect of higher enviro-prioritizing values on firms' participation in the carbon credit market will be particularly strong for firms whose executive officer has no economics or finance educational background.

I also consider the alternative sources of norm providers, including the state as well as other organizations. Under conditions of institutional pluralism where fields generate multiple, sometimes-contradictory institutional logics (Dunn and Jones, 2010), organizations exist at the nexus of multiple institutional

pressures (Kraatz and Block, 2008). Contradictory institutional logics may render organizations addressing multiple and competing demands face a dilemma and submit to a more powerful and centralized source of legitimacy. In the context of the emission trading markets, regulatory pressure to cut emissions is one of the main drivers for business interest in the carbon market. Being capped to reduce emission increases the potential costs of not meeting the emission abatement target. Besides, the regulation provides ideological support for certain market exchanges (Ingram and Simons, 2000), and state endorsement is one of the most important factors that propel the market. Here, while moral values might oppose the environmental market, the regulatory pressure endorses it. Thus, firms that operate under a singular dimension of normative pressure would exhibit actions most consistent with the demand of the cultural norm.

Hypothesis 5: The negative effect of higher enviro-prioritizing values on firms' participation in the carbon credit market will be particularly strong for firms that have no regulatory compliance requirement to reduce emissions.

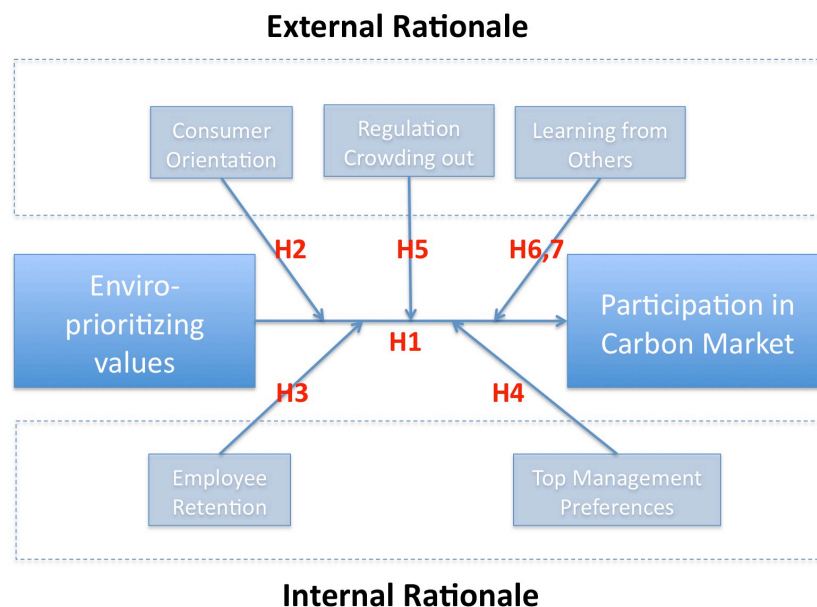
Lastly, institutional theory suggests that a practice may become acceptable when it is sufficiently widespread. Even for an institutionally contested practice, the diffusion of the practice may be facilitated by well-known institutional processes such as mimetic isomorphism. For instance, Davis and Greve (1997) found that when a company's directors served on the boards of other firms that had already adopted a poison pill, these directors were able to

evaluate and even promote adoption. This is because board interlocks are regarded as a means to mitigate uncertainty about adoption decisions (Fligstein, 1991). As more of one's board interlocks or similar other firms adopt, adoption may come to be seen as normatively appropriate. I thus hypothesize that the values effect would be most evident when the cultural norms are to the least extent at odds with the norms exhibited by industry, country or connected peers.

Hypothesis 6: The negative effect of higher enviro-prioritizing values on firms' participation in the carbon credit market will be dampened for firms whose board interlocks participate in the carbon market.

Hypothesis 7: The negative effect of higher enviro-prioritizing values on firms' participation in the carbon credit market will be dampened for firms whose industry or country peers participate in the carbon market. Figure 1 summarizes the hypotheses.

Figure 1: Summary of Hypotheses



CHAPTER 5: METHODS

Data

I collect data on European firms that face a relatively homogeneous regulatory environment and equal access to the carbon market, including the EU-ETS and the global carbon offset markets. I gather data on publicly traded companies listed on major European stock indices during 2006-2009. I determine whether a firm is listed on major European stock indices mainly by the coverage of the Carbon Disclosure Project (CDP), which sends surveys to companies in major indices annually on their greenhouse gas emissions and management strategies on behalf of institutional investors.² I focus on firms that headquartered in Finland, France, Germany, Netherlands, Italy, Norway, Spain, Sweden, Switzerland and the United Kingdom, as comparable environmental values information is only available for these countries in the region. From 2006 to 2009, I identify 1,333 unique companies that aggregate to 3,593 firm-year observations. Among them, 752 firms (1,855 firm-year observations) responded to CDP survey in at least one of the four years, disclosing their carbon strategies. Table 1 presents the distributions of headquarters countries for the companies in our sample, divided by whether the firm responded to the CDP survey at a given year.

² The sample is compiled from CDP publications including reports on FTSE 250 (2006), FTSE 350 (2007-09); France 120(2006-08); France 250(2009); Germany 200(2006-09); Nordic 125(2006); Nordic 190(2007); Nordic 200(2008-09); Switzerland 50 (2006); Switzerland 100 (2007-2009); Italy 40 (2006-07); Italy 60 (2010); Netherland 50 (2007-2009); Spain 35(2007); Spain 85(2008-09); and Europe 300 (2008-09).

**TABLE 1 – Sample Distribution
by Firms' Headquarters Countries**

Country	Environmental Disclosure		Total	
	0	1		
Finland	66	81	147	4.09%
	44.90%	55.10%	100%	
France	301	225	526	14.64%
	57.22%	42.78%	100%	
Germany	400	329	729	20.29%
	54.87%	45.13%	100%	
Italy	72	53	125	3.48%
	57.60%	42.40%	100%	
Netherlands	19	24	43	1.20%
	44.19%	55.81%	100%	
Norway	92	58	150	4.17%
	61.33%	38.67%	100%	
Spain	118	81	199	5.54%
	59.30%	40.70%	100%	
Sweden	72	174	246	6.85%
	29.27%	70.73%	100%	
Switzerland	149	160	309	8.60%
	48.22%	51.78%	100%	
United Kingdom	449	670	1119	31.14%
	40.13%	59.87%	100%	
Total	1738	1855	3593	
	48.37%	51.63%	100%	100%

Notes: The table lists the sample distribution by firms' headquarters countries, as well as firm disclosure status (0/1).

Variables

There are typically two clusters of options for firms aiming to reduce carbon footprint: (1) reduce in-house, which includes on-site installation of renewable energy, efficient lighting programs, building insulation, and energy-saving process improvement; (2) trade on market, which includes purchasing

credits through market-based mechanisms including EU ETS and carbon offset markets including CDM, JI, or retiring Renewable Energy Certificates. I code data on firms' carbon strategies under these categories mainly from the CDP survey response. Since these data are self-reported in nature, I cross-checked and complemented the data on offsetting with the carbon offset market registries, including the Clean Development Mechanism (CDM) and Joint Implementation (JI) registries, both accessed from UNFCCC website. In-house reduction measures are cross-validated with the Bloomberg database on green initiatives under the Environmental, Social and Governance Indicators. I code the dependent variable *Participation in morally contested market(D)* as 1 if a firm trades on market and 0 otherwise. The hypothesis suggests that if a country's enviro-priority value is high, firms will be less inclined to trade on market. Of course, firms' choices of instruments can be further categorized into four types, and in the second set of analysis, I also code the dependent variable *Participation in morally contested market(C)*, with four categories of participation decisions: do nothing; reduce in-house only; reduce in-house and in the meantime trade on market; trade on market only. The hypothesis suggests that if a country's enviro-priority value is high, firms will be more inclined to reduce in-house than to trade on market, and to engage both in-house and market emission reduction.

I match firms' carbon strategies to the countries' environmental values. I focus on the values in each firm's headquarters country, as most climate strategies are often formulated by boards of directors or senior managers, who

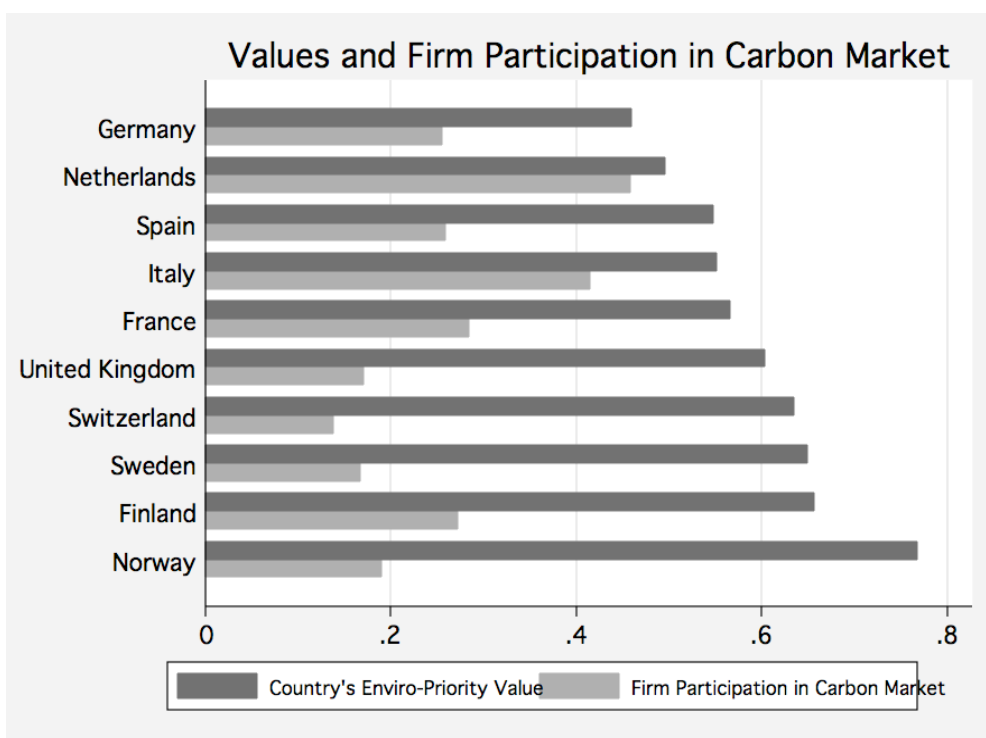
interpret environmental issues in line with public opinion in their headquarters countries (Levy and Kolk, 2002). I measure a Country's enviro-prioritizing value from the World Value Survey's most recent wave during 2005-2009. The World Value Survey is selected as it provides values data on a wider coverage of countries and covers a representative share of the population in each country. Besides, as the environmental questions were only part of a larger survey in the WVS, respondents are less likely to report upwardly than if they were answering in a specific environment survey (Torgler, Frey and Wilson, 2009).

Citizens from each of the ten countries are asked the following question in the WVS, "Here are two statements people sometimes make when discussing the environment and economic growth. Which of them comes closer to your own point of view? A. Protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs B. Economic growth and creating jobs should be the top priority, even if the environment suffers to some extent." One of three values (1=A; 2=B; 3=Other Answers) is assigned to each response. The item is reverse-coded so that strong preference for environment in the trade-off between environmental protection and economic growth is scored highest, and other answers are coded as no response. The average scores of citizens from each country are calculated and weighted by sample size. Additional analysis coded the other answers as 2, and response A, B at the value of 3 and 1 gives comparable results.

I perform three analyses to establish the construct validity of the measure of the enviro-prioritizing value. First, I correlate the enviro-prioritizing value with two other value items in the World Value Survey that carry implications on values tradeoff between environment and economics. One item asks whether the respondent would give part of income for the environment, and the other asks whether the respondent would agree to an increase in taxes to prevent pollution. The correlation at individual levels between both items with the measure of the enviro-prioritizing value is 0.54 and 0.53 respectively, indicating that these items are reasonably correlated in measuring value tradeoffs. Second, I construct another country level environment related variable, *a country's general environmental concern*. This measure refers to extent to which pollution and resource consumption are pressing to the citizens in that county, and is coded from six related items in the European Value Survey 2008. The country-level measure has a mild -0.22 correlation with the enviro-prioritizing value measure, indicating that a trade-off between the environment and the economics is a distinct value dimension from general environmental concerns. The detailed construction of all environmental values items is listed in Appendix A1. Third, I also correlate the country-level measure with an actual environmental performance measure, the number of green party members per capita in a country, and find a 0.63 correlation. Moreover, looking the environmental values in previous waves of the World Values survey shows that the rank is mostly stable across years. Overall, these analyses confirm the validity of using

the measure to represent the relatively constant country-level cultural values on the acceptance of market-based solution to environmental problems. Figure 1 plots the value and market participation (as an indicator variable) by country.

FIGURE 2 – Enviro-Prioritizing Values and Participation in Carbon Market By Country



Notes: The dark-colored bars show mean level of enviro-prioritizing values in each country. Citizens from each of the ten countries are asked the following question in the WVS fourth wave, “Here are two statements people sometimes make when discussing the environment and economic growth. Which of them comes closer to your own point of view? A. Protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs B. Economic growth and creating jobs should be the top priority, even if the environment suffers to some extent”, and they answer with three values (1=A; 2=B; 3=Other Answers). The item is reverse coded so that strong priority for environmental protection is scored highest, and other answers is coded as missing. The light-colored bars show the mean values of country on whether a firm participates in the carbon market.

I match firm identifiers with the Worldscope and Datastream database to collect firm-level accounting information. A given firm’s *consumer orientation*

is measured by its selling, general & administrative expenses figure divided by sales (Fisman, Heal and Neal, 2006). The higher the value is, the higher concentration a firm has on its customers. In a robustness check, I divide the industries by whether it is a consumer-oriented industry, interact the dummy variable with the values, and find consistent result to the reported specification. *Sector unemployment rate*, collected from Europa database, measures how reliant the firm is to its current employees. The larger the number is, the less effort a firm spends in retaining its employees. *Firm has installation(s) under EUETS scheme* is a dummy variable coded 1 if the firm has one or more installation regulated by the European Union to reduce their CO2 emissions. This variable is coded from the CDP survey. Firms that are not capped may still voluntarily use either or both market- or non-market based mechanisms for emission abatement. For hypotheses 2-5, pre-test indicates problems of multicollinearity that is often associated with the interactive effects. I therefore mean centered these variables and interact them with mean-centered country's enviro-prioritizing value, and report these results in all models.

I control for a host of firm level variables, including assets (in millions of U.S. dollars) and number of employees (in millions) as larger firms could possess more resources to experiment with new markets. I also control for each firm's Global Co2 Emissions, calculated as the sum of the scope 1 and scope 2 emissions reported in the CDP data, as for low emission companies, the possibilities to mitigate climate changes are probably limited. I also control for

other country-level features that may lead firms to practice environmental management differently. Because a country's economic development can affect environmental practices (Inglehart, 1990), I control for each country's annual GDP per capita, reported in thousands of 1996 U.S. dollars by The Economist Intelligence Unit. The increase in CO₂ emission intensity in the country will force the country to enforce international environmental agreements and hence will direct the firms in this respect. I include as a control Country's Co₂ emission intensity, collected from the Compendium of Environmental Sustainability Indicator Collections housed at Columbia University. National government involvement in environmental international governmental organizations reflects the government's values and beliefs, and is likely to impact firm's activities in the environmental domains (Marquis and Toffel, 2011). I control for the number of environmental IGOs that the country is a member of, drawing on data from Torfson and Ingram (2010).

For all models, industry sector fixed effects in 1 digit SIC code are included, as climate change has disproportional effects on those that produce fossil fuels (e.g., utilities), that depend on those fossil fuels directly (e.g., chemicals) or indirectly (e.g., automobile and aircraft manufactures), and those that want to develop new market opportunities arising from risk coverage or emerging emission trading systems (e.g., financial). I also control for year-fixed effects that account for among other yearly trends, the volatility of carbon credit prices. I calculate a measure of *marginal cost of in-house abatement*, which is

constructed by taking average of the cost of a given industry's mix of internal reduction measures as indicated in the country specific marginal abatement cost curve (European Commission, 1999). I also include in some models measures for *weighted carbon market price*, which is the yearly average price of reducing emissions on the market. Price data based mainly on spot EUETS allowances and CER prices for delivery in that year and is compiled from various industry reports on the market (PointCarbon 2007, 2008, 2009, 2010). Table 2 reports the summary statistics for the subsample of firms that disclosed their carbon strategies.

TABLE 2 – Summary Statistics

		Mean	S.D.	Min	Max
(1)	Trade on Market Only (0/1)	0.04	0.18	0	1
(2)	Trade on Market + In-House Reduction (0/1)	0.18	0.38	0	1
(3)	In-House Reduction (0/1)	0.44	0.5	0	1
(4)	Do Nothing (0/1)	0.34	0.48	0	1
(5)	Country's Enviro-Prioritizing Values	0.58	0.07	0.46	0.77
(6)	Firm's Asset (in mils of EUR)	0.08	0.32	0.02	3.77
(7)	Firm's No. of Employee (in mil)	0.04	0.07	0.01	0.6
(8)	Firm Global Co2 Emissions	5.39	16.93	0	247.18
(9)	Country's Co2 Emission Intensity	92.51	2.71	89.6	97.2
(10)	Country's GDP Per Capita	4471	9890	3194	9276
(11)	Firm's Marginal Abatement Cost	17.22	13.86	1.3	55.8
(12)	Weighted Carbon Market Price	15.49	3.18	11.4	18.87
(13)	Country's Membership in Environmental IGOs	4.49	0.84	3	7
(14)	Firm's Consumer Orientation	19.49	14.8	0.21	79.88
(15)	Sector unemployment rate	6.89	1.23	2.2	10.8
(16)	CEO Econ or Finance background	0.35	0.48	0	1
(17)	Installation(s) under EUETS Scheme	0.19	0.39	0	1

Notes: The correlation table is presented for the subsample that disclosed their carbon strategies. N=1855

Model

I first use both a probit specification, as well as a multinomial logit specification to predict each firm's use of carbon market strategies, with the data organized in a repeated cross-sectional design. The probit specification is relatively straightforward, while the multinomial logit model needs more introduction. The dependent variable *Participation in morally contested market* (D), permits four categories of participation decisions which makes it a natural fit for a multinomial choice empirical model. To model firm's decisions, I conceive firms as having multiple dimensions $j \in J$ to their strategic set, which includes do nothing; reduce in-house only; reduce in-house and in the meantime trade on market; trade on market only. Each firm i living in country c in year t attach a salience to each strategic choice j . Thus the more a firm prefers choice j , the higher values they attach to that choice. And they select the strategic choice with highest value:

$$D_{ict} = \arg \max_j V_{ictj}$$

The multinomial logit framework allows examining empirically the extent to which firm's carbon strategies are related to observable characteristics of firms and their countries, represented as,

$$V_{ictj} = \beta_j' X_{it} + \gamma_j' Z_{ct} + \eta_{ictj}$$

where X_{it} contains firm-level variables, and Z_{ct} contains country-level factors, and the error term η_{ictj} is the firm's idiosyncratic level of attachment to strategic choice j .

The coefficients reflect the possibility that the impact of each parameter varies with the choice.

Importantly, the coefficients that multinomial logit models estimate is about the relative preferences between choices rather than the absolute value of the salience that is attached to each preference. The model identifies coefficients of the form β_{jk} , which are the effects on choice j relative to a reference choice k . I also calculate marginal effects for selected models which have more interpretation advantages.

I test Hypothesis 1 with a model that predicts *participation in morally contested market (D)* based on the country's enviro-prioritizing values. The base category is set as in-house only. Thus, a positive coefficient signifies that increases in an independent variable increase the probability that the firm chooses that option rather than the less tainted internal reduction option. I test Hypothesis 2 -5 by including an interaction term between the country's *enviro-prioritizing value* and the organization's *consumer orientation*, *sector unemployment rate*, and *CEO educational background*. I also interact *firm has installation(s) under EUETS scheme* with *the number of market participation in similar or board interlocked other companies* respectively with values. Because the sample includes several observations per country, I report clustered standard errors clustered at the country level.

CHAPTER 6: RESULTS

Main Effects

The theory predicts that culture values prioritizing the environment in the headquarters country should lead to lower participation in the contested market. M1 in Table 3 presents the results of regressing the enviro-prioritizing value against firm use of contested market, with industry fixed effect and year fixed effect as the only controls. High environmental priority value reduces the likelihood of firms participating in carbon markets significantly. In M2, I enter the cost metrics of both in-house emission reduction and carbon market into the regression. As the carbon market price does not vary by year, year fixed effects are dropped from this specification. The marginal abatement cost has a positive association with the tendency to engage in the market. The carbon market price has a negative association with credit purchasing, but both effects are not significant. Importantly, the effect of value remains negative and significant. A concern here is that higher levels of enviro-prioritizing value could simply be a proxy for country environmental concern as well as levels of economic development. The environmental priority value might be associated with lower market participation because it sustains smaller organizational size or lower firm pollution level or lower cost of in-house emission abatement. M3 thus includes country-level variables on Country's Co2 emission intensity, GDP per capita, environmental IGOs, and firm-level variable on asset, employees and Co2 emissions, enviro-prioritizing value also plays an independent role. Some firms

do not take any measures in carbon emission reduction, neither for the carbon market, nor for in-house reduction. In Model 4, I analyze the subsample of firms that engaged in at least one of the methods of emissions reduction, and find an even stronger values effect for the subsample.

TABLE 3 - Probit Model on Participation in Morally Contested Market and Enviro-Prioritizing Value

	M1	M2	M3	M4
Country Pro-Environmental Value(c)	-2.094*** (0.547)	-2.293*** (0.647)	-2.686*** (0.483)	-5.224*** (0.797)
Carbon Price		-0.002 (0.016)		
Marginal Abatement Cost		0.005 (0.005)	0.011*** (0.002)	0.010*** (0.004)
Firm's Asset			0.005*** (0.002)	0.004** (0.002)
Firm's No. of Employee			3.296*** (1.117)	1.360* (0.811)
Firm Global Co2 Emissions			0.013*** (0.004)	0.014*** (0.005)
Country's Environmental IGO			0.147*** (0.035)	0.143*** (0.048)
Country's Co2 Emission Intensity			-0.039*** (0.010)	-0.034* (0.018)
Country's GDP Per Capita			0.007* (0.004)	0.022*** (0.005)
Industry Fixed Effects	Y	Y	Y	Y
Year Fixed Effects	Y	N	Y	Y
Constant	-1.265*** (0.476)	-0.759* (0.407)	0.865 (0.825)	0.365 (1.454)
Observations	1855	1855	1855	1216
Log likelihood	-897.186	-922.246	-823.713	-674.066

Notes: Dependent variable: Firm choice of carbon strategies, coded 1 if firm purchased carbon credits and 0 otherwise. Coefficients of probit regressions. Clustered standard errors by firm in parentheses; Significance level: * $p < .10$, ** $p < .05$, *** $p < .01$. (c) The corresponding variable is centered.

As mentioned earlier, some firms could employ one of the four categories of participation decisions: do nothing; reduce in-house only; reduce

in-house and in the meantime trade on market; trade on market only. Multinomial logit analysis allows examining the data in more details, particularly the question of firms' propensity to use market versus in-house reduction. Table 4.1 and 4.2 presents the results of regressing the enviro-prioritizing value against firm use of contested market, employing the categorized dependent variable. Throughout all three specifications in M5-M7, high environmental priority value reduces the likelihood of firms participating in carbon markets, comparing to in-house abatement significantly.

I report the marginal effects in the last four columns of Table 4.2 for interpretation purchases. The estimated effect of enviro-prioritizing values on the likelihood to choose the combination of market and in-house reduction strategy is negative and significant (M7 Marginal Effects, point estimate -0.808, $p < .01$). The estimated effect of enviro-prioritizing values on the likelihood to choose the market only strategy is negative and significant (M7 Marginal Effects, point estimate -0.289, $p < .05$). The estimated effect of enviro-prioritizing values on the likelihood to choose the standalone in-house abatement is positive and significant (M7 Marginal Effects, point estimate 2.170, $p < .01$). Overall, the result suggests in countries where environmental protection is more prioritized, firms are more likely to be engaged in less tainted method of abatement reduction, regardless of the cost considerations.

Figure 3 plots the predicted probabilities with confidence bands for different outcome variable by varying levels of enviro-prioritization values,

estimated in model 7. Two interesting observations emerge from the plot. First, the higher the enviro-prioritizing values, the less likely firms will use market solutions (the lower left panel), or the combinatorial solution (the lower right panel) to replace in-house reduction. Second, the slope for the declining pattern is steeper for the lower right panel, suggesting that the values increase drops the propensity of using both market and in-house more than the propensity of using market only. This is indicative of how values operate. In environments with high moral codes, while firms could justify their use of market using pure economic rationality, mixing up both economic and moral rationality will expose them to higher level of scrutiny. This is because in countries where carbon markets are slated, firms could possibly still justify using market because, for example, onsite renewable energy is prohibitively high. However, if they exercise both methods, stakeholders will question if the economic stories for market is authentic, and if a firm is trying to cover up market participation with in-house reduction, which might hurt the firm's reputation even more.

TABLE 4.1 - Multinomial Logit Model on Participation in Morally Contested Market and Enviro-prioritizing values

	M5			M6		
	Market + In-house vs. In-house only	Market Only In-house only	Doing Nothing vs. In-house only	Market + In-house vs. In-house only	Market Only In-house only	Doing Nothing vs. In-house only
Country's Enviro-Proritizing Values	-4.374*** (1.527)	-6.943** (3.375)	-3.019 (3.524)	-5.813*** (1.620)	-8.035** (3.763)	-10.060*** (1.504)
Firm's Asset				0.687*** (0.261)	-1.686 (2.326)	-0.541 (0.772)
Firm's No. of Employee				3.237** (1.372)	-2.345 (3.903)	-29.739*** (6.513)
Firm's Global Co2 Emissions				0.031*** (0.009)	0.001 (0.019)	0.016* (0.008)
Country's Environmental IGO				0.153 (0.099)	-0.358 (0.452)	0.027 (0.073)
Country's Co2 Emission Intensity				-0.021 (0.033)	0.083 (0.168)	0.045 (0.028)
Country's GDP Per Capita				0.000*** (0.000)	-0.000 (0.000)	0.000*** (0.000)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-1.872** (0.951)	-1.586* (0.845)	0.619* (0.376)	-2.898 (2.717)	-7.245 (12.095)	-5.139** (2.340)
No of Observation			1855			1855
No of Unique Firms			752			752
Log likelihood			-2023.176			-1783.070

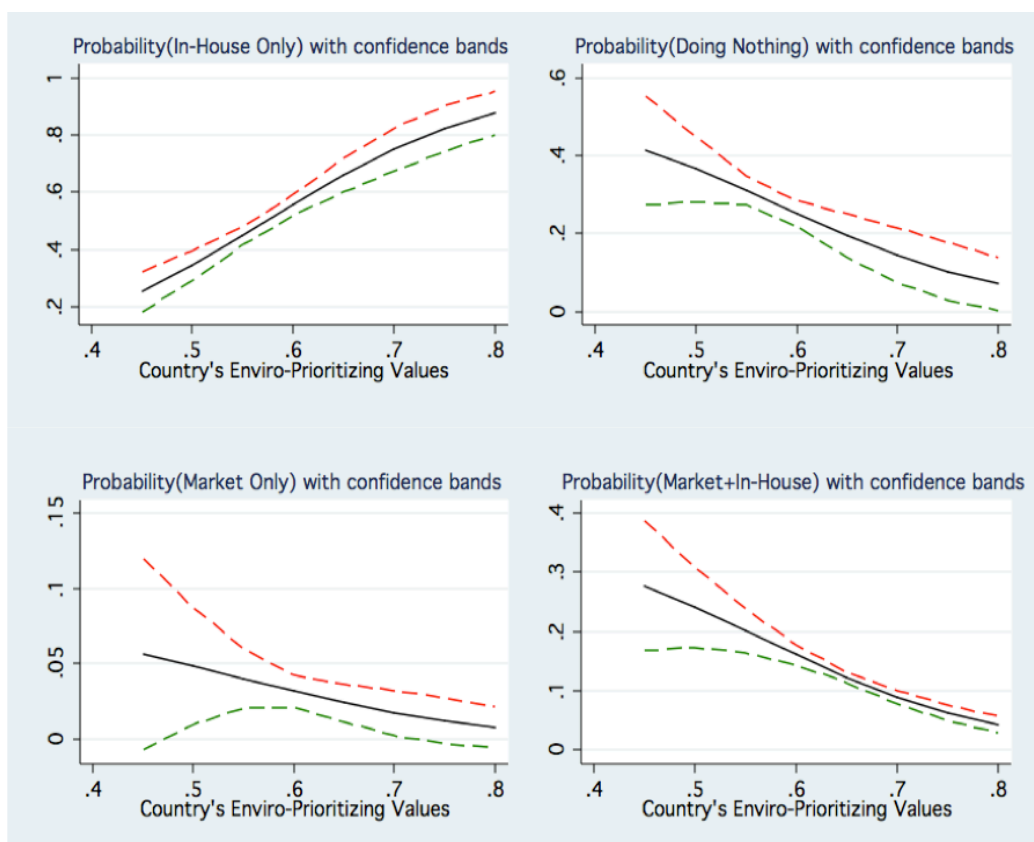
Notes: Dependent variable: Firm choice of carbon strategies, divided into four categories: participates in carbon market only, participates in both carbon market and in-house reduction, participates in in-house reduction only (base category), and doing nothing. Coefficients of multinomial logit regressions. Clustered standard errors by firm in parentheses; Significance level: * p<.10, ** p<.05, *** p<.01. (c) The corresponding variable is centered.

TABLE 4.2 - Multinomial Logit Model on Participation in Morally Contested Market and Enviro-prioritizing values

	M7			M7 (Marginal Effects)			
	Market + In-house vs. In-house only	Market Only vs. In-house only	Doing Nothing vs. In-house only	Market + In-house Only	Market Only	In-House Only	Doing Nothing
Country's Enviro-prioritizing values(c)	-8.855*** (1.084)	-9.043** (4.109)	-8.537*** (2.247)	-0.818*** (0.218)	-0.289** (0.145)	2.170*** (0.372)	-1.183*** (0.439)
Firm's Asset	0.632*** (0.222)	-1.608 (2.344)	-0.369 (0.671)	0.119*** (0.041)	-0.054 (0.078)	0.024 (0.095)	-0.088 (0.149)
Firm's No. of Employee	2.892** (1.435)	-1.408 (3.973)	-26.907*** (6.062)	1.711*** (0.357)	0.190 (0.158)	3.554*** (0.667)	-5.455*** (1.152)
Firm's Global Co2 Emissions	0.029*** (0.009)	0.004 (0.017)	0.019** (0.008)	0.003*** (0.001)	0.000 (0.000)	-0.005** (0.002)	0.002** (0.001)
Country's Environmental IGO	0.313*** (0.083)	-0.248 (0.582)	0.037 (0.102)	0.045*** (0.017)	-0.011 (0.019)	-0.029 (0.021)	-0.005 (0.018)
Country's Co2 Emission Intensity	-0.089*** (0.025)	0.060 (0.198)	0.061** (0.031)	-0.016*** (0.004)	0.002 (0.006)	-0.002 (0.008)	0.016** (0.004)
Country's GDP Per Capita	0.000*** (0.000)	-0.000 (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000 (0.000)	-0.000*** (0.000)	0.000*** (0.000)
Marginal Abatement Cost	0.021*** (0.005)	0.016*** (0.007)	-0.001 (0.007)	0.003*** (0.000)	0.002*** (0.000)	-0.002 (0.002)	-0.001 (0.001)
Weighted Carbon Market Price	-0.046 (0.030)	-0.005 (0.060)	-0.027 (0.017)	-0.005 (0.005)	-0.001 (0.002)	0.008* (0.004)	-0.003 (0.003)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	No	No	No	No	No	No	No
Constant	3.724** (1.774)	-6.498 (13.677)	-7.030*** (2.451)				
No of Observation			1855				
No of Unique Firms			752				
Log likelihood			-1856.159				

Notes: Dependent variable: Firm choice of carbon strategies, divided into four categories: participates in carbon market only, participates in both carbon market and in-house reduction, participates in in-house reduction only (base category), and doing nothing. Coefficients of multinomial logit regressions. Clustered standard errors by firm in parentheses; Significance level: * p<.10, ** p<.05, *** p<.01. (c) The corresponding variable is centered. The last four columns report the marginal effects evaluated at the sample means.

FIGURE 3 – Predicted Probabilities of Different Outcomes by Enviro-prioritizing values



Interaction Effects

Summing up, I find a strong and significant effect of the headquarters countries' environmental value on market participation, controlling for both country- and firm- level factors. To examine the mechanisms through which this effect takes place and test the moderated relationships we hypothesized in H2-4,

I including the measures for consumer orientation, sector unemployment rates, CEO educational background, as well as the interaction term between these variables with the cultural value into the following specifications. Table 5 presents these results where M3 is the baseline model using the probit model. Alternative specification using multinomial regression produces comparable results, and is presented in Appendix Table 2.1 and 2.2. The finding indicates that interaction effect for consumer orientation is present as hypothesized (M8, $p < 0.01$). Interestingly, the interaction of sector unemployment rates on market participation is negative but not significant. It means that pressures firms face in retaining employees do not necessarily enhance the cultural effect, at least not in this context.

The specification, M9, explores the interaction between cultural values and regulation. Firms with facilities that are stipulated to meet emission reduction goals are substantially more likely to engage in trading activities (M8, $p < 0.01$), and the interaction effect between regulatory compliance with cultural values is positive and significant for the comparison between market only and in-house abatement only (M8, $p < 0.01$). This result seems to suggest that the provision of regulation give incentive as well as ideological support for carbon market participation, to the extent that it crowds out the influence of cultural norms.

Next, I start to explore how cultural norms interact with social influences to shape firms' decision making. I construct three measures of peer groups,

other firms in the same country, other firms in the same industry and country, and calculate the number of market users in these two groups. I also construct board interlock data using BoardEx, and look at the number of interlocked firms that also participate market in the past year. The results for probit models are presented in Table 6. It turns out that neither the main effects nor interaction effects turned out to be significant in these models.

TABLE 5 - Probit Model on Participation on Interaction Effects

	M8	M9	M10
Country Pro-Environmental Value(c)	-3.189*** (0.537)	-3.392*** (0.651)	-2.683*** (0.715)
Firm Asset	0.030 (0.020)	0.005*** (0.002)	0.005*** (0.002)
Firm No. of Employee	2.640 (1.671)	1.917 (1.229)	3.327*** (1.159)
Firm Global Co2 Emissions	0.010*** (0.003)	0.014*** (0.005)	0.013*** (0.004)
Marginal Abatement Cost	0.009*** (0.004)	0.009*** (0.002)	0.007*** (0.002)
IGO	0.213*** (0.041)	0.154*** (0.040)	0.141*** (0.035)
CO2GDPEPI	-0.034** (0.014)	-0.040*** (0.010)	-0.043*** (0.012)
GDP Per Capita	0.006 (0.005)	0.013*** (0.004)	0.006 (0.005)
Firm Consumer Orientation(c)	0.007** (0.003)		
Country Pro-Environmental Value(c) X Firm Consumer Orientation(c)	-0.076** (0.037)		
Sector unemployment rate (c)		-0.004 (0.008)	
Country Pro-Environmental Value(c) X Sector unemployment rate (c)		-0.103 (0.105)	
CEO with an Economics Degree			0.553 (0.736)
Country Pro-Environmental Value(c) X CEO with an Economics Degree			6.469** (6.610)
Constant	0.476 (1.133)	0.639 (0.765)	1.374 (0.905)
Observations	1256	1855	1855
Log likelihood	-555.765	-456.624	-816.010

Notes: *Dependent variable:* Firm choice of carbon strategies, coded 1 if firm purchased carbon credits and 0 otherwise. Coefficients of probit regressions. Clustered standard errors

by firm in parentheses; Significance level: * p<.10, ** p<.05, *** p<.01. (c) The corresponding variable is centered.

TABLE 6 - Probit Model on Interaction Effects (Cont.)

	M11	M12	M13	M14
Country Pro-Environmental Value(c)	-2.937*** (0.493)	-1.978 (1.402)	-2.224** (0.900)	-2.683*** (0.715)
Firm Asset	0.005** (0.002)	0.005*** (0.002)	0.005*** (0.002)	0.005*** (0.002)
Firm No. of Employee	2.415* (1.310)	3.235*** (1.138)	3.253*** (1.180)	3.327*** (1.159)
Firm Global Co2 Emissions	0.008*** (0.003)	0.013*** (0.004)	0.012*** (0.004)	0.013*** (0.004)
Marginal Abatement Cost	0.008*** (0.002)	0.008** (0.003)	0.012*** (0.002)	0.007*** (0.002)
IGO	0.094** (0.039)	0.130*** (0.049)	0.194*** (0.042)	0.141*** (0.035)
CO2GDPEPI	-0.024 (0.017)	-0.047*** (0.016)	-0.044*** (0.016)	-0.043*** (0.012)
GDP Per Capita	0.007 (0.005)	0.004 (0.005)	0.005 (0.005)	0.006 (0.005)
Firm Regulatory Compliance(c)	1.002*** (0.148)			
Country Pro-Environmental Value(c) X Firm Regulatory Compliance(c)	2.499** (1.275)			
Industry Peers' Participation		-0.006 (0.006)		
Country Pro-Environmental Value(c) X Industry Peers' Participation		0.026 (0.077)		
Country Peers' Participation(c)			0.012 (0.012)	
Country Pro-Environmental Value(c) X Country Peers' Participation (c)			0.092 (0.107)	
Interlocked Firms' Participation (c)				0.553 (0.736)
Country Pro-Environmental Value(c) X Interlocked Firms' Participation (c)				0.469 (0.610)
Constant	-0.164 (1.254)	2.693* (1.600)	1.428 (1.167)	1.374 (0.905)
Observations	1855	1621	1598	1855
Log likelihood	-762.396	-755.954	-745.989	-816.010

Notes: Dependent variable: Firm choice of carbon strategies, coded 1 if firm purchased carbon credits and 0 otherwise. Coefficients of probit regressions. Clustered standard errors by firm in parentheses; Significance level: * p<.10, ** p<.05, *** p<.01. (c) The corresponding variable is centered.

Robustness Checks

One concern with the current models, is that if only some firms, a non-random sample, report their reductions. As a robustness check, I run analysis on all 3,593 firm-year observations that disclosed their carbon strategy. The dependent variable is whether a firm participates in the market for a given year, and the model is a probit model. Result of this set of analysis is reported in Table 7. A comparison of the probit estimates for market participation and the estimates presented here in this table, suggest broad similarities. In both cases, the headquarters country's enviro-prioritizing values negatively predict market participation, and the effect remains to be enhanced for when firms have a high orientation on consumers, and its CEO possesses an education background in economics or finance, and subdued when it is for non-regulated firms is in a highly enviro-prioritizing country.

TABLE 7 - Robustness Check: Selection Models

	M15	M16	M17	M18
Country's Enviro-prioritizing values	-2.816** (0.736)	-2.372** (0.861)	-2.030** (0.731)	-2.775** (0.796)
Firm's Consumer Orientation (c)		-0.007** (0.003)		
Firm's Consumer Orientation (c) X Country's Enviro-prioritizing values(c)		-0.072* (0.043)		
Firm Has Installation(s) Under EUETS Scheme			0.925** (0.129)	
Firm Has Installation(s) Under EUETS Scheme X Country's Enviro-prioritizing values(c)			2.315** (1.124)	
CEO with an Economics Degree (c)				0.734** (0.372)
CEO with an Economics Degree (c) X Country's Enviro-prioritizing values(c)				23.520** (7.581)
Country's Environmental IGOs	0.152** (0.053)	0.216** (0.069)	0.100* (0.054)	0.215** (0.060)
Country's Co2 Emission Intensity	-0.038**	-0.033	-0.022	-0.042*

	(0.019)	(0.024)	(0.019)	(0.022)
Country's GDP Per Capita	0.000	0.000	0.000	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
Firm's Asset	0.447**	2.926**	0.433**	0.432**
	(0.122)	(1.257)	(0.121)	(0.134)
Firm's No. of Employee	3.153**	2.499**	2.192**	2.776**
	(0.596)	(0.711)	(0.560)	(0.592)
Firm's Global Co2 Emissions	0.012**	0.009**	0.007**	0.012**
	(0.002)	(0.003)	(0.002)	(0.003)
Marginal Abatement Cost	0.010**	0.009**	0.007**	0.012**
	(0.003)	(0.004)	(0.003)	(0.003)
Constant	1.230	0.920	0.391	1.325
	(1.567)	(1.929)	(1.560)	(1.691)
Industry Fixed Effect (SIC 1 digit)	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
Selection Model (If Disclosure==1)				
Firm Headquarter is Co-located with the Survey Organization	0.351**	0.467**	0.355**	0.413**
	(0.057)	(0.064)	(0.056)	(0.060)
Constant	-0.679**	-0.985**	-0.679**	-0.797**
	(0.086)	(0.096)	(0.086)	(0.090)
athrho Constant	-0.371	-0.394	-0.548	-0.453
	(0.449)	(0.377)	(0.362)	(0.409)
Observations	3593	2994	3593	3202
Log likelihood	-3207.14	-2467.90	-3145.24	-2764.01
Chi-squared	132.957	114.294	144.768	127.310

Notes: *Dependent variable*: 1 if a firm participates in the carbon market and 0 otherwise. Coefficients of probit regressions. Clustered standard errors by country in parentheses; Significance level: * p<.10, ** p<.05, *** p<.01. The dependent variable in the selection model is carbon disclosure which is coded 1 if a firm responded to the CDP survey at a given year, and 0 otherwise. Industry and year fixed effects are included in the selection model and omitted from reporting. Standard errors are clustered by country and in parentheses; Significance level: * p<.10, ** p<.05, *** p<.01

The other potential problem is of unobserved omitted variable on the country- and firm- level that are correlated with the cultural values and firms' choices. To the extent that country value data is not available for later years, I cannot use country-fixed effects to deal with the issue so I include other country-level variables to partly alienate the concern. To deal with omitted variable concerns on the firm level, I run additional robustness check using another data source, collected from the carbonmarketdata.com. The data

provides more detailed information on the ways in which firms that are under the EUETS meet their emission reduction targets at the facility level. I collect information on the facilities in the ten countries during 2006-2010, and arrived at 25,754 facility-year observations in total. I construct the dependent variable as the proportion of carbon emission units that a facility surrenders at a given year that was purchased from carbon market, and run an OLS model to look at how that proportion is associated with the country values where the facility is located. As presented in Table 8, the result suggests that facilities located in enviro-prioritizing countries use less of credits purchased in the market (M1), and the effect is robust to the inclusion of year and industry fixed effects (M2). In M3 I capitalize on the fact that some firms own facilities in different countries and control for firm fixed effects, and the culture effect remains, providing some reassurance that the omitted variable concern on the firm level is less of a challenge.

**TABLE 8 - Robustness Check:
OLS Model of Proportion of Purchased Carbon Credits among Total Verified
Reduction**

	M1	M2	M3
Facility Located Country's Envir-prioritizing Values	-48.144* (25.695)	-32.144* (17.910)	-95.704** (43.926)
Facility Co2 Emissions	2.087*** (0.632)	2.470*** (0.599)	-1.687*** (0.275)
Firm Fixed Effects	No	No	Yes
Industry Fixed Effects	No	Yes	No
Year Fixed Effects	No	Yes	Yes
Sigma Constant	-31.137* (16.961)	1.433 (8.446)	31.054 (57.253)
Constant	70.165*** (10.175)	68.069*** (9.588)	50.558 (7.370)
Observations	25754	25754	4544

Log likelihood	-3.63e+04	-3.58e+04	-6522.29
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Notes: Dependent variable: the proportion of carbon credits an installation surrendered that is purchased from the carbon-offset market. Data complied from carbonmarketdata.com, and is on installation level for all firms that own one or more facilities under the EUETS scheme. Coefficients of OLS regressions. Clustered standard errors by country in parentheses; Significance level: * $p < .10$, ** $p < .05$, *** $p < .01$. The sample size dropped to 4544 in M3, as the firms that do not own facilities in multi-countries are dropped out of the sample.

CHAPTER 7: DISCUSSION

Contribution to Theory

The intersection of economics and values has been a topic of central focus in the literature on the sociology of markets. Challenging a neoclassical economic schema which idealizes a perfect market, and yet leaves legitimacy unconsidered, organizational analysts interested in markets have proposed to conceptualize markets as social constructions (Biggart and Delbridge, 2004; Fourcade and Healy, 2007). They have probed the mechanisms by which markets become culturally constituted (Callon, 1998; MacKenzie, 2006) and further, they have offered explanations of how contested commodities, such as faith, blood, sex, votes, or even life itself, are institutionalized into market exchange (Radin, 1996). Their lenses of study, however, have placed emphasis on the change of meanings during commoditization, rather than on the strategies of organizations—especially those of organizations representing in buyer's roles—that drive such cultural shifts to become not only possible, but also legitimated. This dissertation seeks to bridge this shortfall in the literature: By examining the differing choices of firms across varying cultural and institutional environments, I investigate the ways that organizational structure and strategy intersect with prevailing social norms, tipping firms' framing of institutional demands toward the economic or normative ends.

The results support the basic proposition that cultural values matter for firms' choices. When facing an economic-environmental values tradeoff, those

firms headquartered in enviro-prioritizing countries, where citizens value environmental protection more than they do economic growth, are less likely to opt into the carbon market, in spite of the economic efficiency the market offers. Adding to insights on the national institutional construct of enviro-prioritizing values lends a more comprehensive understanding of firm market decisions, as market exchange outcomes hinge not only on social relations (Granovetter, 1985; Uzzi 1996, 1997) and on power distribution (Blau, 1964; Emerson, 1976) but also on the legitimacy benefit that exchange might render (Jensen, 2006). Especially in budding markets such as the carbon market, which are characterized by significant uncertainty, firms that prescribe to the encompassing norms and expectations are more likely to obtain societal resources. Thus, by incorporating the influence of institutions, our study provides a more nuanced and complete understanding of trading decisions.

By studying the behavior of firms across ten nations' institutional environments, this paper identifies the extent to which firms are influenced by institutional pressures directly and through mediated processes, such as via customers, employees or the upper echelons of their headquarters countries. Unpacking these differences is important given that the institutional environment has been critiqued as nothing more than myth and ceremony (Meyer and Rowan, 1997), and thus this dissertation contributes to the research stream on variation in organizational response to institutions (Lounsbury, 2007; Delmas and Toffel, 2008) and the contingencies that lead organizations to respond differently to

institutional pressure (Oliver, 1991; Marquis and Toffel, 2011). In particular, this results show that values beliefs matter for firms' strategic carbon market participation decisions, through both external channels such as public image and reputation concerns, as well as internal rationales, such as CEO educational background.

This study also makes contribution to the literature on institutionalization, by teasing apart, in two ways, the sometimes puzzling effects of instrumental rationality and normative rationality that are commonly intertwined. First, we demonstrate a strong effect of normative rationality, having accounted for the instrumental gains that carbon markets renders by controlling the relative cost of emission reduction and the carbon price. Second, through studying a market in its early formation and contested stage, we reveal that a necessary condition for a practice to become successfully institutionalized, is for its instrumental and normative rationality to occupy the same domain, implying the capacity for mutually reinforcing influence. This is an understated condition behind the diffusion mode of institutionalization process. For it is only when the late adopters internalize the normative pressure from first movers as instrumental rationality of their own, the mimesis process would take effect. Similarly, this condition also provides activists, depicted in the political process mode of institutionalization, with the opportunity space to acquire and use heterogeneous bits of cultural elements and to shape the rhetoric surrounding emerging institutions as resources for their ends.

In contexts like the carbon market, where the rationale of economic efficiency is separated from normative rationality by strict moral codes (Durkheim, 2008[1912]), institutionalization is a hardwon case. Even though the practice is not short of the early movers, who were largely characterized with a number of factors (larger in size, higher in emissions levels or bear higher costs of emissions reduction), their adoption does not enhance the normative status of the carbon market. To the opposite, it marginally deterred market participation from peers. In other words, with moral appropriateness challenged, the decision of early movers to participate in an institutional project, in our case the carbon market, would not render the market mechanism an appropriate response to firms' collective corporate social responsibility toward global warming. Instead, other firms shunned, either because of inertia, a lack of incentives, or the fear of being vilified as the "paying to pollute" type. They are likely to stay away from the "tainted" carbon market, especially in combination with in-house emission reduction, and avoid the market mechanism unless otherwise stipulated. This is the process through which moral contestation can turn a promising institutional innovation into an Indian burial ground.

Lastly, the paper also speaks to the emerging literature on the contested terrain of corporate social responsibility. There are two possible reasons for the strong constraining values effects I found. One posits that the moral objections toward the carbon market are too strong for firms to evade; I suspect that this prospect runs the less true. Caney and Hepburn (2011) lay

out multiple refutes for normative objections to the carbon market, arguing persuasively that most objections are not credibly evidenced. Besides, the successful record of the acid rain market, even being much smaller in scale, indicates that a shifting of cultural attitudes toward the pollution market, given time, is indeed achievable (Levin and Espeland, 2002). The second reason, and a more plausible one, relates to the contested nature of CSR activities (Carroll, 1991). A key aspect of corporate social responsibility is dialogue with and responsibilities to diverse stakeholders that project conflicting demands and raise difficulties for companies seeking to meet those demands. The carbon market, as part of the CSR activities with a contested nature, are less liked because firms prefer to take the "cleaner" approach rather than reputation damage by immersing themselves in "muddied" waters.

Managerial and Policy Implications

The moment that values are important, active management of CSR programs and corporate communication becomes critically important. Besides, this paper has aims to arrive at implications for policy making. Anti-commoditization moral arguments are familiar, and in a lot of cases, have force. However, the design of the carbon market involves underappreciated moral dimensions, and what I have demonstrated here is that these moral charges have led to some real consequences. It has been suggested that the key answer to invigorating the carbon market lies in identifying ways to increase demand or

reduce supply of carbon credits. The Durban conference in 2013 regards the low price points of the carbon credits as an indicator of a lack of confidence in the market, and recommends to either cut back the supply of carbon allowances or to tighten emission caps, thereby enhancing the demand for allowances. But this approach is somewhat simplistic. An alternative argument, which I develop in this paper, focuses on the effect of outspoken, morals-based challenges to the carbon market.

How would the policymakers go about lifting the moral disdain toward the market mechanisms? One possible way is to stipulate a required adoption of a joint strategy for emissions reduction, reducing in house in tandem with using the carbon market. Besides, the mushrooming of local and regional emissions markets all over the world, as noted above, provides new opportunities for market mechanisms to be experimented in local regions that are less morally resistant to this idea. This allows for tailored solutions that achieve instrumental rationality locally, as a stepping stone for a system-wide cultural shift.

Morally motivated resistance to the operation of markets has profound implications with regard to the efficiency in the system as a whole (Oberholzer-Gee, 2003). History presents no shortage of cases for the economic benefits stimulated by the decoupling of economic exchange from moral constraints, including the uplifting of religious prohibitions on money-lending (Weber, 1979), the detachment of trades from privileges, and the advancement of labor markets, not to mention the postwar era rise (and continued expansion today) of

a hugely profitable life insurance industry (Zelizer, 1979). Attention to the legitimacy issues in the carbon market counsels in favor of a larger role in providing firms a means for unencumbered entry to this market instrument, with the same accessibility that the Smithian butcher, baker and brewers enjoyed.

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APPENDIX A1 -

Items From Environmental Surveys

Measure 1:

Country's Enviro-prioritizing values

Source:

WVS fourth wave.

Here are two statements people sometimes make when discussing the environment and economic growth. Which of them comes closer to your own point of view?

A. Protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs B. Economic growth and creating jobs should be the top priority, even if the environment suffers to some extent.

(1=A; 2=B; otherwise missing).

Country Coverage:

All Ten Countries

Coding:

The item is reverse coded so that strong priority for environmental protection is scored highest. Sample population weighted average of the measure is used.

Measure 2:

Country's Enviro-prioritizing values (additional items)

Source:

WVS fourth wave.

I am now going to read out some statements about the environment. For each one read out, can you tell me whether you agree strongly, agree, disagree or strongly disagree?

(a) Would give part of my income for the environment.

(b) I would agree to an increase in taxes if the extra money were used to prevent environmental pollution.

(1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree; otherwise missing)

Country Coverage:

Finland, Germany, Italy, Norway, Spain, Sweden, Switzerland

Coding:

The item is reverse coded so that strong priority for environmental protection is scored highest. Sample population weighted average of the measure is used.

Measure 3:

Country's General Environmental Concern

Source:

Aggregate of six questions from EVS 2008.

I am now going to read out some statements about the environment. For each one read out, can you tell me whether you agree strongly, agree, disagree or strongly disagree?

- (c) We are approaching the limit of the number of people the earth can support
 - (d) When humans interfere with nature it often produces disastrous consequences
 - (e) Human ingenuity will ensure that the earth remains fit to live in.
 - (f) The balance of nature is strong enough to cope with the impacts of modern industrial nations
 - (g) Humans were meant to rule over the rest of nature.
 - (h) If things continue on their present course, we will soon experience a major ecological catastrophe
- (1 = agree strongly; 2 = agree; 3 = disagree; 4 = disagree strongly)

Country Coverage:

All Ten Countries

Coding:

c, d, h are reversed coded, and the six scores are then averaged and weighted by sample population.

**APPENDIX TABLE A2.1 - Multinomial
Logit Model on Interaction Effects**

	A1		A2	
	Market + In-house vs. In- house only	Market Only vs. In-house only	Market + In-house vs. In- house only	Market Only vs. In- house only
Country's Enviro-prioritizing values(c)	-7.835*** (0.806)	-10.575** (4.186)	-9.491*** (1.770)	-7.560* (4.283)
Firm's Consumer Orientation (c)			-0.016* (0.008)	-0.009 (0.006)
Firm's Consumer Orientation (c) X Country's Enviro-prioritizing values(c)			-0.338*** (0.130)	-0.373*** (0.144)
Firm's Asset	0.689*** (0.260)	-1.793 (2.458)	2.207 (3.490)	-13.105*** (2.462)
Firm's No. of Employee	3.348** (1.400)	-2.199 (3.915)	3.209 (2.731)	1.418 (2.316)
Firm's Global Co2 Emissions	0.031*** (0.009)	0.001 (0.019)	0.024*** (0.006)	-0.004 (0.026)
Country's Environmental IGOs	0.306*** (0.074)	-0.130 (0.399)	0.463*** (0.083)	-0.573 (0.470)
Country's Co2 Emission Intensity	-0.066** (0.028)	0.005 (0.148)	-0.039 (0.038)	0.116 (0.156)
Country's GDP Per Capita	0.000*** (0.000)	0.000 (0.000)	0.000*** (0.000)	-0.000 (0.000)
Marginal Abatement Cost	0.018*** (0.005)	0.019 (0.016)	0.017* (0.009)	0.016 (0.016)
Industry Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
Constant	0.117 (2.176)	-1.969 (10.783)	-2.301 (2.745)	-6.711 (10.600)
Observations		1855		1256
No of Unique Firms		752		516
Log likelihood		-1777.600		-1147.003

Notes: Dependent variable: Firm choice of carbon strategies, divided into four categories: participates in carbon market only, participates in both carbon market and in-house reduction, participates in in-house reduction only (base category), and doing nothing (omitted from reporting). Coefficients of multinomial logit regressions. Clustered standard errors by firm in parentheses; Significance level: * p<.10, ** p<.05, *** p<.01. (c) The corresponding variable is centered.

**APPENDIX TABLE A2.2 - Multinomial
Logit Model on Interaction Effects**

	A3		A4	
	Market + In-house vs. In- house only	Market Only vs. In-house only	Market + In-house vs. In- house only	Market Only vs. In- house only
Country's Enviro-prioritizing values(c)	-6.045*** (1.176)	-8.289* (4.237)	-8.327*** (1.011)	-10.599*** (4.062)
Sector Unemployment Rate (c)	-0.008 (0.013)	-0.045* (0.027)		
Sector Unemployment Rate (c)	-0.132 (0.219)	-0.095 (0.260)		
X Country's Enviro-prioritizing values(c)				
Firm Has Installation(s) Under EUETS			1.548*** (0.255)	1.006*** (0.256)
Firm Has Installation(s) Under EUETS			4.540 (2.767)	10.277*** (2.930)
X Country's Enviro-prioritizing values(c)				
Firm's Asset	0.860*** (0.288)	-0.806 (1.386)	0.669** (0.290)	-1.753 (2.333)
Firm's No. of Employee	2.179 (1.807)	2.586 (2.955)	2.326 (1.514)	-2.748 (4.235)
Firm's Global Co2 Emissions	0.026*** (0.010)	0.006 (0.012)	0.021*** (0.007)	-0.003 (0.018)
Country's Environmental IGOs	0.286*** (0.094)	-1.445*** (0.407)	0.241*** (0.081)	-0.187 (0.356)
Country's Co2 Emission Intensity	-0.073** (0.033)	0.427** (0.206)	-0.043 (0.035)	0.021 (0.141)
Country's GDP Per Capita	0.000*** (0.000)	-0.000*** (0.000)	0.000*** (0.000)	0.000 (0.000)
Marginal Abatement Cost	0.014*** (0.004)	0.001 (0.015)	0.015*** (0.005)	0.013 (0.016)
Industry Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
Constant	0.790 (2.347)	-26.129* (14.627)	-1.480 (2.690)	-3.048 (10.698)
Observations		934		1855
No of Unique Firms		344		752
Log likelihood		-848.484		-1712.990

Notes: Dependent variable: Firm choice of carbon strategies, divided into four categories: participates in carbon market only, participates in both carbon market and in-house reduction, participates in in-house reduction only (base category), and doing nothing (omitted from reporting). Coefficients of multinomial logit regressions. Clustered standard errors by firm in parentheses; Significance level: * p<.10, ** p<.05, *** p<.01. (c) The corresponding variable is centered.